

US EPA ARCHIVE DOCUMENT



VAPOR MITIGATION AS-BUILT SPECIFICATIONS

411 HOLLOVY STREET
ATTICA, INDIANA

Prepared for:
KRAFT FOODS GLOBAL, INC.

SEPTEMBER 23, 2010
REVISION (0)
REFERENCE No. 019190

Prepared by:
**Conestoga-Rovers
& Associates**

6520 Corporate Drive
Indianapolis, IN 46278

Office: (317) 291-7007
Fax: (317) 328-2666

web: <http://www.CRAworld.com>

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
411 HOLLOVY STREET
ATTICA, INDIANA**

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**SYSTEM SPECIFICATIONS
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**SYSTEM SPECIFICATIONS
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1.0 PIPING INSTALLATION REQUIREMENTS

1. All vent stack piping will be solid, 4-inch inside diameter (ID) rigid pipe.
2. All manifold and suction point piping will be rigid pipe not less than 4-inch ID.
3. All pipe joints and connections in vapor intrusion (VI) systems, both interior and exterior, will be sealed permanently. Exceptions include installation of radon fans.
4. VI system piping installed in the interior or on the exterior of a building, will be insulated where condensation on the pipe's exterior may drip onto and damage ceilings and floors, etc., and where water vapor, from the soil, may condense inside the pipe, and then freeze partially or fully blocking the soil gas exhaust.
5. VI piping will be fastened to the structure of the building with hangers, strapping, or other supports that will secure it adequately.
6. VI piping will not be attached to or supported by existing pipes, ducts, conduits, or any kind of equipment.
7. VI piping will not block window and doors or access to installed equipment.
8. Vertical runs will be secured either above or below the points of penetration through floors, ceilings, and roofs, or at least every 8 feet on runs that do not penetrate floors, ceilings, or roofs.
9. Horizontal runs in VI system piping will be sloped to ensure that water from rain or condensation drains downward into the ground beneath the slab.
10. To reduce the risk of vent stack blockage due to heavy snowfall, to reduce the potential for re-entrainment of vapor into the living spaces of a building, and to prevent direct exposure of individuals outside of buildings, the discharge from vent stack pipes of active soil depressurization systems will meet the following minimum requirements.

The discharge from vent stacks pipes will be:

- Vertical and upward, outside the structure, at least 10 feet above the ground level, above the edge of the roof, and will also meet the separation requirements. Whenever practicable, they will be above the highest roof of the buildings and above the highest ridge.
- Ten feet or more away from any window, door, or other opening into conditioned or otherwise occupiable spaces of the structure, if the discharge point is not at least 2 feet above the top of such openings.

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- Ten feet or more away from any opening into the conditioned or other occupiable spaces of an adjacent building. Chimney flues will be considered openings into conditioned or otherwise occupiable space.
- For vent stack pipes that penetrate the roof, the point of discharge will be at least 12 inches above the surface of the roof.
- Points of discharge that are not in a direct line of sight from openings into conditioned or otherwise occupiable space because of intervening objects, such as dormers, chimneys, windows around the corner, etc. will meet the separation requirements.

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2.0 VAPOR INTRUSION BLOWER INSTALLATION REQUIREMENTS

1. Contractor will install a FanTech HP220 for this application.
2. Blower will be installed inside the building attic, outside of occupiable space, and above the conditioned spaces of a building. Blower location is chosen to minimize the risk of vapor entry into living spaces which could result from leaks in fan housing or in the vent stack piping above the fan.
3. Blower will be installed in a configuration that avoids condensation buildup in the blower housing.
4. Blower will be mounted and secured in a manner that minimizes transfer of vibration to the structural framing of the building.
5. To facilitate maintenance and future replacement, blower will be installed in the vent pipe using removable couplings or flexible connections that can be tightly secured to both the fan and the vent pipe.

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3.0 GENERAL SEALING REQUIREMENTS

1. Openings around the suction point piping penetrations of the slab, accessible openings around utility penetrations of the slab, accessible openings around utility penetrations of the foundation walls and slab, and other openings in slabs will be sealed using urethane caulk or equivalent material. When the joint is greater than 1/2 inch in width, a foam backer rod or other comparable filler material will be inserted into the joint before the application of the sealant.

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4.0 ACTIVE SUB-SLAB DEPRESSURIZATION (SSD) REQUIREMENTS

1. To enhance pressure field extension, excavate as much as 1 ft³ of sub-slab material around each suction point pipe. The end of the suction point pipe will have an excavated hole, at least one pipe diameter deep, directly below it. This hole will be backfilled with pea gravel to support the suction pipe.

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5.0 SUBMEMBRANE DEPRESSURIZATION (SMD) REQUIREMENTS

This section is not applicable.

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6.0 ELECTRICAL REQUIREMENTS

1. All mitigation system electrical components will be UL listed.
2. Wiring will not be located inside the VI system piping or within any other heating or cooling ductwork.
3. Any plugged cord used to supply power to a VI fan will be no more than 6 feet in length.
4. No plugged cord may penetrate a wall or be concealed within a wall.
5. A disconnecting means is a switch, a plugged cord, or a branch circuit overcurrent device.
 - A disconnecting means will be present in the electric circuit powering VI fans.
 - The disconnecting means will be located within sight of the VI fan.
 - Operation of the VI fan's disconnecting means must not interrupt the power to other electrical devices in the dwelling.
6. Flexible plugged cords, properly rated for electrical capacity and weather, will be used on VI fans inside or outside the building. These flexible plugged cords may also serve as a disconnecting means inside or outside the building.
7. Fan, cords, plugs, receptacles, receptacle enclosures, switches, switch enclosures, etc., intended for outside use must have a weatherproof and unattended use rating, and are different than what is generally used inside the building.
8. A hard-wired electrical connection (with a disconnect switch) will be installed outdoors.

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7.0 MATERIALS

1. As a minimum, all plastic VI system piping in depressurization systems will be made of Schedule 40 PVC piping material.
2. Fittings used in VI system piping will be of the same material as the piping itself. This material compatibility enables the required cementing of all piping connections. However, when mounting fans and when making removable connections which facilitate sump pit maintenance, rubber couplings suitable for use in sanitary sewer systems will be used instead of cemented pipe joints.
3. The plastic pipe cleaner and cement will be compatible with the kind of plastic in the VI system piping and will be used as recommended by its manufacturer.
4. When sealing holes for plumbing rough-in or other large openings in slabs and foundation walls that are below the ground surface, non-shrink mortar, grouts, expanding foam, or similar materials designed for such application will be used.

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8.0 MONITORING AND LABELING

1. The system will include a RadonAway Checkpoint IIa alarm mechanism that will provide a visual and audible indication of system degradation and failure.
 - The alarm mechanism will be located where it is easily seen and heard.
 - The RadonAway Checkpoint IIa alarm mechanism is capable of having its calibration quickly verified on site.
 - The RadonAway Checkpoint IIa alarm mechanism is powered by house current, it shall be installed on a nonswitched circuit and be designed to reset automatically after a power failure.
2. The system vacuum monitor will consist of a mechanical monitor such as a U-tube manometer with readout.
3. Mechanical VI mitigation system monitors will be clearly marked to indicate the initial pressure readings.
4. VI system description label will be placed on the mitigation system, the electric service entrance panel, or other prominent location.
 - This label will be legible from a distance of at least 3 ft.
 - This label will display the following information: the words "VI Mitigation System-Do Not Alter or Disconnect", the installer's name and phone number, the date of installation.
 - A label will be affixed to the electric circuit box stating "VI System Circuit Do Not Disconnect".
 - Labels will be placed on the soil ventilation piping in prominent areas stating "Soil Ventilation Pipe Not for Plumbing or Other Use" or similar.
5. The circuit breaker(s) controlling the circuits on which the fan and system failure warning devices operate will be labeled using the words "Vapor Intrusion", or if two circuits, "VI Fan", and "VI Monitor". If other rooms and appliances are on the circuit, they should also be shown on the label.

**SYSTEM SPECIFICATIONS
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9.0 OTHER SPECIFICATIONS

This section is not applicable.

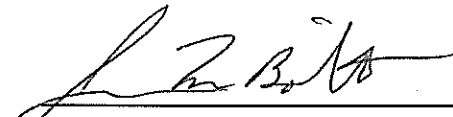
**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
411 HOLLOVY STREET
ATTICA, INDIANA**

10.0 SIGNATURES/APPROVALS

10.1 DESIGN APPROVALS

This design was completed, reviewed, and approved by the individuals below.

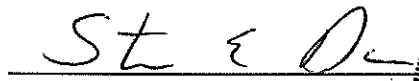
By:

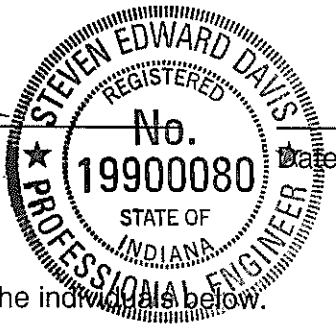

Preparer's Signature

06-03-10
Date


Project Manager's Signature

6/3/10
Date

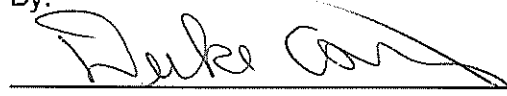

Engineer's Signature/Seal



6/3/10
Date

This design was reviewed by the individuals below.

By:


Contractor Representative's Signature

6/3/10
Date

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
411 HOLLOVY STREET
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10.2 CONSTRUCTION APPROVALS

I have completed the inspection of the VI mitigation system and certify that the installation was completed in accordance with the approved design specifications and any approved modifications thereto.

By:

St E Dan

CRA CQA Inspector's Signature

9/23/10

Date

Tom Burt

Contractor's Representative's Signature

9-23-10

Date

St E Dan

Engineer's Signature/Seal

9-24-10

Date



ATTACHMENT A

RESIDENTIAL INSPECTION FORM



**CONESTOGA-ROVERS
& ASSOCIATES**

6520 Corporate Drive
Indianapolis, Indiana 46278
Telephone: (317) 291-7007 Fax: (317) 328-2666
www.CRAworld.com

RESIDENTIAL INSPECTION FORM

Preparer's Name: J. Bolint Date: 05-04-10
Site Address: 411 Hollox

Part I - Occupants

List of Current Occupants/Occupation (include children)

Name	Age	Address: (Lot # or apt. #)	Sex (M/F)	Occupation	Basement Occupancy (Yes/No)	Attic Occupancy (Yes/No)

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial / other

Describe building: Single story on slab Year constructed: _____

Number of floors at or above grade: 1

Number of floors below grade: 0 (full basement / crawl space / partial basement / partial crawlspace / slab on grade)

Depth of basement below grade surface: NA ft Basement size: NA ft²

Basement floor construction: concrete / soil / slab / stone / other (specify): NA

Describe further as appropriate: _____

Foundation walls: poured concrete / cinder blocks / stone / bricks / other (specify): _____

Basement sump present? ~~Yes / No~~ Sump pump? ~~Yes / No~~ Water in sump? ~~Yes / No~~

Basement floor drains present? ~~Yes / No~~ Water in drain? ~~Yes / No~~

Significant cracks present in basement floor? Yes / No Describe: _____

Significant cracks present in basement walls? ~~Yes / No~~ Describe: _____

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? ~~Yes / No~~

Is there a whole house fan? Yes / No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify) _____

Sub-slab vapor/moisture barrier in place? Yes / No / Don't know

Type of barrier: _____

Type of heating system (circle all that apply):

hot air circulation

hot air radiation

wood stove

steam radiation

heat pump

hot water radiation

kerosene heater

electric baseboard

central air conditioning

fireplace

other (specify): _____

Type of fuel utilized for heating system (circle all that apply):

Natural gas / electric / fuel oil / wood / coal / solar / kerosene / other (specify): _____

Type of fuel utilized for water heater:

Natural gas / electric

Backdrafting test conducted on non-electric appliances: Yes / No / Not Applicable

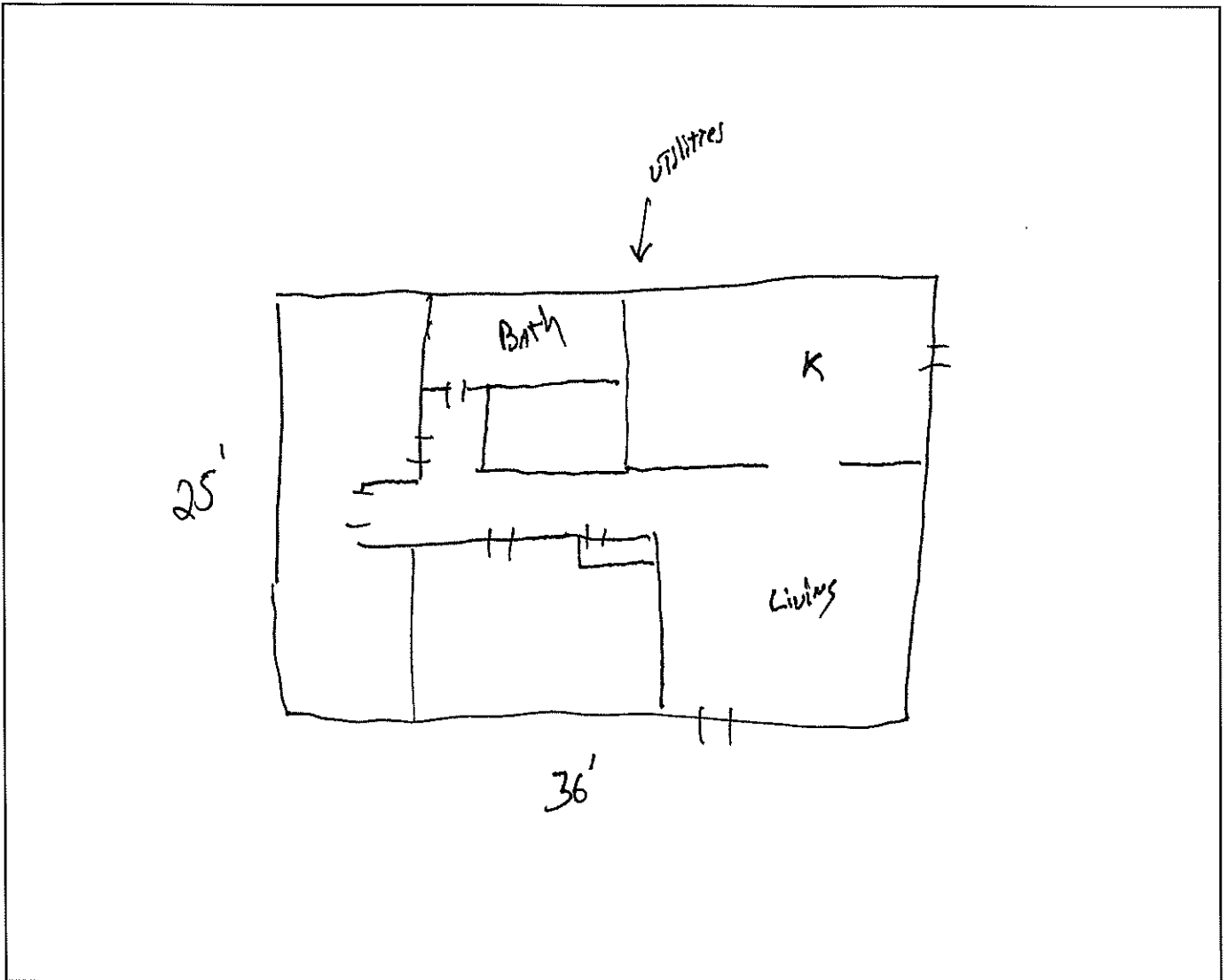
List appliances tested and observations: _____

Are utility penetrations present through basement walls, foundation walls, and floors of houses with crawlspaces? Yes / No Describe:


Elec, water

Describe any other potential vapor diffusion routes observed (e.g., old coal chutes through basement walls, etc.)


Provide Drawing of the lowest floor of the building



Provide Drawing of the main floor of the building

A large rectangular box with a black border, intended for a drawing of the main floor of the building. In the center of the box, the letters "NA" are handwritten in black ink.

Provide Drawing of the second floor of the building, if present

A large, empty rectangular box with a thin black border, intended for a drawing of the second floor. In the center of the box, the letters "NA" are handwritten in a cursive, dark ink.

Part III - Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room) at the time of inspection.

Potential Sources	Location (s)
Gasoline storage cans	<i>NO</i>
Gas-powered equipment (mowers, etc)	<i>NO</i>
Kerosene storage cans	<i>NO</i>
Paints / thinners / strippers	<i>NO</i>
Cleaning solvents	<i>NO</i>
Moth balls	<i>NO</i>
Insecticides	<i>NO</i>
New furniture / upholstery	<i>NO</i>
New carpeting / flooring	<i>NO</i>
Hobbies - glues, paints, lacquers, photographic darkroom chemicals, etc.	<i>NO</i>
Other (specify):	

Part IV - Miscellaneous Items

Do any of the occupants of the building smoke? Yes / No

Does the building have an attached garage directly connected to living space? Yes / No

If so, is a car usually parked in the garage? ~~Yes~~ / No

Are gas-powered equipment or cans of gasoline/fuels stored in the garage? ~~Yes~~ / No

Do the occupants of the building have their clothes dry cleaned? Yes / No

If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry cleaned garment brought home? _____

Do any of the occupants use solvents in work? Yes / No

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Yes / No

Has there ever been a fire in the building? Yes / No If yes, when? _____

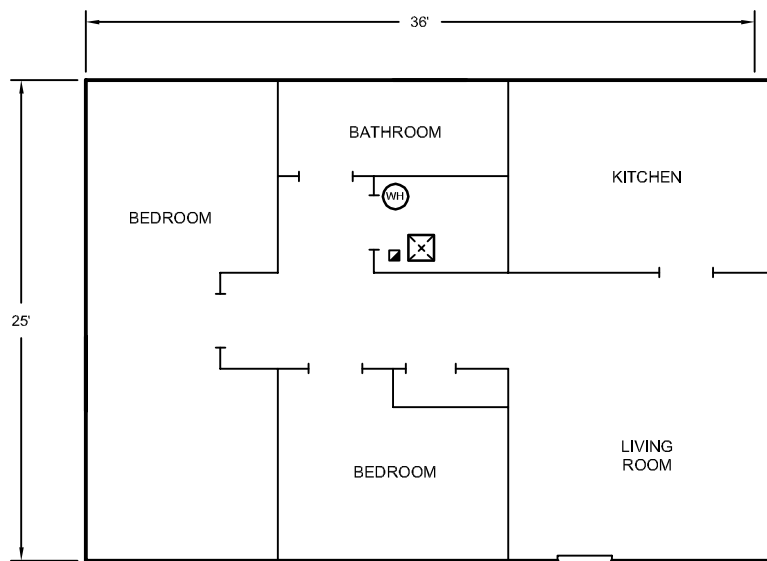
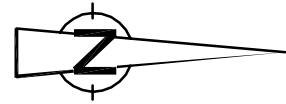
Has painting or staining been done in the building in the last 6 months? Yes / No

If yes, when? _____ and where? _____

Other Observations:




ATTACHMENT B

SITE PLAN



HOLLOVY STREET

LEGEND

-  INTERIOR MOUNTED RADON FAN
-  WATER HEATER
-  SUB SLAB EXTRACTION POINT

NOTES

FAN WILL BE INSTALLED IN ATTIC



VAPOR INTRUSION MITIGATION SYSTEM DESIGN
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ATTACHMENT C

TYPICAL SYSTEM DRAWING

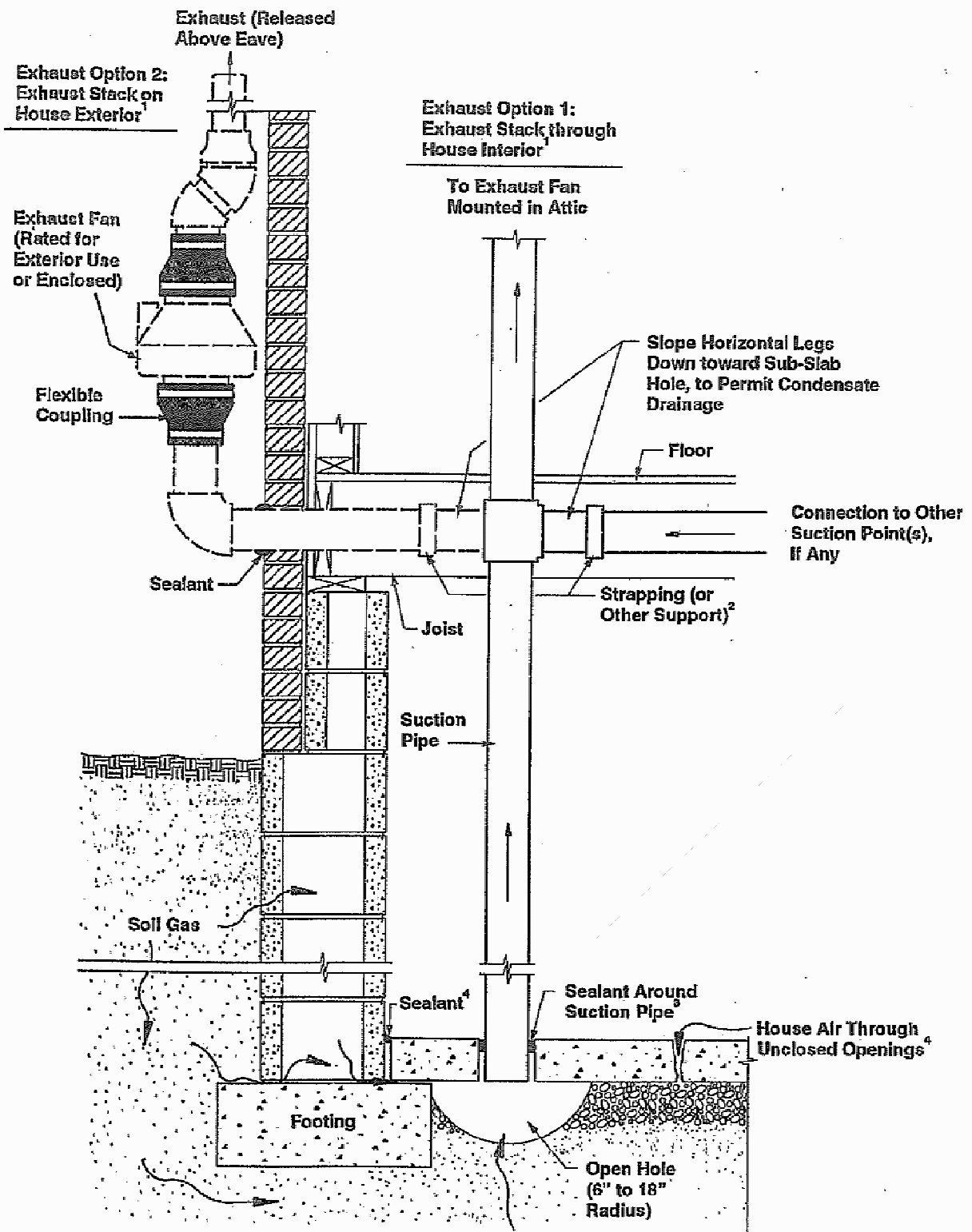


figure GS-1

TYPICAL SUBSLAB DEPRESSURIZATION (SSD) SYSTEM Attica, Indiana



REFERENCE: EPA/625/R-93/011

19190-01(034)GN-WA003 JAN 20/2010

ATTACHMENT D

SITE PHOTOGRAPHS BEFORE SYSTEM CONSTRUCTION



Photo 1 – Front of residence



Photo 2 – Family room and kitchen entrance (carpet and tile floors)

SITE PHOTOGRAPHS



Photo 3 – Kitchen (tile floor)



Photo 4 – Bedroom (carpet floor – baseboard heat)

SITE PHOTOGRAPHS



Photo 5 – Bedroom (carpet floor and baseboard heat)

SITE PHOTOGRAPHS

ATTACHMENT E

MATERIAL SPECIFICATIONS AND MSDS

**LIST OF MATERIAL SPECIFICATIONS AND MSDS
411 HOLLOVY STREET
ATTICA, INDIANA**

<i>Component</i>	<i>Product Code</i>
Caulk	NuFlex 110 Gutter Seal
Fan	Fantech HP220
Foam Applicator Cleaning Agent	TriggerFoam Cleaner
Foam Sealant	Power Fasteners PowerFoam and TriggerFoam
Pipe Cement	WELD-ON 717
Pipe Insulation	Armaflex AF-424
Roofing Sealant	Geocel 3300
System Alarm	RadonAway Checkpoint IIa
Vent Cap	RC40-4

110 Butyl Rubber Gutter Seal



SPECIALTY SEALANTS TECHNICAL DATA SHEET

Page 1 of 2

NuFlex® 110 Butyl Rubber Caulk and Gutter Seal is a single component, "solvent release" butyl, designed to provide excellent exterior weathering properties. **NuFlex® 110** is formulated for use on many dissimilar building surfaces. It is our best narrow-bead sealant. Ideal for sealing gutter down spouts, metal storm windows, doors and lap joints. It adheres well to damp surfaces.

FEATURES & TYPICAL USES:

NuFlex® 110 is for use in areas where a sealant of more resiliency than ordinary caulk is required. Principal use is to seal narrow seams. **NuFlex® 110** is excellent under shower tracks or metal thresholds and other exterior building materials. **NuFlex® 110** can be used successfully on metal, glass, wood, brick, stone, masonry and paint to prevent the passage of air and moisture through narrow openings, whether the construction materials are similar or dissimilar. **NuFlex® 110** is not recommended where joints will have extreme movement or where openings are over 9.5 mm (3/8") wide.

Easy application:	NuFlex® 110 can be easily applied with standard caulking guns or power caulking equipment.
Exceptional adhesion:	NuFlex® 110 adheres well to most exterior sealing applications.
High durability:	NuFlex® 110 will not crack and is resistant to sunlight, ozone, water, vapour transmission, cleaning chemicals and weathering.
Good stretch recovery:	NuFlex® 110 will recover 70% of 100% elongation.
Extensive flexibility:	NuFlex® 110 remains flexible over an extreme temperature range.
Optional painting:	NuFlex® 110 forms a skin within 24 hours. Painting is unnecessary, but if desired, can be done after NuFlex® 110 has cured for one week. NuFlex® 110 is non-staining, with no discoloration.

SURFACE PREPARATION & APPLICATION:

The surface to be caulked should be sound, clean and dry, and be free of oil, grease, rust, corrosion or loose paint. A Primer may be required for certain surfaces. **NuFlex® 110** should not be applied when temperature is 4°C (40°F) or less. **NuFlex® 110** should be at room temperature when applied. If the sealant has been stored in a cool area, place in a heated room for several hours before using. Cut tip off cartridge just above threads, cut tip of nozzle to desired bead size and attach to cartridge. Insert cartridge into standard caulking gun to apply, or use any power equipment for normal caulking compounds or sealants. This product may be smoothed with a knife dipped in mineral spirits or water. Clean tools with mineral spirits or paint thinner. Care should be exercised when using **NuFlex® 110** on certain types of plastic, as crazing might result.

CAUTION:

Use in well ventilated areas and avoid breathing vapors. On contact, uncured sealant irritates eyes. Flush eyes with lukewarm water. Call physician. Avoid skin contact and do not ingest. Consult the Material Safety Data Sheet. Combustible, keep away from heat and open flame. **Keep out of reach of children.**

SHELF-LIFE & STORAGE:

Shelf-life is 12 months from date of shipment from our plant when stored in a clean, dry area with temperatures between 18°C to 43°C (65°F to 110°F). Avoid repeated freeze/thaw of **NuFlex® 110** while still in the cartridge. For best results, keep the sealant in tightly closed containers when not in use.

MANUFACTURED BY:

NUCO INC.	T:	519.823.4994	TF:	1.800.853.3984
150 Curtis Drive	F:	519.823.1099	E:	sales@nucoinc.com
Guelph, ON N1K 1N5				



FORM: 110_TDS.DOC

REV.: 3 DATE: 05/08



FEATURES:

- Skinning butyl rubber.
- Exterior / interior use.
- Adheres to many dissimilar building materials.
- The ideal exterior weathering sealant.

AVAILABLE SIZES & COLOUR:

- 300 mL (10.1 fl.oz.) cartridge
- 12 cartridges per case
- 144 cases per skid
- Available in larger sizes*
- Available colors include: white, grey, and black.
- *Special order items may require lead times and minimum order quantities.



www.NuFlex.com

110 Butyl Rubber Gutter Seal



SPECIALTY SEALANTS TECHNICAL DATA SHEET

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SPECIFICATIONS:

NuFlex® 110 meets:

- CGSB 19-GP-14
- ASTM C-1311
- U.S. Federal Spec TT-S-001657, Type 1, TT-C-05 98C, TTC-1796A,
- AAMA 808.3.

WARRANTY INFORMATION:

NUCO Inc., warrants only that its product will meet its specifications. NUCO shall in no event be liable for incidental or consequential damage. NUCO's liability, expressed or implied is limited to the stated selling price of any goods found to be defective.

TYPICAL PROPERTIES:

These values are not intended for use in preparing specifications. Spec Writers; please contact NUCO Inc. before writing specifications if any further information is required.

Description	Specification
As Supplied	
Specific Gravity:	1.32
% Solid:	80% minimum
Flash Point:	40°C (105°F)
Slump Resistance – (ASTM D2202):	Pass
Application Temperature Range – (ASTM 603):	4°C to 49°C (40°F to 120°F)
Tack-Free Time – (ASTM D2377):	2 hours
Cure Time:	21 days, solvent release
As Cured	
Joint Movement:	± 7.5%
Weight per gallon – (ASTM D1475):	11.0 lbs
Volume Shrinkage – (ASTM C1241):	20% maximum
Staining – (ASTM D2203):	Pass
Service Temperature Range – (ASTM C1299):	-29°C to 93°C (-20°F to 200°F)

DISCLOSURE

The information and data contained herein is BASED ON INFORMATION WE BELIEVE TO BE RELIABLE. Please read all statements, recommendations or suggestions herein in conjunction with our CONDITIONS OF SALE which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions, nor do we intend them as recommendation for any use which would infringe any patent or copyright.

MANUFACTURED BY:

NUCO INC. T: 519.823.4994 TF: 1.800.853.3984
150 Curtis Drive F: 519.823.1099 E: sales@nucoinc.com
Guelph, ON N1K 1N5



FORM: 110_TDS.DOC

REV.: 3 DATE: 05/08



www.NuFlex.com

MATERIAL SAFETY DATA SHEET

SECTION 01 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

Chemical Name: **NUFLEX® 110 GUTTER SEAL, BUTYL RUBBER SEALANT**

Manufacturer: **NUCO INC.**
 150 Curtis Drive
 Guelph, Ontario N1K 1N5
 Tel: (519)-823-4994
 Fax: (519)-823-1099
 Infotrac 24 Hour Emergency Tel: (800)-535-5053

Date: July 1, 2008

Prepared by: Technical Services Department

WHMIS Classification: B3, D2B

Product Use: Caulking compound

SECTION 02 – COMPOSITION / INFORMATION ON INGREDIENTS:

Ingredients	CAS No.	%	LD50(Oral-rat)	LC50(Inhalation-rat)
Mineral Spirits	8052-41-3	10.0 – 30.0	Not available	Not available

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555 or 29 CFR 1910.1200

SECTION 03 – HAZARDS IDENTIFICATION:

ROUTES OF ENTRY INTO THE BODY (ACUTE EFFECTS):

Eyes: Direct contact may cause mild irritation.

Skin: May cause slight irritation. Symptoms may include localized redness, swelling and itching.

Inhalation: Irritates respiratory passages very slightly. Overexposure may cause upper respiratory tract irritation, headache, dizziness, drowsiness, and slowed reaction time.

Ingestion: Low ingestion hazard in normal use. Irritation may cause abdominal pain, nausea, diarrhea and vomiting.

WHMIS HAZARD SYMBOL(S):



SECTION 04 - FIRST AID MEASURES:

Eyes: Flush with copious quantities of lukewarm water. Do not attempt to physically remove the solids or gums from the eye. Seek medical attention immediately.

Skin: Remove contaminated clothing. Wash thoroughly with warm water and non-abrasive soap. Seek medical attention if you feel ill or a reaction develops.

Inhalation: Remove to fresh air and provide water. Seek medical attention if you feel ill or a reaction develops.

Ingestion: Get medical attention.

SECTION 05 - FIRE FIGHTING MEASURES:

Flammable Conditions: Avoid direct sources of heat or ignition in uncured state. Solvent vapors are heavier than air and may travel along the ground and be ignited by sources distant from handling points.

Extinguishing Media: Carbon dioxide, dry chemical, water fog or foam. Water can be used to cool fire exposed containers.

Fire Fighting Measures: Treat as a Class "B" fire. Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving

Flash Point:	chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan.
Flammability Limits:	Closed cup 106°F (41°C)
	Lower Explosion Limit - 0.5% by volume
	Upper Explosion Limit - 6.0% by volume
Autoignition Temperature:	490°F (254°C)
Hazardous Decomposition Products:	Carbon oxides, aldehydes and traces of incompletely burned carbon products.
Sensitivity - Impact:	Not available
Static:	Not available

SECTION 06 – ACCIDENTAL RELEASE MEASURES:

Containment / Clean Up:	Restrict access to the area of the spill. Provide ventilation, NIOSH / MSHA approved respirator and protective clothing. Scrape up caulk and place in container for disposal. Cleaning may require steam or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup.
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SECTION 07 – HANDLING AND STORAGE:

Handling and Storage:	Store in an adequately ventilated area under dry conditions between 50°F (10°C) to 77°F (25°C) and keep container tightly sealed when not in use. Use only in well ventilated area. Containers may retain product residues and vapors.
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SECTION 08 – EXPOSURE CONTROL / PERSONAL PROTECTION:

Component Exposure Limits:	<u>Mineral Spirits (CAS# 8052-41-3):</u> Provide adequate ventilation to control exposures within the following exposure guidelines: ACGIH TLV: 100 ppm, OSHA PEL: 500 ppm.
Respiratory:	Wear an organic vapor NIOSH / MSHA approved respirator.
Ventilation:	In indoor applications, passive ventilation (opening of doors and windows) is recommended. Local exhaust as necessary to keep exposure levels within guidelines.
Personal Protective Equipment:	Safety glasses with side-protection, impermeable gloves (e.g., neoprene, nitrile, silver shield (R)), coveralls or apron are important in preventing contamination of eyes, skin and clothing. Wash thoroughly after handling.

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Paste, various colors
Odor and Appearance:	Solvent odor, thixotropic caulk
Odor Threshold:	Not available
Specific Gravity:	1.32
Vapor Pressure:	5 mm Hg @ 78°F (26°C)
Vapor Density:	5.0
Evaporation Rate:	0.12
Boiling Point:	352°F (178°C)
Freezing Point:	Not available
pH:	Not available
Coeff. Oil/Water Distribution:	Not available

SECTION 10 – STABILITY AND REACTIVITY:

Chemical Stability:	Stable
Incompatible Materials:	Strong oxidizing agents
Reactive Conditions:	Incompatible materials.
Hazardous Polymerization:	Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION:

Effects of overexposure:	Prolonged and repeated skin contact may cause dermatitis or aggravate pre-existing skin disorders. Inhalation of high vapor concentration or ingestion may cause headache, vomiting, dizziness and nausea.
Sensitization:	No known applicable information.
Carcinogenicity:	No ingredients considered by IARC, NTP or OSHA to be carcinogens.

Reproductive Toxicity:	No known applicable information.
Teratogenicity:	No known applicable information.
Mutagenicity:	No known applicable information.
Synergistic Products:	No known applicable information.

SECTION 12 – ECOLOGICAL INFORMATION:

Air:	Complete information is not yet available.
Water:	Complete information is not yet available.
Soil:	Complete information is not yet available.

SECTION 13 – DISPOSAL CONSIDERATIONS:

Waste Disposal:	Dispose in accordance with Federal, State / Provincial and local regulations. Under RCRA 40 CFR 261 deemed to be a hazardous waste due to ignitability.
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SECTION 14 - TRANSPORT INFORMATION:

Shipping Information:	DOT PROPER SHIPPING NAME: Adhesive containing Flammable Liquid. DOT HAZARD CLASS: UN 1133 IDENTIFICATION NO.: NMFC Item No. 149610 TDG CLASSIFICATION: Class 3.3, Packing Group III (General Exemption 1.33 for Domestic Shipments).
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SECTION 15 - REGULATORY INFORMATION:

TSCA Inventory Status:	Chemical components listed on TSCA inventory except as exempted.
NFPA Profile:	Health 1, Flammability 2, Reactivity 0
SARA TITLE III Chemical Listings:	Section 302 Extremely Hazardous Substances (40 CFR 355): None Section 304 CERCLA Hazardous Substances (40 CFR 302): None Section 311/312 Hazard Class (40 CFR 370): Acute: Yes; Chronic: Yes; Fire: Yes; Pressure: No; Reactive: No Section 313 Toxic Chemicals (40 CFR 372): None present or none present in reportable quantities.
State Substance List:	This product contains a listed substance(s) that appears on one or more of the Substance Lists for Pennsylvania, Massachusetts and New Jersey: mineral spirits (CAS# 8052-41-3).
California Proposition 65 List:	No known applicable information.
Volatile Organic Content:	248 grams per liter (2.07 lb/gallon), 18.79% by weight (CARB Method 310).
Domestic Substance List:	Chemical components listed on DSL except as exempted.

SECTION 16 - OTHER INFORMATION:

The information herein is given in good faith, but no warranty, express or implied, is made. Product users should make independent judgements of the suitability of this information to ensure proper use and to protect the health and safety of employees.

Form: MSDSNUFLEX110BGUTTERSEAL,BUTYLRUBBERSEALANT Rev.: 6 Date: 06/08



Fantech

HP SERIES

FANS FOR RADON APPLICATIONS

WITH IMPROVED UV RESISTANCE!



TRUST THE INDUSTRY STANDARD. **HERE'S WHY:**

Don't put your reputation at stake by installing a fan you know won't perform like a Fantech! For nearly twenty years, Fantech has manufactured quality ventilation equipment for Radon applications. Fantech is the fan Radon contractors have turned to in over 1,000,000 successful Radon installations worldwide.



Fantech external rotor motor

FANTECH HP SERIES FANS MEET THE CHALLENGES OF RADON APPLICATIONS:

HOUSING

- UV resistant, UL Listed durable plastic
- UL Listed for use in commercial applications
- Factory sealed to prevent leakage
- Watertight electrical terminal box
- Approved for mounting in wet locations - i.e. Outdoors

MOTOR

- Totally enclosed for protection
- High efficiency EBM motorized impeller
- Automatic reset thermal overload protection
- Average life expectancy of 7-10 years under continuous load conditions

RELIABILITY

- Five Year Full Factory Warranty
- Over 1,000,000 successful radon installations worldwide

IMPROVING INDOOR AIR QUALITY THROUGH BETTER VENTILATION

www.fantech.net



HP Series Fans are Specially Designed with Higher Pressure Capabilities for Radon Mitigation Applications

MOST RADON MITIGATORS WHO PREVIOUSLY USED THE FANTECH FR SERIES FANS HAVE SWITCHED TO THE NEW HP SERIES.

PERFORMANCE DATA

Fan Model	Volts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.								Max. Ps
				0"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	
HP2133	115	14 - 20	0.17	134	68	19	-	-	-	-	-	0.84
HP2190	115	60 - 85	0.78	163	126	104	81	58	35	15	-	1.93
HP175	115	44 - 65	0.57	151	112	91	70	40	12	-	-	1.66
HP190	115	60 - 85	0.78	157	123	106	89	67	45	18	1	2.01
HP220	115	85 - 152	1.30	344	260	226	193	166	137	102	58	2.46

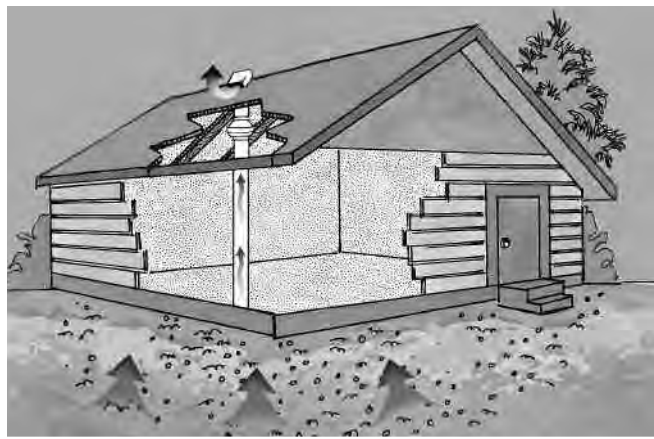
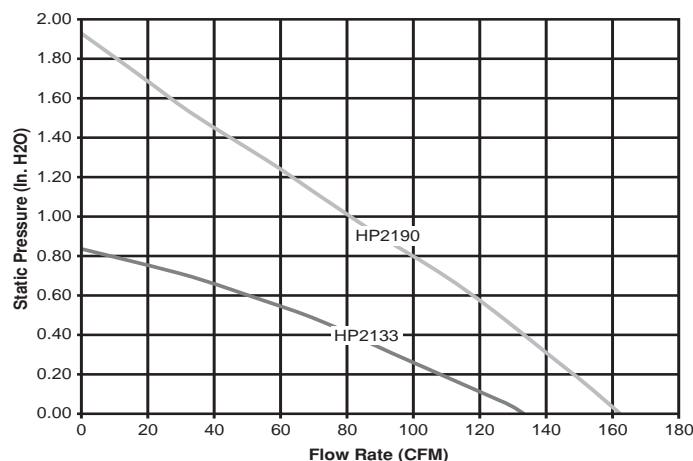
PERFORMANCE CURVES

Fantech provides you with independently tested performance specifications.

The performance curves shown in this brochure are representative of the actual test results recorded at Texas Engineering Experiment Station/Energy Systems Lab, a recognized testing authority for HVI. Testing was done in accordance with AMCA Standard 210-85 and HVI 916 Test Procedures. Performance graphs show air flow vs. static pressure.

Use of HP Series fans in low resistance applications such as bathroom venting will result in elevated sound levels. We suggest FR Series or other Fantech fans for such applications.

HP2133 & HP2190 RADON MITIGATION FANS



HVI
MEMBER™

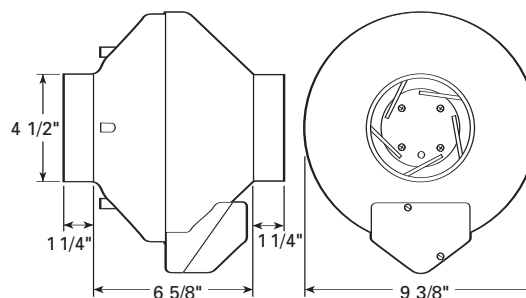
HP FEATURES INCLUDE

- Improved UV resistant housings approved for commercial applications.
- UL Approved for Wet Locations (Outdoors)
- Sealed housings and wiring boxes to prevent Radon leakage or water penetration
- Energy efficient permanent split capacitor motors
- External wiring box
- Full Five Year Factory Warranty



NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.



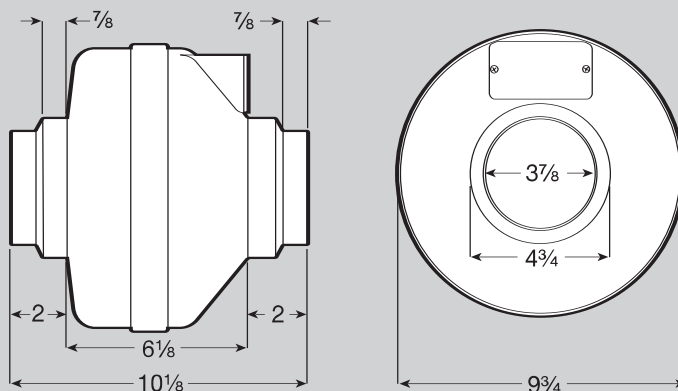
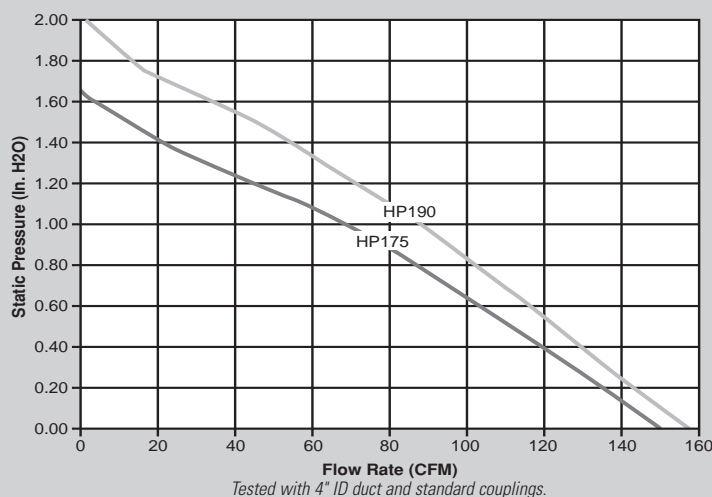
HP2133 – For applications where lower pressure and flow are needed. Record low power consumption of 14-20 watts! Often used where there is good sub slab communication and lower Radon levels.

HP2190 – Performance like the HP190 but in a smaller housing. Performance suitable for the majority of installations.

Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #156-44, Pipeconx PCX 56-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP175 & HP190 RADON MITIGATION FANS



HP175 – The economical choice where slightly less air flow is needed. Often used where there is good sub slab communication and lower Radon levels.

HP190 – The standard for Radon Mitigation. Ideally tailored performance curve for a vast majority of your mitigations.

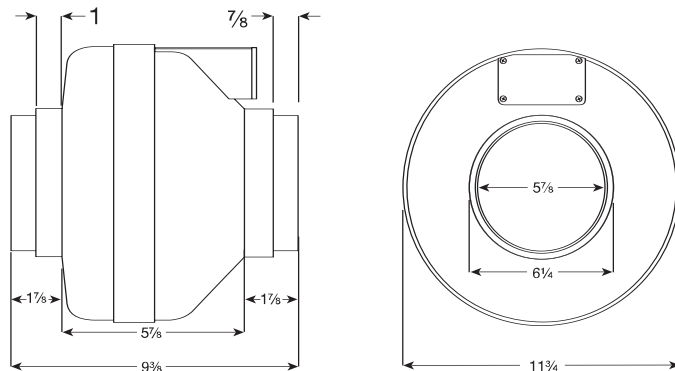
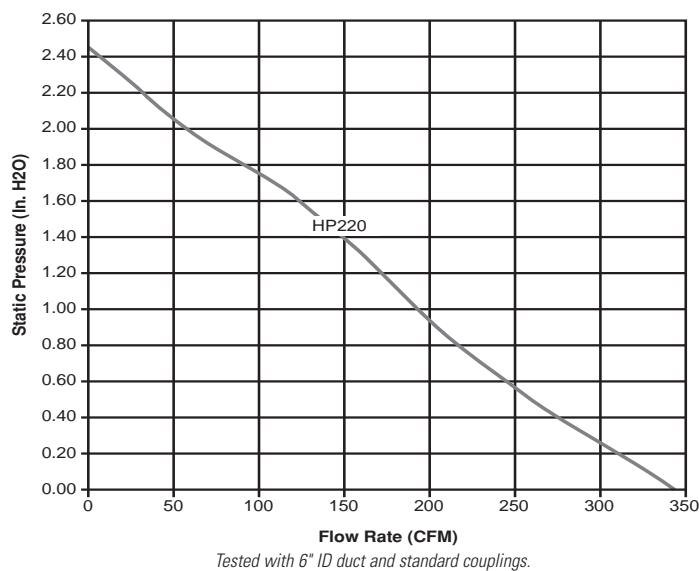
Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #151-44, Pipeconx PCX 51-44 or equivalent.

For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.



HP220 RADON MITIGATION FAN



HP 220 – Excellent choice for systems with elevated radon levels, poor communication, multiple suction points and large subslab footprint. Replaces FR 175.

Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #156-64, Pipeconx PCX 56-64 or equivalent.

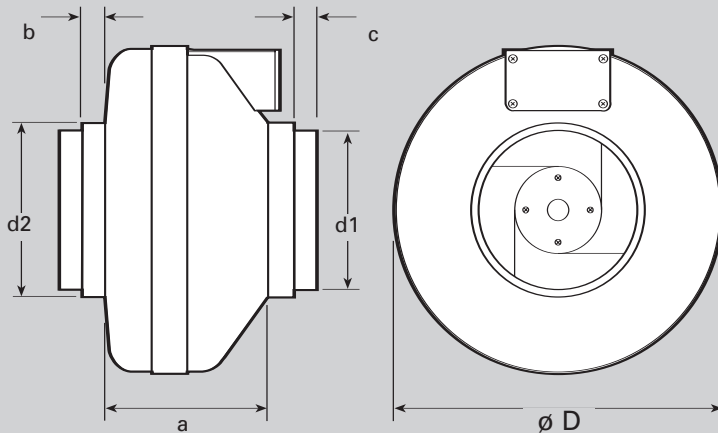
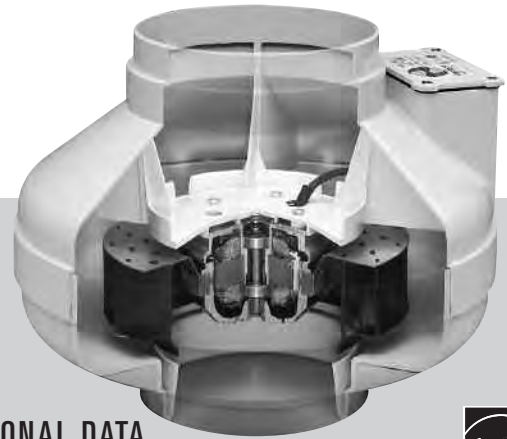
For 3" PVC pipe use Indiana Seals #156-63, Pipeconx PCX 56-63 or equivalent.



Fantech

FR SERIES

THE ORIGINAL MITIGATOR



DIMENSIONAL DATA

model	øD	d1	d2	a	b	c
FR100	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR110	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR125	9 1/2	—	4 7/8	6 1/8	7/8	—
FR140	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR150	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR160	11 3/4	5 7/8	6 1/4	6 3/8	1	7/8
FR200	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR225	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR250	13 1/4	—	9 7/8	6 1/4	—	1 1/2

All dimensions in inches



PERFORMANCE DATA

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2900	115	19	13 - 19	0.18	122	100	78	55	15	-	-	0.87"	4"
FR125	✓	2950	115	18	15 - 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	71	54 - 72	0.67	263	230	198	167	136	106	17	1.58"	6"
FR160	-	2750	115	129	103 - 130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 - 128	1.11	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 - 152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250*	-	2850	115	241	146 - 248	2.40	649	600	553	506	454	403	294	2.58"	10"

FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program, charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2 inches WG.

* Also available with 8" duct connection. Model FR 250-8. Special Order.

NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

FIVE YEAR WARRANTY

DURING ENTIRE WARRANTY PERIOD:

FANTECH will replace any fan which has a factory defect in workmanship or material. Product may need to be returned to the Fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST:

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty fan and is invoiced. The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

FANTECH WARRANTY TERMS DO NOT PROVIDE FOR REPLACEMENT WITHOUT CHARGE PRIOR TO INSPECTION FOR A DEFECT. REPLACEMENTS ISSUED IN ADVANCE OF DEFECT INSPECTION ARE INVOICED, AND CREDIT IS PENDING INSPECTION OF RETURNED MATERIAL. DEFECTIVE MATERIAL RETURNED BY END USERS SHOULD NOT BE REPLACED BY THE DISTRIBUTOR WITHOUT CHARGE TO THE END USER, AS CREDIT TO DISTRIBUTOR'S ACCOUNT WILL BE PENDING INSPECTION AND VERIFICATION OF ACTUAL DEFECT BY FANTECH.

THE FOLLOWING WARRANTIES DO NOT APPLY:

- Damages from shipping, either concealed or visible. Claim must be filed with freight company.

- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:
 1. Improper maintenance
 2. Misuse, abuse, abnormal use, or accident, and
 3. Incorrect electrical voltage or current.
- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty, expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

DISTRIBUTED BY:



Fantech

United States 1712 Northgate Blvd. • Sarasota, FL. 34234 • 1.800.747.1762 • www.fantech.net
Canada 50 Kanalfiakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.ca

Fantech, reserves the right to modify, at any time and without notice, any or all of its products' features, designs, components and specifications to maintain their technological leadership position.

Item #: 411741
Rev Date: 120407



MSDS No: 31
Rev Date: 1/20/10
Rev No: 2

1 MATERIAL SAFETY DATA SHEET

Product Name: **TriggerFoam™ Cleaner**
Description: Cleaning agent for TriggerFoam™ Dispensing Tools
Supplier: Powers Fasteners, Inc. 2 Powers Lane, Brewster, NY 10509
Customer Service: 800-524-3244
Emergency Phone: (CHEMTREC) Within USA: (800) 424-9300; Outside USA: 01 (703) 527-3887

2 INGREDIENTS

	CAS Number	ACGIH TWA	OSHA PEL
Acetone	76-64-1	500ppm	1000ppm
Propane	74-98-6	1000ppm*	1000ppm
Isobutane	75-28-5	1000ppm*	NE
Butane	107-97-9	1000ppm*	NE

*Note: The ACGIH TLVs for Propane, Isobutane and Butane are as *Aliphatic hydrocarbon gases*.
This product is classified as hazardous under OSHA regulations (29CFR 1910.1200).

Abbreviations: NE= Not established

3 SAFE USAGE RECOMMENDATIONS

Ventilation: Avoid breathing vapors or mist. Use with adequate ventilation, either natural or mechanical.

Eye Protection: Safety goggles are recommended. Safety glasses with side shields should be used as a minimum. Direct eye contact with product can cause irritation and corneal burns.

Skin Protection: Avoid skin contact. Use neoprene or rubber gloves. Prolonged skin contact may cause irritation and dryness.

Respiratory Protection: Avoid breathing vapors or mist. Can be irritating to respiratory tract. Excessive exposure in poorly ventilated areas may cause dizziness or headache.

Notice: For professional use. Keep away from children.

4 EMERGENCY AND FIRST AID PROCEDURES

Eyes: Immediately flush eyes with clean water for 15 minutes and call a physician.

Skin: Wash with soap and water. Launder clothing before reuse.
Seek medical attention if any symptoms develop.

Inhalation: Move to fresh air if dizziness or headache occurs. Contact physician if symptoms persist.

Ingestion: Immediately rinse mouth with water and call a physician. Drink 1-2 glasses of water. Do not induce vomiting unless directed by a physician.

Other: Contact a physician if there is any question about the seriousness of the exposure.

5 HEALTH HAZARD INFORMATION

Hazards: Pressurized flammable liquid and gas. Keep away from fire and heat (>120F).
Do not smoke while using product.

6

PHYSICAL CHARACTERISTICS

Appearance:	Clear liquid and gas.	
Boiling Point:	NE	Flash Point: -18F (0C)
(Air=1) Vapor Density:	>1	
(Water=1) Evaporation Rate:	NE	
Specific Gravity:	1.1	
VOC Content:	0.2	
Odor:	Mild amine-like	
Solubility in Water:	Insoluble	
pH:	NE	

7

FIRE, HAZARD AND REACTIVITY DATA

Flammability:	Extremely Flammable
Stability:	Stable. Hazardous polymerization will not occur.
Incompatibility:	Strong acids, bases and alcohols.
Unusual fire or Explosion Hazards:	None Known.
Extinguishing Media:	Foam, CO ₂ , Dry Chemical
Fire Fighting:	Self-contained breathing equipment recommended.
Hazardous Combustion Products:	CO, NO, HCN, HCL

8

TRANSPORTATION AND REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910. 1200.		
HMIS Codes:	Health 2, Flammability: 3, Physical Hazard: 2	PPE: B	Flash Point: -18F (0C)
US DOT Proper Shipping Name:	Consumer Commodity	ORM-D	
	UN 1950	Class: 2.1	PG: N/A
Canadian TDGR Proper Shipping Name:	Aerosols		
	UN 1950	Class: 2.1	PG: N/A
IMO/IMDG Proper Shipping Name:	Aerosols		
	UN 1959	Class 2.1	PG: N/A EmS: F-d, S-U
TSCA Inventory Status:	Chemical components listed on TSCA inventory.		
SARA Title III, Section 313:	This product does not contain any Section 313 reportable ingredients.		

9

STORAGE, CLEAN-UP, AND DISPOSAL

Storage:	Store in a cool, dry place. Keep from freezing and extreme heat, which may shorten shelf life.
Spills:	Collect spilled contents with absorbent material and place in a sealable container for proper disposal.
Waste Disposal:	Dispose of in accordance with federal, state and local regulations.
EPA Waste Codes:	D001, D003 (aerosol cans)

The information and recommendations provided herein are based on information available to us at the time of preparation. We make no other warranty, expressed or implied, as to its correctness, completeness, or as to the results and reliance of the information.

Fills, Bonds,
Seals &
Insulates



29 oz. Gun Foam



12 oz. Straw Foam



29 oz. Straw Foam

Power Foam & Trigger Foam



Powers
FASTENERS



Fills through
penetrations

PowerFoam™

PowerFoam™ is a single component, moisture curing expanding polyurethane foam. The adhesive strength of PowerFoam™ allows it to be set on various types of building elements including concrete, brick, wood, metal, aluminum and steel. When installing the foam, consideration should be given to the two fold expansion of the foam after it leaves the plastic tube. The surface of the foam initially dries within 1-4 hours and becomes fully cured in 12-15 hours. The foam works best at room temperature. It is dispensed through a straw-like plastic tube that is packaged with the can. The structure of the hardened foam provides excellent insulation against heat and noise.

APPLICATIONS

PowerFoam™ is for applications where it is not necessary to control the size of the bead or the rate of flow. PowerFoam™ can be used in a wide variety of applications. Use it to fill, seal or insulate. It blocks drafts, stops leaks, saves energy, adheres to all types of construction material, deadens sound, acts as a buoyancy material once cured, controls radon, confines asbestos fibers, and can be used in HVAC applications. PowerFoam™ also seals and keeps out insects and rodents. After installation, it is recommended that a full 24 hours elapse prior to scraping, sanding, staining or painting.

TYPICAL USES

INSULATING

- Around window frames, sills, door frames floor / wall joints
- Electrical junction boxes
- Attics
- Refrigeration units and pipes
- Air conditioning systems

FILLING

- Breaches in walls
- Pipe penetrations in non-fire-rated walls
- Voids in concrete forms
- Underground utility ductwork
- Sound dampening

FEATURES

- CFC free propellant
- Polyurethane system
- Class B3 flame retardant
- Contains no urea formaldehyde or PCBs
- Works with PVC
- Physiologically harmless when fully cured
- Neutral odor
- Does not rot or deteriorate with age
- Water resistant

ADVANTAGES

- High foam yield - up to 1.6ft³ per 29 oz. can
- Also available in convenient 12 oz. cans
- Precision plastic valve helps prevent pressure loss and prolongs shelf life
- Minimal subsequent expansion (+/- 10%)



29 oz.
Straw
Foam

12 oz. Straw Foam

TECHNICAL DATA

Volume yield	1.4 - 1.6 ft ³ (40-45 liters) free foamed
Specific gravity (of foamed product)	1.25 - 1.56 lb./ft ³
Application temperature	+ 32°F / 0°C min. (for application surfaces)
Tack free time	5 - 10 minutes (depending on temp. and humidity)
Cutting time	15 - 20 minutes (depending on temp. and humidity)
Initial drying time	1 - 4 hours (depending on temp. and humidity)
Full curing time	12 - 15 hours (depending on temp. and humidity)
Water absorption	Max. 1% of volume
Temperature resistance	-8°F to +212°F
Tensile strength	7.25 - 14.5 psi
Elongation at breakage	20 - 25 %
Contents	12 oz. (375g) Net Weight and 29 oz. (900g) Net Weight
Shelf life	24 months (+40°F to +75°F - higher temp., shorter shelf life) Must be stored in vertical position

POWERFOAM

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8130	PowerFoam™ 12 oz.	12	12
8132	PowerFoam™ 29 oz.	12	12

APPROVALS & LISTINGS

Underwriters Laboratories - File No. R16754
Caulking and Sealants Surface Burning Characteristics
ASTM E 84 (12.5%)
Flame Spread 10
Smoke Developed 30



29 oz. Gun Foam

TriggerFoam™

TriggerFoam™ is a one part polyurethane expanding foam which sets into its final form by using moisture present in the air. When installing the foam, consideration should be given to the two fold expansion of the foam after it leaves the nozzle. The surface of the foam initially dries within 1-4 hours and becomes fully cured in 12-15 hours. TriggerFoam™ sets well on ordinary surfaces such as concrete, brick, metal etc. Surfaces do not require preparation and can also be damp. After installation, it is recommended that a full 24 hours elapse prior to scraping, sanding, staining or painting. The foam has a R-5 value when used in place of traditional installation methods.

APPLICATIONS

TriggerFoam™ is dispensed through a special gun that allows the user to control the rate of flow as well as the size of the bead for more precise placement of the product, allowing it to be used in a wide variety of applications. Use it to fill, seal or insulate. It blocks drafts, stops leaks, saves energy, adheres to all types of construction material, deadens sound, acts as a buoyancy material once cured, controls radon, confines asbestos fibers, and can be used in HVAC applications.

TYPICAL USES

INSULATING

- Around window frames, sills, door frames floor / wall joints
- Electrical junction boxes
- Attics
- Refrigeration units and pipes
- Air conditioning systems

FILLING

- Breaches in walls
- Pipe penetrations in non-fire-rated walls
- Voids in concrete forms
- Underground utility ductwork
- Sound dampening



Fills around pipe
and electrical
conduit



Trigger cleaner
makes clean up
simple and easy.

FEATURES

- CFC free propellant
- Polyurethane system
- Class B2 flame retardant
- Contains no urea formaldehyde or PCBs
- Works with PVC
- Physiologically harmless when fully cured
- Neutral odor
- Does not rot or deteriorate with age

ADVANTAGES

- Stop and Go application product remains liquid in applicator until dispensed
- Easily adjustable applicator can dispense foam beads as small as 1/8"
- High foam yield - up to 1.6ft³ per 29 oz. can
- Precision plastic valve helps prevent pressure loss and prolongs shelf life
- Minimal subsequent expansion (+/- 10%)
- Hardened steel dispenser tip for longer life on metal tool



TRIGGERFOAM

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8136	TriggerFoam™ 29 oz.	1	1

APPROVALS & LISTINGS

Underwriters Laboratories - File No. R16754	ASTM E 90
Caulking and Sealants Surface Burning Characteristics	Sound Transmission
ASTM E 84 (12.5%)	Classification 60
Flame Spread 5	
Smoke Developed 10	

TECHNICAL DATA

Volume yield	1.4 - 1.6 ft³ (40-45 liters) free foamed
Specific gravity (of foamed product)	1.25 - 1.56 lb./ft³
Application temperature	+ 32°F / 0°C min. (for application surfaces)
Tack free time	5 - 10 minutes (depending on temp. and humidity)
Cutting time	15 - 20 minutes (depending on temp. and humidity)
Initial drying time	1 - 4 hours (depending on temp. and humidity)
Full curing time	12 - 15 hours (depending on temp. and humidity)
Water absorption	Max. 1% of volume
Temperature resistance	-8°F to +212°F
Tensile strength	7.25 - 14.5 psi
Elongation at breakage	20 - 25 %
Contents	29 oz. (900g) Net Weight
Shelf life	24 months (+40°F to +75°F - higher temp., shorter shelf life) Must be stored in vertical position



TRIGGERFOAM TOOLS & ACCESSORIES

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8137	TriggerFoam™ Subfloor Gun 22"	1	1
8139	TriggerFoam™ Plastic Gun	1	1
8140	TriggerFoam™ Gun	1	1
8141	TriggerFoam™ Gun replacement brass tip	1	10
8142	TriggerFoam™ Cleaner 20 oz.	12	12

POWERS FASTENERS **BRANCH INFORMATION****USA LOCATIONS**

CITY	ADDRESS	CONTACT	PHONE	FAX
Atlanta	5405 Buford Hwy Suite 410 Norcross, GA 30071-3984	Robert Brito	678-966-0000	678-966-9242
Boston	2 Powers Lane, Brewster, NY 10509	Jack Armour	800-524-3244	914-576-6483
Charlotte	349 L West Tremont Avenue, Charlotte, NC 28203	Bob Aurisy	704-375-5012	704-376-5517
Chicago	2472 Wisconsin Avenue, Downers Grove, IL 60515	Dan Gilligan	630-960-3156	630-960-3912
Dallas	10625 King Williams Drive, Dallas, TX 75220	Chad Estill	972-506-9258	972-506-9290
Denver	2475 West Second Street #35, Denver, CO 80223	Aaron Minnis	303-922-9202	303-922-9228
Detroit	21600 Wyoming Avenue, Oak Park, MI 48237	Glen Gaskill	248-543-8600	248-543-8601
Florida	9208 Palm River Road, Bldg. 3, Suite 305, Tampa, FL 33619	T.J. Bland/Mark Mamula	813-626-4500	813-626-4545
Houston	20 North Sampson Street, Houston, TX 77003	Chris Salisbury	713-228-1524	713-228-1528
Indianapolis	15290 Stony Creek Way, Noblesville, IN 46060	Bill Trainor	317-773-1668	317-773-1690
Kansas City / St Louis	716 East 16th Avenue, North Kansas City, MO 64116	Don James, Jr.	816-472-5038	816-472-5040
Los Angeles	2761 Dow Avenue, Tustin, CA 92780	Jack Stewart	714-731-2500	714-731-2566
Maryland	3137-B Pennsy Drive, Landover, MD 20785	Gary Engleman	301-773-1722	301-341-5119
Milwaukee	12020 W. Feerick Street, Milwaukee, WI 53222	Donn Raduenz	414-466-2400	414-466-3993
Minneapolis	351 Wilson Street, NE Minneapolis, MN 55413	Rick Gruye	612-331-3756	612-331-3549
Nashville/Memphis	221 Blanton Avenue, Nashville, TN 37210	Ira Liss	615-248-2667	615-248-2676
New Orleans	14141 Airline Highway, Tezcuco Building #3, Baton Rouge, LA 70809	Cal Zenor	225-756-7871 or 225-756-7851	225-756-7981
New York	2 Powers Lane, Brewster, NY 10509	John Partridge	914-235-6300	914-576-6483
Philadelphia	2 Powers Lane, Brewster, NY 10509	Curtis Fickert	800-524-3244	914-576-6483
Phoenix	3602 E. Southern Ave, Suite 5 Phoenix, AZ 85040	Craig Hering	602-431-8024	602-431-8027
Pittsburgh	1360 Island Avenue, McKees Rocks, PA 15136	Bill Dugan	412-771-3010	412-771-9858
Rochester	410 Atlantic Avenue, Rochester, NY 14609	Mike Kolstad	585-288-2080	585-288-8732
Salt Lake City	2212 SW Temple #4, Salt Lake City, UT 84115	Bruce Burnett	801-466-3406	801-484-0731
San Francisco	28970 Hopkins Street, Suite B+C, Hayward, CA 94545	Frans Honig	510-293-1500	510-293-1505
Seattle	129 South Kenyon, Seattle, WA 98108	Darin Arnold/Jim Swink	206-762-5812	206-762-5817

INTERNATIONAL LOCATIONS

CITY	ADDRESS	CONTACT	PHONE	FAX
Australia	Factory 3, 205 Abbotts Road, Dandenong, South Victoria 3175	Phil Rose	+61 3 8787 5888	+61 3 8787 5899
British Columbia	63 Fawcett Road Coquitlam, V3K 6V2	Distributor	604-540-0200	604-540-0212
Canada	6950 Edwards Blvd. Mississauga Ontario L5T 2W2	Mark Russell	905-673-7295	905-673-6490
Europe	Westrak 208, 1771 SV Wieringerwerf, Netherlands	Paul Geuvers	+31 888 769 377	+31 227 594 759
Manitoba	1810 Dublin Avenue Man. Winnipeg, R3H 0H3	Distributor	204-633-0064	204-694-1261
New Zealand	PO Box 302 076 North Harbour Auckland	Claye Sesto	+64 9415 2425	+64 9415 2627
Quebec	For name of nearest distributor call Powers Industries Ltd at	Mark Russell	905-673-7295	905-673-6490
Thailand	80/89 MOO4 Petchakasem Road, Bangkae Bangkok 10160	Chalee Surakavanichakorn	+661 826 5821	

LATIN & CARIBBEAN DISTRIBUTION INQUIRIES

COUNTRY/REGION	ADDRESS	CONTACT	PHONE	FAX
Brasil	HARD, Rua Dr. Humberto Pinheiro Viera, 150 Lote B, 1 B Distrito Industrial, Joinville, Brasil		(55) 4749 7209	
Colombia	Electrogeno, S.A., Carrera 52 #71c-38, Bogota, Colombia		(57) 1 6600 9436	
Costa Rica	Electro Mechanics Supply, La Uruca Contiguo Banco Ntnl., De Costa Rica Condominio, Horizontal Bodega #9, San Jose, Costa Rica		(506) 2233-2595	
Dominican Republic	Calle Estancia Nueva #17 E Esquina Cul-De-Sac 9, San Geronimo, Santo Domingo	Rodfor Team	809-224-5615	809-472-8640
Ecuador	Av. Colon E 4 - 127 (1424), Entre Amazonas Y 9 De Octubre Los Rios #100 Y Manual Galecio	Sermaco - Quito (Casa Matriz) Sermaco - Guayaquil	593-2254-3703	593-2250-5013
Guatemala	Tecnofijaciones, 6 Avenue 8-56 Zona 9, Zona 9, Guatemala	Oscar Lucas Penagos	502-233-4-3478	-
Latin America	9208 Palm River Road, Ste 305, Tampa, Florida 33619	Michael Gaffigan	954-914-6665	813-626-4545
Panama	Centro-Industrial, Via Cincuentenario, No. 7910, Ciudad Panama, Panama		(507) 302-8022	
Venezuela	Calle Sucre/Qta. Maudora, #1721 Entre Cec Acosta Y San Ignacio Chacao, Caracas	Distributor	58 212 264 1313	58 212 263 0219
Trinidad - Tobago	Ft. Farfan, 3-5 Ibis Avenue, Ibis Acres, San Juan	Derek Cumming	(868) 674-7896	

Note: The information and data contained within this documentation was current as of January 2009. The information is for marketing purposes only and is subject to change and updates as needed. Powers Fasteners, Inc. reserves the right to change designs and specifications without notice or liability for such changes. Please contact Powers Fasteners for the most current and up to date available information or refer to our website at www.powers.com

Powers Fasteners 2 Powers Lane, Brewster, NY 10509 P: (914) 235-6300 F: (914) 576-6483

Powers Fasteners Canada Ltd. 6950 Edwards Boulevard Mississauga Ontario L5T-2W2 Canada

P: (905) 673-7295 or 1-800-387-3480 F: (905) 673-6490

www.powers.com

Cat. No. 49040 1/09

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MSDS No: 30
Rev Date: 1/20/10
Rev No: 2

1 MATERIAL SAFETY DATA SHEET

Product Name: **POWERFOAM™ / TRIGGERFOAM™**
Description: Polyurethane foam filler, insulating foam, backing foam, penetration sealant
Supplier: Powers Fasteners, Inc. 2 Powers Lane, Brewster, NY 10509
Customer Service: 800-524-3244
Emergency Phone: (CHEMTREC) Within USA: (800) 424-9300; Outside USA: 01 (703) 527-3887

2 INGREDIENTS

	CAS Number		ACGIH TWA	OSHA PEL
Polymethylene polyphenyl isocyanate	9016-87-9	(as MDI)	0.005 ppm	0.02ppm
Dimethyl ether	115-10-6		1000ppm*	NE
Propane	74-98-6		1000ppm*	1000ppm
Isobutane	75-28-5		1000ppm*	NE

*Note: The ACGIH TLV listed above is for Dimethyl ether is an AIHA WEEL. The ACGIH TLVs listed above for Propane and Isobutane are as Aliphatic hydrocarbon gases

This product is classified as hazardous per OSHA regulations (29CFR 1910-1200).

Abbreviations: NE= Not established

3 SAFE USAGE RECOMMENDATIONS

Ventilation: Avoid breathing vapors or mist. Use with adequate ventilation, either natural or mechanical. Sensitized individuals should avoid using this product.
Eye Protection: Avoid eye contact. Safety goggles recommended. Wear safety glasses with side shields as a minimum, as product can stick to eyes.
Skin Protection: Avoid skin contact. Wear impermeable gloves. Product can adhere to skin and cause a rash or sensitization.
Respiratory Protection: Vapor may cause irritation of the breathing tract and sensitization. Use in a well-ventilated area.

Notice: For professional use. Keep away from children.

4 EMERGENCY AND FIRST AID PROCEDURES

Eyes: Immediately flush eyes with clean water for 15 minutes and call a physician.
Skin: Wash with soap and water. Launder clothing before reuse.
Inhalation: Seek medical attention if any symptoms develop.
Ingestion: If breathing becomes uncomfortable or asthma-like symptoms develop, discontinue use and move to fresh air. Contact physician if symptoms persist.
Other: Immediately rinse mouth with water and call a physician. Drink 1-2 glasses of water. Do not induce vomiting unless directed by a physician.
Other: Contact a physician if there is any question about the seriousness of the exposure.

5 HEALTH HAZARD INFORMATION

Hazards: Direct, prolonged contact with product can cause irritation and sensitization to some individuals. Those who develop an allergic response should avoid future use of this product.
Contents are pressurized for dispensing and are extremely flammable.

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PHYSICAL CHARACTERISTICS

Appearance:	Beige foam. Sticky when wet.
Density	1.1
Boiling Point:	NE
(Air=1) Vapor Density:	>1
(Water=1) Evaporation Rate:	NE
Specific Gravity:	1.1
VOC Content:	100 g/l
Odor:	Mild amine-like
Solubility in Water:	Insoluble
pH:	NE

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FIRE, HAZARD AND REACTIVITY DATA

Flammability:	Extremely Flammable	Flash Point: 0F, -18C Boiling Point: NE
Stability:	Stable. Hazardous polymerization will not occur.	
Incompatibility:	Strong acids, bases and alcohols.	
Unusual fire or Explosion Hazards:	Extremely flammable. Contains pressurized, flammable propellants. Containers can rupture if exposed to fire or direct heat.	
Extinguishing Media:	Foam, CO _x , HCN, Nox	
Fire Fighting:	Self-contained breathing equipment recommended.	
Hazardous Combustion Products:	CO, NO, HCN, HCL	

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TRANSPORTATION AND REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910. 1200.		
HMIS Codes:	Health: 3, Flammability: 3, Physical Hazard: 1.	PPE: B	Flash Point: -18F (0C)
US DOT Proper Shipping Name:	Consumer commodity	ORM-D	
Canadian TDGR Proper Shipping Name:	Consumer commodity	(Aerosols)	
	UN1950 Class 2.1, PG: None		
IATA/ICAO Proper Shipping Name:	AEROSOLS		
	UN1950 Class 2.1, PG: None		
IMO/IMDG Proper Shipping Name:	AEROSOLS		
	UN1950 Class 2.1, PG: None	EmS: F-D, S-U	
Packing Instructions:	Passenger Aircraft: Y203 or 203		
	Cargo Aircraft Only: 203		
TSCA Inventory Status:	Chemical components listed on TSCA inventory.		
SARA Title III, Section 313:	Contains Polymethylene polyphenyl isocyanate.		

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STORAGE, CLEAN-UP, AND DISPOSAL

Storage:	Store in a cool, dry place. Keep from freezing and extreme heat, which may shorten shelf life.
Spills:	Follow above personal protective measures. Product will harden upon contact with air and moisture. After hardening, scrape up foam and dispose of in a sealable container.
Waste Disposal:	Dispose of in accordance with federal, state and local regulations.
EPA Waste Codes:	D001, D003 (aerosol cans)

The information and recommendations provided herein are based on information available to us at the time of preparation. We make no other warranty, expressed or implied, as to its correctness, completeness, or as to the results and reliance of the information.





GHS SAFETY DATA SHEET

WELD-ON® 717™ Low VOC Cements for PVC Plastic Pipe

Date Revised: FEB 2010

Supersedes: SEP 2009

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 717™ Low VOC Cements for PVC Plastic Pipe**PRODUCT USE:** Low VOC Solvent Cement for PVC Plastic Pipe**SUPPLIER:****MANUFACTURER:** IPS Corporation

17109 South Main Street, Carson, CA 90248-3127

P.O. Box 379, Gardena, CA 90247-0379

Tel. 1-310-898-3300

EMERGENCY: Transportation: Tel. 800.424.9300, 703.527.3887 CHEMTREC (International)**Medical:** Tel. 800.451.8346, 760.602.8703 3E Company (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health	Environmental	Physical
Acute Toxicity: Category 4	Acute Toxicity: None Known	Flammable Liquid Category 2
Skin Irritation: Category 3	Chronic Toxicity: None Known	
Skin Sensitization: NO		
Eye: Category 2B		

GHS LABEL:

OR

**Signal Word:**
Danger**WHMIS CLASSIFICATION:** CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	25 - 70
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 36
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 25

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.

* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).

SECTION 4 - FIRST AID MEASURES

Contact with eyes:	Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact:	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation:	Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion:	Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media:	Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.	HMIS	NFPA	0-Minimal
Unsuitable Extinguishing Media:	Water spray or stream.	Health	2	1-Slight
Exposure Hazards:	Inhalation and dermal contact	Flammability	3	2-Moderate
Combustion Products:	Oxides of carbon, hydrogen chloride and smoke	Reactivity	0	3-Serious
Protection for Firefighters:	Self-contained breathing apparatus or full-face positive pressure airline masks.			4-Severe

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep away from heat, sparks and open flame. Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment. Prevent contact with skin or eyes (see section 8).
Environmental Precautions:	Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up:	Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up:	Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling:	Avoid breathing of vapor, avoid contact with eyes, skin and clothing. Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods. Do not eat, drink or smoke while handling.
Storage:	Store in ventilated room or shade below 44 °C (110 °F) and away from direct sunlight. Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates. Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:	Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL:
	Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	
	Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	
	Cyclohexanone	20 ppm	50 ppm	50 ppm	

Engineering Controls: Use local exhaust as needed.**Monitoring:** Maintain breathing zone airborne concentrations below exposure limits.**Personal Protective Equipment (PPE):****Eye Protection:** Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.**Skin Protection:** Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.**Respiratory Protection:** Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Gray or clear, heavy syrupy liquid	Odor Threshold:	0.88 ppm (Cyclohexanone)
Odor:	Ketone	Boiling Range:	66 °C (151 °F) to 156 °C (313 °F)
pH:	Not Applicable	Evaporation Rate:	> 1.0 (BUAC = 1)
Melting/Freezing Point:	-108.5 °C (-163.3 °F) Based on first melting component: THF	Flammability:	Category 2
Boiling Point:	66 °C (151 °F) Based on first boiling component: THF	Flammability Limits:	LEL: 1.1% based on Cyclohexanone UEL: 11.8% based on THF
Flash Point:	-20 °C (-4 °F) TCC based on THF	Vapor Pressure:	129 mm Hg @ 20 °C (68 °F) based on THF
Specific Gravity:	0.963 @23 °C (73 °F)	Vapor Density:	>2 (Air = 1)
Solubility:	Solvent portion soluble in water. Resin portion separates out.	Other Data: Viscosity:	Heavy bodied
Partition Coefficient n-octanol/water:	Not Available		
Auto-ignition Temperature:	321 °C (610 °F) based on THF		
Decomposition Temperature:	Not Applicable		
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation:	Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact:	Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact:	Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion:	May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: None known to humans

Toxicity:	LD ₅₀	LC ₅₀
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m ³ (rat)
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m ³ (rat)
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping

DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION

TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant	Ingredient Listings:	USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi		
Risk Phrases:	R11: Highly flammable. R20: Harmful by inhalation. R36/37: Irritating to eyes and respiratory system.	R66: Repeated exposure may cause skin dryness or cracking R67: Vapors may cause drowsiness and dizziness	
Safety Phrases:	S9: Keep container in a well-ventilated place. S16: Keep away from sources of ignition - No smoking. S25: Avoid contact with eyes.	S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S33: Take precautionary measures against static discharges. S46: If swallowed, seek medical advice immediately and show this container or label.	

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	2/23/10 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

Description

AP Armaflex Pipe (Tube) Insulation is a flexible elastomeric thermal insulation, black in color, supplied as unslit tubing, in:

- nominal wall thicknesses of 3/8", 1/2", 3/4", 1" and 1-1/2" (10, 13, 19, 25 and 38mm)
- popular sizes up to 6" IPS.

The expanded closed-cell structure of AP Armaflex Pipe Insulation makes it an efficient insulation. It is manufactured without the use of CFC's, HFC's or HCFC's. It is also formaldehyde free, low VOCs, fiber free, dust free and resists mold and mildew.

Factory Mutual Approvals System

AP Armaflex is approved through continuing supervision by Factory Mutual Approvals to consistently provide actual values on these key performance criteria for mechanical system insulation:

Thermal Conductivity: 0.27 BTU-in/hr. ft² °F
Water Vapor Transmission: 0.08 perm-inchFire
Rating: will not contribute significantly to fire (simulated end-use testing).

AP Armaflex Pipe Insulation, in thicknesses through 1-1/2" (38mm) has a flame-spread index of less than 25 and a smoke-developed index of less than 50 as tested by ASTM E 84 and CAN/ULC S-102, "Method of Test for Surface Burning Characteristics of Building Materials," through 1-1/2" wall thickness.

Note: Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for use in the selection of products to meet limits specified.

Uses

AP Armaflex Pipe Insulation is used to retard heat gain and control condensation drip from chilled-water and refrigeration systems. It also efficiently reduces heat flow for hot-water plumbing and liquid-heating and dual-temperature piping. The recommended temperature usage range for AP Armaflex Pipe Insulation is -297°F to +220°F (-183°C to +105°C).

For use on cold pipes, AP Armaflex Pipe Insulation thicknesses have been calculated to control condensation on the insulation outer surface, as shown in the table of thickness recommendations.

AP Armaflex Insulation is acceptable in wall thicknesses through 1-1/2" for use in air plenums. Conforms to NFPA 90A and NFPA 90B requirements.

AP/Armaflex meets the energy code requirements of ASHRAE 90.1, ASHRAE 90.2, International Energy Conservation Code (IECC) and other building codes.

Resistance To Moisture Vapor Flow

The closed-cell structure of AP Armaflex Insulation prevents moisture from wicking and makes it an efficient insulation. AP Armaflex normally requires no supplemental vapor-retarder protection. Additional vapor-retarder protection may be necessary for AP

Armaflex when installed on very-low-temperature piping or where exposed to continually high humidity conditions.



Application

AP Armaflex Pipe Insulation in unslit tubular form can be slipped onto piping before it is connected, or it can be slit lengthwise and snapped

over piping already connected. Fitting covers are fabricated from miter-cut tubular form. In all cases, butt joints and seams are to be sealed with Armaflex 520 Adhesive or, where a low V.O.C. adhesive is required, Armaflex 520 BLV Adhesive. 520 Adhesives are contact adhesives; therefore, in all cases, both surfaces to be joined are coated with adhesive.

For pipes greater than 6" IPS, use AP/Armaflex Sheet/Roll insulation. For thicknesses greater than 1", sleeve the insulation. See technical bulletin #030 for additional information. AP/Armaflex pipe insulation is available in 1-1/2" wall thickness with 25/50 rating for ID size range from 7/8" to 4" IPS

AP Armaflex is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied. WB Armaflex Finish is recommended.

Armaflex insulation products must be installed according to "Installation of Armaflex Insulations" brochure. Proper installation is required to assure Armaflex insulation performance.

Specification Compliance

AP Armaflex Pipe Insulation developed to meet:
ASTM C 534, Type I—Tubular Grade 1
ASTM E 84, NFPA 255, UL 723
CAN/ULC S102
UL 94 5V-A, V-O, File E 55798
NFPA 90A, 90B
UL 181
ASTM G-21/C1338, ASTM G-22
ASTM D 1056, 2B1
MIL-P-15280J, FORM T
MIL-C-3133C (MIL STD 670B), Grade SBE 3
MEA 96-85-M
City of LA - RR 7642

AP/Armaflex® TUBES

Physical Data**Physical Properties****Test Method**

Thermal conductivity, Btu • in./h • ft ² • °F (W/mK) 75°F mean temp (24°C) 90°F mean temp (32°C)	0.27 (0.039) 0.276 (0.040)	ASTM C 177 or C 518	Notes ① On the heating cycle, AP Armaflex Pipe Insulation will withstand temperatures as high as 220°F (105°C). 520 or 520 BLV Adhesive may be used with pipe insulation applications up to 220°F (105°C). ② At -20°F (-29°C), flexible AP Armaflex Insulation becomes hard and, as temperatures drop below -20°F (-29°C), will be increasingly brittle; however, this hardening characteristic does not affect thermal efficiency or water vapor permeability. * For applications of -40°F to -297°F (-40°C to -183°C), contact Armacell. ③ Reference only. <hr/> Performance approved through continuing supervision by Factory Mutual Approvals.
Water vapor permeability, perm-in. [Kg/(s•m•Pa)]	0.08 (1.16 x 10 ⁻¹³)	ASTM E 96 Procedure A	
Flame spread and smoke developed index through 1-1/2" (38mm)	25/50	ASTM E 84 CAN/ULC S102	
Mold growth fungi resistance Bacterial resistance	UL181 ASTM G21/C1338 ASTM G22	Meets requirements Meets requirements Meets requirements	
Water absorption, % by volume	0.2	ASTM C 209	
Upper use limit ①	220°F (105°C)	—	
Lower use limit, °F ②	-297°F (-183°C)*	—	
Ozone resistance	GOOD	—	
Sizes Wall thickness, (nominal)	3/8", 1/2", 3/4", 1", 1-1/2" (10, 13, 19, 25 and 38mm)	—	
Inside diameter, tubular form	3/8" ID to 6" IPS (10mm ID to 168mm) [1-1/2" Wall: 7/8" to 4" IPS (22mm to 114mm)]	—	
Length of sections, feet, tubular form	6 (1.8m) [1-1/2" Wall: 3 (0.9m)]	—	
Density, typical range ③	3.0 - 6.0 lbs./ft. ³	ASTM D 1622 or D 1667	

Armaflex Pipe Insulation Thickness Recommendations**For Controlling Outer Insulation Surface Condensation
(Based upon available manufactured thicknesses)**

Pipe Size	Line Temperatures			
	50°F (10°C)	35°F (2°C)	0°F (-18°C)	-20°F (-29°C)
BASED ON NORMAL DESIGN CONDITIONS* 3/8" ID through 1-1/8" ID (10mm–28mm) Over 1-1/8" ID through 2-1/8" ID (28mm–54mm) Over 2-1/8" ID through 2-5/8" ID (54mm–65mm) Over 2-5/8" ID through 6" IPS (65mm–168mm)	Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 3/4" (19mm)	Nom 3/4" (19mm) Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1-1/4" (32mm) Nom 1-1/4" (32mm)
BASED ON MILD DESIGN CONDITIONS** 3/8" ID through 2-5/8" ID (10mm–65mm) Over 2-5/8" ID through 6" IPS (65mm–168mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm)	Nom 3/4" (19mm) Nom 3/4" (19mm)
BASED ON SEVERE DESIGN CONDITIONS*** 3/8" ID through 1-5/8" ID (10mm–40mm) Over 1-5/8" ID through 3-5/8" ID (40mm–90mm) Over 3-5/8" ID through 6" IPS (90mm–168mm)	Nom 3/4" (19mm) Nom 3/4" (19mm) Nom 3/4" (19mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1-1/2" (38mm) Nom 1-1/2" (38mm) Nom 1-1/2" (38mm)	Nom 1-1/2" (38mm) Nom 1-3/4" (44mm) Nom 2" (50mm)

NOTE: Thicknesses greater than 1" (25mm) are multiple-layer applications, see technical bulletin #30.

*BASED ON **NORMAL** DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **normal** design conditions, a maximum severity of **85°F (29°C) and 70% RH**. Armacell research and field experience indicate that indoor conditions anywhere in the United States seldom exceed this degree of severity.

BASED ON **MILD DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **mild** design conditions, a maximum severity of **80°F (27°C) and 50% RH**. Typical of these conditions are most air-conditioned spaces and arid climates.

***BASED ON **SEVERE** DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **severe** design conditions, a maximum severity of **90°F (32°C) and 80% RH**. Typical of these conditions are indoor areas in which excessive moisture is introduced or in poorly ventilated confined areas where the temperature may be depressed below ambient.

*1-1/2" thickness available with 25/50 rating.



ARMACELL LLC
7600 Oakwood Street Extension
P. O. Box 1038, Mebane, NC 27302

TEL. 919 304-3846 • FAX 919 304-3847
E-MAIL info.us@armacell.com
INTERNET www.armacell.com

For any updates on this document, please refer to our website.

Armacell provides this information as a technical service. To the extent the information is derived from sources other than Armacell, Armacell is substantially, if not wholly, relying upon the other source(s) to provide accurate information. Information provided as a result of Armacell's own technical analysis and testing is accurate to the extent of our knowledge and ability, as of date of printing, using effective standardized methods and procedures. Each user of these products, or information, should perform their own tests to determine the safety, fitness and suitability of the products, or combination of products, for any foreseeable purposes, applications and uses by the user and by any third party to which the user may convey the products. Since Armacell cannot control the end use of this product, Armacell does not guarantee that the user will obtain the same results as published in this document. The data and information are provided as a technical service and are subject to change without notice.

Material Safety Data Sheet

AP Armaflex

Prepared 01/08 – Replaces 04/04

I. PRODUCT IDENTIFICATION

Name: AP Armaflex Products: including AP Armaflex Tube, AP Armaflex SS Tube, AP Armaflex Sheet and Rolls, AP Armaflex SA Sheet and Rolls, AP Armaflex Tape, and AP Armaflex W.

Description: Expanded, closed-cell, cross-linked rubber type compound. Available in various sizes and in several forms; e.g., pipe insulation, sheet insulation and insulating tape.

II. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping name: Not classified. Hazard Class: N/A ID # N/A

III. HMIS (0 = minimal hazard; 4 = severe hazard)

Health = 0 Flammability = 1 Reactivity = 0

IV. PRODUCT CONTENT

This product is classified as an "article" according to Title 29 of the Code of Federal Regulations, OSHA Part 1910.1200. They are formed to a specific shape or design during manufacture, has end use functions dependent upon their shape and design, and does not release any hazardous chemical under normal conditions of use. This product does NOT contain asbestos or polychlorinated biphenyls.

V. HAZARDOUS INGREDIENTS

(Chemical Identity: Common Name)

C.A.S. No.

%

OSHA PEL

ACGIH TVL

None

VI. PHYSICAL DATA

APPEARANCE AND COLOR: Black, dark gray or white. BOILING POINT (°F): N/A. VAPOR PRESSURE (mm Hg @ 20°C): N/A. VAPOR DENSITY (Air = 1): N/A. SOLUBILITY IN WATER: N/A. SPECIFIC GRAVITY (H₂O=1): N/A. PERCENT VOLATILE BY WEIGHT (30 min. @275°F): N/A. EVAPORATION RATE (Butyl Acetate=1): N/A. pH: N/A VOC: N/A.

when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

N/A -not applicable or not available

N/K – none known or not known

VII. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A. RANGE: LEL = N/A UEL = N/A. EXTINGUISHING MEDIA: Water. SPECIAL FIRE FIGHTING PROCEDURES: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

VIII. HEALTH HAZARD DATA

PRIMARY ROUTE (S) OF ENTRY: N/A. TARGET ORGANS: N/A. EFFECTS OF OVEREXPOSURE: SKIN AND EYES: N/A. INHALATION: N/A. CARCINOGENICITY: NTP: No IARC Monographs: No OSHA Regulated: No. MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE N/A. FIRST AID PROCEDURES: SKIN AND EYES: N/A. INHALATION N/A. INGESTION N/A.

IX. REACTIVITY DATA

STABILITY N/A. INCOMPATIBILITY: N/A. HAZARDOUS DECOMPOSITION PRODUCTS: N/A. HAZARDOUS POLYMERIZATION: N/A.

X. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED N/A. WASTE DISPOSAL METHOD: Dispose of container and any unused contents in accordance with Federal, State and Local Waste Disposal Regulations

XI. SPECIAL HANDLING AND USE INFORMATION

VENTILATION: N/A. RESPIRATORY PROTECTION N/A. SKIN AND EYE PROTECTION: N/A.

XII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE N/A. OTHER PRECAUTIONS: N/A. WORK SITE ENVIRONMENT: N/A.

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed

Geocel®

3300® POLYURETHANE ROOFING SEALANT

1. PRODUCT NAME:

3300® Polyurethane
Roofing Sealant

2. MANUFACTURER:

GEOCEL CORPORATION
P.O. Box 398
Elkhart, IN 46515 USA
Phone: (800) 348-7615
Fax: (800) 348-7009
www.GeocelUSA.com

3. PRODUCT DESCRIPTION:

3300® Polyurethane Roofing Sealant is a single component, high performance polyurethane sealant that withstands extreme weather conditions and cures to a flexible weatherproof seal.

3300 Sealant is approved for roof assemblies covered by the High Velocity Hurricane Zone of the Florida Building Code. Miami-Dade County Product Control Approval for TAS-132, NOA #07-1003.02.

- Miami-Dade County product approved for hurricane-tough adhesion
- Withstands extreme weather conditions
- Meets LEED and NAHB guidelines
- Moisture cure
- Permanently flexible
- Minimal shrinkage
- Non-sag formula
- Low odor, low VOC
- VOC & CARB compliant
- 30-year life expectancy
- Primerless adhesion
- Paintable, non-corrosive
- Contains no TDI (toluene diisocyanate)
- Meets TT-S-00230C Type II Class A, ASTM C920-98 Type S



TECHNICAL DATA

**MIAMI-DADE COUNTY
APPROVED**

Basic Uses: 3300 Sealant can be used in roofing applications such as concrete roofing tile, clay roofing tile, metal roofing, kynar coated metal and composition shingles. Other applications include building-lath paper repair, gutters, HVAC, flashing, skylights, roofing seams, roofing projections, termination points and vents. 3300 Sealant bonds to most common building substrates including stone, masonry, ceramics, wood, steel, aluminum, asphalt, building paper, BUR, concrete, fiberglass and vinyl.

Application Limitations:

- Do not apply over damp or contaminated surfaces
- Do not apply to absorptive surfaces such as marble, limestone, or granite without prior testing for discoloration or staining

Colors: White, gray, limestone, bronze, medium bronze, tan, aluminum gray, and black

Grade: Gun grade consistency

Packaging: 10.1 fl. oz. cartridges

Applicable Standards:

- ASTM C920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND M.
- US Federal Specification TT-S 00230C (COMB-NBS) for one-component sealants as Class A, non-sag.
- Canadian Specification CAN/CGSB 19.13-M87.
- CARB and SCAQMD Compliant. Meets VOC Requirements for OTC Regulation.

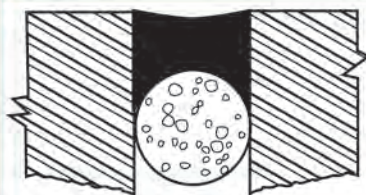


FIGURE 1

Proper Depth Control

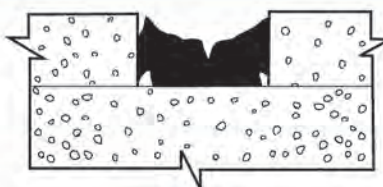


FIGURE 2

Joints without Bond Breaker



FIGURE 3

Joints with Bond Breaker

The effects on the sealant with and without bond breakers are illustrated in Figures Two and Three.

TECHNICAL DATA

Property	Results	Test Method
Tensile Strength	133 psi	ASTM D 412
Elongation	685%	ASTM D 412
Modulus of Elongation	65 psi	ASTM D 412
Adhesion Peel	>5 piw	ASTM C 794
Type A Hardness	42	ASTM D 2240
UV Resistance	Pass	ASTM C 793

4. TECHNICAL DATA: (See chart on back.)**5. INSTALLATION:**

Joint Design: The width of the joint should be a minimum of 4 times the anticipated movement. In joints up to 1/2" wide, the depth of the sealant should be equal to the width, but not less than 1/4". In joints wider than 1/2", the depth should be maintained at 5/8". Lap shear joints should have a width of at least twice the anticipated movement.

Surface Preparation: Joints to receive sealant must be sound, smooth, uniform in dimensions, and free from defects and foreign material. They must be clean, dry, free of frost and all contaminants, such as curing compounds, sealers (waterproofing), coatings, etc. Sealant adhesion should be tested on each different substrate prior to caulking. To test adhesion, apply a sealant bead and allow to cure thoroughly. Then pull one end of the bead to test adhesive strength.

Joint Backing: Joint depth should not exceed 5/8". An open cell backer rod should be used to control joint depth. In shallow joints, a bond breaker tape should be installed to prevent three-point contact.

Service Temperature:

-40° F to 150° F (-40° C to 66° C)

Application Temperature:

-40° F to 150° F (-40° C to 66° C)

Application and Tooling: Apply with conventional caulking equipment. Fill joints from the back to prevent voids and air pockets. If application temperature is below 40° F (5° C), precautions should be taken to ensure the substrates are completely dry and frost free. Immediately after application, tooling is recommended to ensure firm, full contact with the joint sides.

Cleaning: Remove 3300 sealant from gun and tools before it cures. This

may be done by scraping and use of solvents such as Xylol. Cured materials may be removed by cutting with sharp tools or sandpapering.

Storage and Shelf Life: Unopened containers should be protected from heat, moisture, and direct sun. Do not open containers until all preparatory work has been completed. Material in unopened containers is usable for up to 1 year when stored at 75° F (25° C).

6. AVAILABILITY AND COST:

Marketed throughout the U. S., Canada, and in select foreign markets. It is available from various lumber yards, hardware stores, home centers, construction material and industrial distributors. Cost and further technical data are available from your local Geocel representative or from Geocel's corporate offices.

Warning: Use only with adequate ventilation. Keep away from heat and flame. Do not take internally. Avoid eye and skin contact. **KEEP OUT OF REACH OF CHILDREN.** This product as supplied may be harmful or fatal if swallowed. If swallowed DO NOT induce vomiting. If contacted on eyes, flush thoroughly with clear water for at least 15 minutes. In either case, call a physician immediately. If contacted on skin, wash thoroughly with soap and water.

7. LIMITED WARRANTY:

Geocel Corporation warrants that the product is manufactured according to their published standards. The company guarantees for 5 years from date of manufacture

that 3300 Polyurethane Roofing Sealant will not crack due to normal expansion and contraction and that it will not lose its adhesion or cohesion. Geocel Corporation will, at its option, either refund the purchase price of, or provide replacement for, that portion of 3300 Sealant which fails to perform in accordance with this warranty. Such refund or replacement will constitute the limit of Geocel's liability and obligation for any such failure. Geocel Corporation will not be liable or obligated otherwise for any loss or damage arising directly or indirectly from this product, or the use or failure thereof, whether based on breach of warranty or negligence.

8. MAINTENANCE:

If sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the sealant, clean and prepare the joint in accordance with the instructions under "Surface Preparation," and recaulk.

9. TECHNICAL SERVICES:

Geocel representatives throughout the U.S. are available to provide technical assistance. Geocel's in-house technical staff and laboratory facilities are equipped to respond to specific requests for further information and/or applications testing.

THEORETICAL YIELD
Per 10.1 fl. oz. Cartridge

Joint Size	Linear Feet
1/4" x 1/4"	24.1
1/4" x 3/8"	16.0
1/4" x 1/2"	12.0
1/2" x 3/8"	8.4
1/2" x 1/2"	6.0
3/4" x 1/2"	4.0

THERE IS A DIFFERENCE

	NON-CORROSIVE	PAINTABLE	Adheres to: WOOD	BRICK (unprimed)	ASPHALT	METAL	VINYL	CONCRETE (unprimed)	BUILDING LATH PAPER
POLYURETHANE SILICONE	●	●	●	●	●	●	●	●	●

MATERIAL SAFETY DATA SHEET



Date Issued: 08/03/2007
MSDS No: 68101
Date Revised: 04/08/2010
Revision No: 4

3300 Colors

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3300 Colors

MANUFACTURER

Geocel, LLC
P.O. Box 398
Elkhart, IN 46515-0398
Product Stewardship: 574-264-0645

24 HR. EMERGENCY TELEPHONE NUMBERS

ChemTel - 800-255-3924

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: This product is irritating to the eyes and skin. Thermal decomposition/burning may produce toxic gases and fume. Closed containers may rupture when exposed to high temperatures, or when the product has been contaminated with water.

Avoid breathing hot mists and vapors. This product contains a respiratory and skin sensitizer. Causes respiratory tract irritation and may cause allergic respiratory reaction. May cause permanent respiratory damage. Product vapors are potentially irritating to skin. May cause allergic skin reaction and dermatitis.

POTENTIAL HEALTH EFFECTS

EYES: This product may cause irritation to the eyes. May cause temporary corneal injury.

SKIN: Skin contact may cause irritation. Isocyanates may react with skin protein and moisture to cause itching, reddening, swelling, scaling or blistering. Individuals previously sensitized to this material may experience these symptoms from exposure to very small amounts of liquid or vapor.

INGESTION: May cause irritation and corrosive action in the mouth, throat and digestive tract.

INHALATION: Single large doses, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Visual effects may include eye irritation, blurred vision, diplopia, changes in color perception, restriction of visual fields, and complete blindness.

SKIN: Irritation of the skin.

INGESTION: Diarrhea.

INHALATION: Irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, short throat.

TARGET ORGAN STATEMENT: The eyes, lungs and skin may be targeted and damaged by components of the product.

HEALTH HAZARDS: This product contains Methylene Diphenyl Isocyanate (MDI) which is a potential skin sensitizer and has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity. Risk to your health depends on duration and concentration of exposure.

COMMENTS: Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, dizziness, weakness, fatigue, eye irritation, skin irritation, diarrhea.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS	EINECS
Xylenes (o-,m-,p- Isomers)	1 - 5	1330-20-7	215-535-7
Ethyl Benzene	0.5 - 1.5	100-41-4	- -
Methylene Disphenyl Isocyanate	0.1 - 1	101-68-8	202-966-0

4. FIRST AID MEASURES

EYES: Immediately flush with plenty of water for at least 15 minutes. Get medical attention or advice.

SKIN: Remove contaminated clothing to prevent further skin exposure and dispose of properly. In situations involving considerable skin contact, place the contaminated person in a deluge shower for at least 15 minutes. For minor exposures, wash thoroughly with soap and clean water. Get medical attention if irritation persists.

INGESTION: If ingested, get immediate medical attention. Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

INHALATION: Remove to fresh air. Get medical attention immediately for a large dose exposure or if cough or other symptoms develop. Administer oxygen or artificial respiration as needed.

NOTES TO PHYSICIAN: Treat symptomatically and supportively.

Eyes: Stain for evidence of corneal injury. If cornea is burned, apply antibiotic/steroid preparation as needed.

Skin: This product contains a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestion: Treat symptomatically.

Inhalation: This material contains a known pulmonary sensitizer.

Any individual experiencing dermal or pulmonary sensitization should be removed from exposure to any diisocyanate. May aggravate existing heart conditions, particularly those with abnormal heart rhythms. If overexposure to the solvents in this product is suspected, testing should include nervous system and brain effects including recent memory, mood, concentration, headaches and altered sleep patterns. Liver and kidney function should be evaluated. This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 74.4°C (166°F)

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, or foam. Water spray (fog).

HAZARDOUS COMBUSTION PRODUCTS: Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

EXPLOSION HAZARDS: None known.

FIRE FIGHTING EQUIPMENT: Firefighters should wear full protective clothing including self contained breathing apparatus.

SENSITIVE TO STATIC DISCHARGE: Not known.

SENSITIVITY TO IMPACT: Not known.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations.

LARGE SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations. Ventilate well while cleanup is in process and until fumes dissipate.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from entering sewers or water streams. Scrape up polyurethane and deposit into appropriate containers.

LAND SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from contaminating soil. Scrape up polyurethane and deposit into appropriate containers.

7. HANDLING AND STORAGE

HANDLING: Wash hands thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles, face shields, and gloves. Professionally launder contaminated clothing before re-use. Do not breathe vapors, mists or dusts. Do not breathe fumes generated when the material is overheated or burned. Use adequate ventilation. Wear respiratory protection if the material is heated, sprayed, used in a confined space or if exposure limit is exceeded. This product can produce asthmatic sensitization. Individuals with lung or breathing problems or prior allergic reactions to isocyanate must avoid fumes from this product. Wear appropriate protective equipment to avoid contact with skin and eyes.

STORAGE: Store in a cool, dry, well-ventilated area away from heat, ignition sources and direct sunlight. Water contamination should be avoided. Cool location should be 60-80 degrees F or 15-30 degrees C.

COMMENTS: Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption, or where skin contact can occur.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		ppm	mg/m ³	ppm	mg/m ³
Xylenes (o-,m-,p- Isomers)	TWA	100	435	100	434
	STEL			150	651
Ethyl Benzene	TWA	100	435	100	434
	STEL			125	543
Methylene Disphenyl Isocyanate	TWA			0.005	0.051

ENGINEERING CONTROLS: Use local exhaust or general ventilation where the potential exists to exceed the PEL or TLV exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields or goggles when handling this material.

SKIN: Wear appropriate clothing to minimize skin contact with this product.

RESPIRATORY: Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.

OTHER USE PRECAUTIONS: Eyewash fountains and emergency showers should be readily available.

COMMENTS: Wash hands thoroughly after each use, especially before eating or smoking. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Paste

ODOR: Solvent

COLOR: Various

pH: Not Applicable

PERCENT VOLATILE: 4

FREEZING POINT: NA = Not Applicable

FLASHPOINT AND METHOD: 74.4°C (166°F)

DENSITY: 11.22

(VOC): 3.900 %

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: Yes

STABILITY: This product is stable under normal conditions but will react slightly with water to release some heat and carbon dioxide. The reaction is not violent. Carbon dioxide, carbon monoxide and in high temperature (800 °F) low oxygen atmospheres such as in fire situations, hydrogen cyanide may be released.

POLYMERIZATION: Hazardous polymerization can occur with elevated temperatures or contact with water.

CONDITIONS TO AVOID: Avoid strong acids. Avoid amines, strong bases, alcohols and metallic hydrides.

HAZARDOUS DECOMPOSITION PRODUCTS: Unknown due to the complex nature of this material. Fumes from complete or incomplete combustion may include carbon dioxide, carbon monoxide, water vapor, oxides of nitrogen and a wide variety of innocuous or toxic fumes. Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Irritating to the eyes.

SKIN EFFECTS: Irritating to the skin.

CARCINOGENICITY

Chemical Name	IARC Status
Ethyl Benzene	2B

Notes: This product contains Methylene Diphenyl Isocyanate (MDI). MDI is not listed by the NTP, IARC or regulated by OSHA as a carcinogen. However, it has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity.

REPEATED DOSE EFFECTS: Single large doses, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases. Chronic exposure may cause lung damage, including fibrosis and decreased lung function, which may be permanent.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

OTHER SHIPPING INFORMATION: Generators must consult DOT laws and regulations to ensure the product is being transported appropriately.

AIR (ICAO/IATA): Not regulated as dangerous goods.

VESSEL (IMO/IMDG): Not regulated as dangerous goods.

COMMENTS: Not regulated as dangerous goods.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: This product poses the following physical and health hazard(s) as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

FIRE: Yes **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** Yes

313 REPORTABLE INGREDIENTS: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR372. CAS #: 101-68-8 MDI, CAS #: 1330-20-7 Xylene and CAS #100-41-4 Ethyl Benzene.

EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	Wt. %	CAS
Xylenes (o-,m-,p- Isomers)	1 - 5	1330-20-7
Ethyl Benzene	0.5 - 1.5	100-41-4

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

Chemical Name	Wt. %	CERCLA RQ
Xylenes (o-,m-,p- Isomers)	1 - 5	100
Ethyl Benzene	0.5 - 1.5	1,000
Methylene Disphenyl Isocyanate	0.1 - 1	5,000

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
Xylenes (o-,m-,p- Isomers)	1330-20-7
Ethyl Benzene	100-41-4
Methylene Disphenyl Isocyanate	101-68-8

CALIFORNIA PROPOSITION 65: This product contains the following product on California's Proposition 65 List: CAS# 100-41-4 Ethyl Benzene.

Chemical Name	Wt. %	Listed
Ethyl Benzene	0.5 - 1.5	Cancer

16. OTHER INFORMATION

PREPARED BY: Technical Staff

REVISION SUMMARY: Revision #: 4. This MSDS replaces the January 28, 2010 MSDS. Any changes in information are as follows: In Section 14: International (IMO /IMDG) - Note, Air (IATA /ICAO) - Note, TREMCARD - Additional Information

NFPA STORAGE CLASSIFICATION: Health 2, Flammability 2, Physical Hazard 0

HMIS RATINGS NOTES: Health 2, Flammability 2, Physical Hazard 0, PPE X



INSTALLATION & OPERATING INSTRUCTIONS
Instruction P/N IN015 Rev E
FOR CHECKPOINT IIa™ P/N 28001-2 & 28001-3
RADON SYSTEM ALARM

INSTALLATION INSTRUCTIONS
(WALL MOUNTING)

Select a suitable wall location near a vertical section of the suction pipe. The unit should be mounted about four or five feet above the floor and as close to the suction pipe as possible. Keep in mind that with the plug-in transformer provided, the unit must also be within six feet of a 120V receptacle. **NOTE: The Checkpoint IIa is calibrated for vertical mounting, horizontal mounting will affect switchpoint calibration.**

Drill two 1/4" holes 4" apart horizontally where the unit is to be mounted.

Install the two 1/4" wall anchors provided.

Hang the CHECKPOINT IIa from the two mounting holes located on the mounting bracket. Tighten the mounting screws so the unit fits snugly and securely against the wall.

Drill a 5/16" hole into the side of the vent pipe about 6" higher than the top of the unit.

Insert the vinyl tubing provided about 1" inside the suction pipe.

Cut a suitable length of vinyl tubing and attach it to the pressure switch connector on the CHECKPOINT IIa.

CALIBRATION AND OPERATION.

The CHECKPOINT IIa units are calibrated and sealed at the factory to alarm when the vacuum pressure falls below the factory setting and should not normally require field calibration. Factory Settings are:

28001-2 -.25" WC Vacuum

28001-3 -.10" WC Vacuum

To Verify Operation:

With the exhaust fan off or the pressure tubing disconnected and the CHECKPOINT IIa plugged in, both the red indicator light and the audible alarm should be on.

Turn the fan system on or connect the pressure tubing to the fan piping. The red light and the audible alarm should go off. The green light should come on.

Now turn the fan off. The red light and audible alarm should come on in about two or three seconds and the green light should go out.

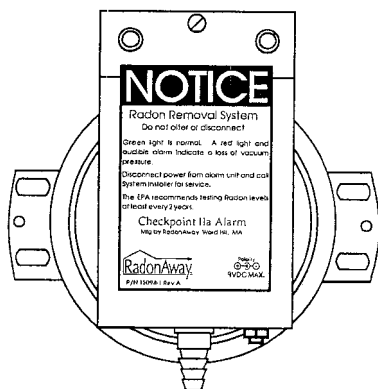
WARRANTY INFORMATION

Subject to applicable consumer protection legislation, RadonAway warrants that the CHECKPOINT IIa will be free from defective material and workmanship for a period of (1) year from the date of purchase. Warranty is contingent on installation in accordance with the instructions provided. This warranty does not apply where repairs or alterations have been made or attempted by others; or the unit has been abused or misused. Warranty does not include damage in shipment unless the damage is due to the negligence of RadonAway. All other warranties, expressed or written, are not valid. To make a claim under these limited warranties, you must return the defective item to RadonAway with a copy of the purchase receipt. RadonAway is not responsible for installation or removal cost associated with this warranty. In no case is RadonAway liable beyond the repair or replacement of the defective product FOB RadonAway.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO WARRANTY OF MERCHANTABILITY. ALL OTHER WARRANTIES, EXPRESSED OR WRITTEN, ARE NOT VALID.

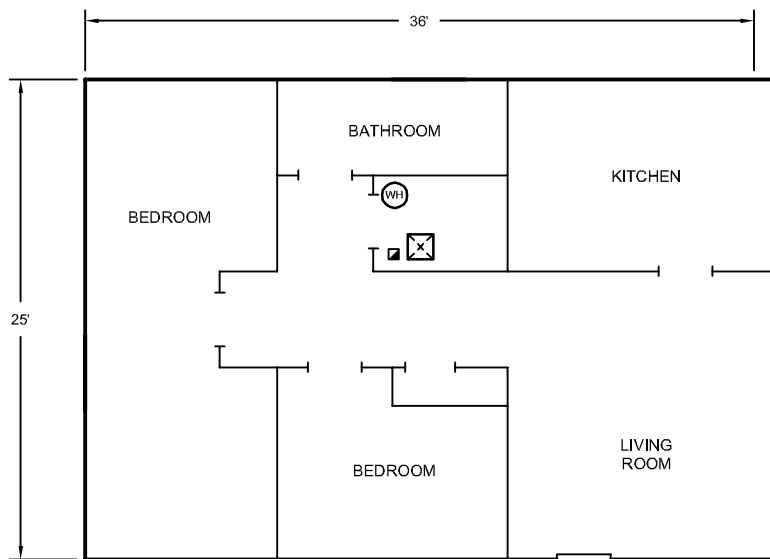
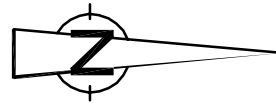
For service under these warranties, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. **No returns can be accepted without an RMA.** If factory return is required, the customer assumes all shipping costs to and from factory.

Manufactured by:
RadonAway
Ward Hill, MA
(978)-521-3703



ATTACHMENT F

AS-BUILT DRAWING



HOLLOVY STREET

LEGEND



INTERIOR MOUNTED RADON FAN



WATER HEATER



SUB SLAB EXTRACTION POINT

NOTES

FAN WILL BE INSTALLED IN ATTIC

VAPOR INTRUSION MITIGATION SYSTEM AS-BUILT
411 HOLLOVY STREET
Attica, Indiana



ATTACHMENT G

SITE PHOTOGRAPHS AFTER SYSTEM CONSTRUCTION



Photo 1 – VM system showing manometer, label and alarm



Photo 2 – VM system extraction point

SITE PHOTOGRAPHS



Photo 3 – VM system extraction pipe penetration through ceiling

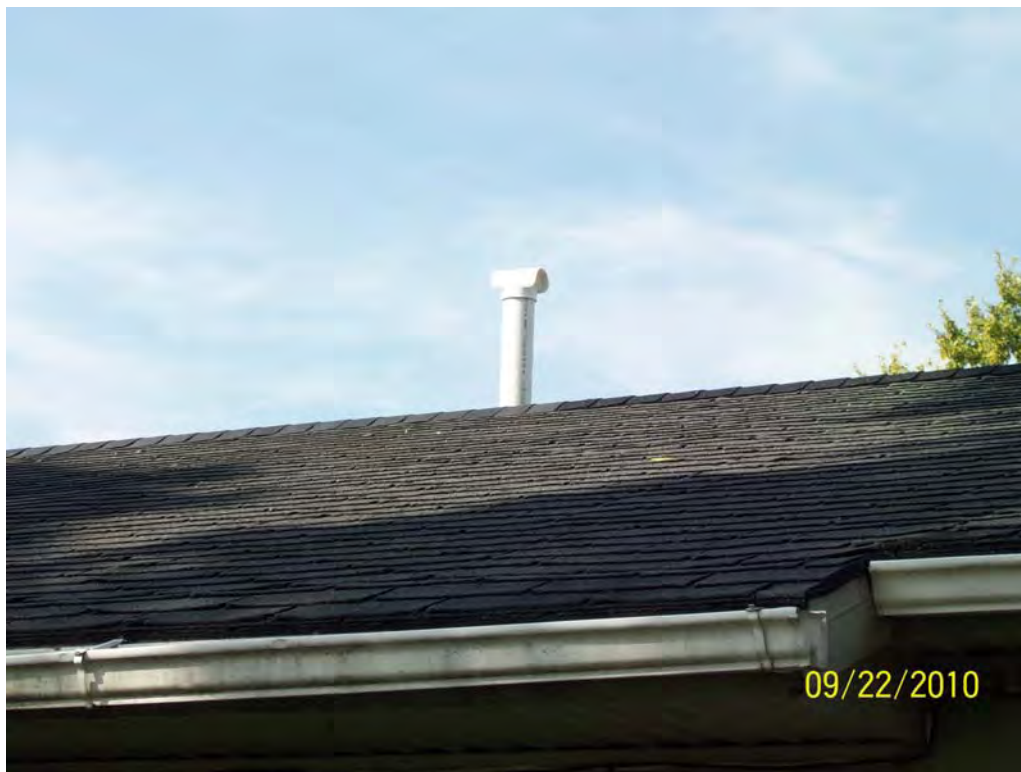


Photo 4 – VM system discharge point

SITE PHOTOGRAPHS



Photo 5 – VM system fan mounted in attic

SITE PHOTOGRAPHS

ATTACHMENT H

VAPOR INTRUSION MITIGATION COMPLETION FORM



**CONESTOGA-ROVERS
& ASSOCIATES**

6520 Corporate Drive
Indianapolis, Indiana 46278
Telephone: (317) 291-7007 Fax: (317) 328-2666
www.CRAworld.com

Vapor Intrusion Mitigation Completion Form Attica, Indiana

Start Date 8 / 26 / 10 Completion Date 9 / 13 / 10
Inspection Date: 9 / 14 / 10
Inspection Time: 4:00 AM / PM

RESIDENCE INFORMATION

Name: Pete Bodine
Address: 419 Baxter St
Phone: _____

Basement: Y N
Wall Construction: Brick Block Stone Concrete Other: _____
Floor Construction: Concrete Unfinished Finished
Furnace: Y N
Water Heater: Y N
Other: _____
Crawl Space(s): Y N

VAPOR INTRUSION MITIGATION MEASURES

Meets Specification

Y N NA

1.0 PIPING

Suction Point Pipe Size	Diameter: _____ in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Manifold Pipe Size	Diameter: _____ in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vent Pipe Size	Diameter: _____ in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sloping of Horizontal Runs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vent Pipe Discharge		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Supports and Fastening		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Installation		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.0 VAPOR INTRUSION FAN

Fan Model	Brand/Model No.: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fan Housing		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Installation		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.0 GENERAL SEALING

<u>Basement Walls:</u>				
Sealant		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Seal Paint		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Concrete Block Top Voids		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vapor Barrier	Mil: <u>6 mil</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Meets Specification

Y N NA

Basement Floor:

New Concrete

☐ ☐ ☒

Vapor Seal Paint

☐ ☐ ☒Vapor Barrier Mil: 12☒ ☐ ☐

Floating Floor

☒ ☐ ☐

Sump Pit/Pump

☒ ☐ ☐

Drains Sealed Type: _____

☐ ☐ ☒

Floor Joist Vapor Barrier

☐ ☐ ☒4.0 SUB-SLAB DEPRESSURIZATION

Extraction Points No.: _____

☐ ☐ ☒

Locations

☐ ☐ ☒

Installation

☐ ☐ ☒

Backdrafting Test on Non-Electric Appliances

☐ ☐ ☒

List appliances tested and observations: _____

5.0 SUBMEMBRANE DEPRESSURIZATION

Seams and Tape

☐ ☐ ☒Crawl Space:

Vapor Barrier Mil: _____

☐ ☐ ☒Vapor Barrier Installation:

Extraction Points No.: _____

☐ ☐ ☒

Extraction Pipe Installation

☐ ☐ ☒6.0 ELECTRICAL

Component Installation

☒ ☐ ☐7.0 MATERIALS

Electrical

☒ ☐ ☐

Piping

☐ ☐ ☒

Membranes

☒ ☐ ☐

Caulks and Sealants

☒ ☐ ☐

Wood/Header Boards

☐ ☐ ☒8.0 MONITORING AND LABELING

Manometer Reading: _____

☐ ☐ ☒

Vapor Fan Alarm

☐ ☐ ☒

System Labels

☐ ☐ ☒

Circuit Breaker Labeling

☐ ☐ ☒

Meets Specification

Y N NA

9.0 OTHER REQUIREMENTS (List from Final Design)

Sump pit

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTES: _____

Completion Photos Taken (10 Minimum):

Y

N

Project Completed by: .

Cain Contracting

Inspector:

St E Dan

Signature

Steven E. Davis

Print Name



VAPOR MITIGATION AS-BUILT SPECIFICATIONS

808 PARK AVENUE
ATTICA, INDIANA

Prepared for:
KRAFT FOODS GLOBAL, INC.

OCTOBER 14, 2010
REVISION (0)
REFERENCE No. 019190

Prepared by:
**Conestoga-Rovers
& Associates**

6520 Corporate Drive
Indianapolis, IN 46278

Office: (317) 291-7007
Fax: (317) 328-2666

web: <http://www.CRAworld.com>

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

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**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

LIST OF ATTACHMENTS

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ATTACHMENT B	SITE PLAN
ATTACHMENT C	TYPICAL SYSTEM DRAWING
ATTACHMENT D	SITE PHOTOGRAPHS BEFORE SYSTEM CONSTRUCTION
ATTACHMENT E	MATERIAL SPECIFICATIONS AND MSDS
ATTACHMENT F	AS-BUILT DRAWING
ATTACHMENT G	SITE PHOTOGRAPHS AFTER SYSTEM CONSTRUCTION
ATTACHMENT H	VAPOR INTRUSION MITIGATION COMPLETION FORM

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

1.0 PIPING INSTALLATION REQUIREMENTS

1. All vent stack piping will be solid, 4-inch inside diameter (ID) rigid pipe.
2. All manifold piping will be rigid pipe not less than 4-inch ID.
3. All suction point piping will be rigid pipe not less than 3-inch ID.
4. All pipe joints and connections in vapor intrusion (VI) systems, both interior and exterior, will be sealed permanently. Exceptions include installation of radon fans and sump covers.
5. VI system piping installed in the interior or on the exterior of a building, will be insulated where condensation on the pipe's exterior may drip onto and damage ceilings and floors, etc., and where water vapor, from the soil, may condense inside the pipe, and then freeze partially or fully blocking the soil gas exhaust.
6. VI piping will be fastened to the structure of the building with hangers, strapping, or other supports that will secure it adequately.
7. VI piping will not be attached to or supported by existing pipes, ducts, conduits, or any kind of equipment.
8. VI piping will not block window and doors or access to installed equipment.
9. Supports for VI piping should be installed at least every 6 feet on horizontal runs. Vertical runs will be secured either above or below the points of penetration through floors, ceilings, and roofs, or at least every 8 feet on runs that do not penetrate floors, ceilings, or roofs.
10. To prevent blockage of air flow into the bottom of suction point pipes, they will be supported and secured in a permanent manner that prevents their downward movement to the bottom of suction pits.
11. Horizontal runs in VI system piping will be sloped to ensure that water from rain or condensation drains downward into the ground beneath the slab.
12. To reduce the risk of vent stack blockage due to heavy snowfall, to reduce the potential for re-entrainment of vapor into the living spaces of a building, and to prevent direct exposure of individuals outside of buildings, the discharge from vent stack pipes of active soil depressurization systems will meet the following minimum requirements.

The discharge from vent stacks pipes will be:

- Vertical and upward, outside the structure, at least 10 feet above the ground level, above the edge of the roof, and will also meet the separation

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

requirements. Whenever practicable, they will be above the highest roof of the buildings and above the highest ridge.

- Ten feet or more away from any window, door, or other opening into conditioned or otherwise occupiable spaces of the structure, if the discharge point is not at least 2 feet above the top of such openings.
- Ten feet or more away from any opening into the conditioned or other occupiable spaces of an adjacent building. Chimney flues will be considered openings into conditioned or otherwise occupiable space.
- For vent stack pipes that penetrate the roof, the point of discharge will be at least 12 inches above the surface of the roof.
- For vent stack pipes attached to or penetrating the sides of buildings, the point of discharge will be vertical and a minimum of 6 inches above the edge of the roof and in such a position that it can neither be covered with snow, or other materials nor be filled with water.
- When a horizontal run of vent stack pipe penetrates the gable end walls, the piping outside the structure will be routed to a vertical position so that the discharge point meets the requirements.
- Points of discharge that are not in a direct line of sight from openings into conditioned or otherwise occupiable space because of intervening objects, such as dormers, chimneys, windows around the corner, etc. will meet the separation requirements.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

2.0 VAPOR INTRUSION BLOWER INSTALLATION REQUIREMENTS

1. Contractor will install a Fantech HP220 for this application.
2. Blower will be installed outside the building, outside of occupiable space. Blower location is chosen to minimize the risk of vapor entry into living spaces which could result from leaks in fan housing or in the vent stack piping above the fan.
3. Blower will be installed in a configuration that avoids condensation buildup in the blower housing.
4. Blower mounted on the exterior of buildings will be rated for outdoor use and installed in a weather proof protective housing.
5. Blower will be mounted and secured in a manner that minimizes transfer of vibration to the structural framing of the building.
6. To facilitate maintenance and future replacement, blower will be installed in the vent pipe using removable couplings or flexible connections that can be tightly secured to both the fan and the vent pipe.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

3.0 GENERAL SEALING REQUIREMENTS

1. Openings around the suction point piping penetrations of the slab, accessible openings around utility penetrations of the slab, accessible openings around utility penetrations of the foundation walls and slab, and other openings in slabs will be sealed using urethane caulk or equivalent material. When the joint is greater than 1/2 inch in width, a foam backer rod or other comparable filler material will be inserted into the joint before the application of the sealant.
2. Openings and cracks where the slab meets the foundation wall and cracks in the floors will be sealed using urethane caulk or equivalent material. When the joint is greater than 1/2 inch in width, a foam backer rod or other comparable filler material will be inserted into the joint before the application of the sealant.
3. For hollow cinderblock or hollow concrete block wall foundations, the top voids of accessible blocks will be sealed using an insulating expandable foam material.
4. Exterior porous basement foundation walls (i.e., cinderblock and concrete block, mortar between bricks, etc.) will be sealed by applying a vapor-tight product (Ames Blue Max and Ames Block & Wall). Basement floors will be sealed with Ames Blue Max and Ames Safe-T-Deck). Prior to applying the product, the walls and floor will be cleaned and primed as appropriate and cracks in the blocks and mortar will be sealed as described in this section.
5. Basement floor drains (3) that remain in service will be fitted with a P-trap in a manner that provides a minimum 6-inch standing water seal depth. All concrete removed during fitting of P-traps will be repaired.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

4.0 ACTIVE SUB-SLAB DEPRESSURIZATION (SSD) REQUIREMENTS

1. To enhance pressure field extension, excavate as much as 1 ft³ of sub-slab material below and around each suction point pipe. The end of the suction point pipe will have an excavated hole, at least one pipe diameter deep, directly below it. This hole will be backfilled with pea gravel to support the suction pipe.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

5.0 SUBMEMBRANE DEPRESSURIZATION (SMD) REQUIREMENTS

This section is not applicable.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

6.0 ELECTRICAL REQUIREMENTS

1. All mitigation system electrical components will be UL listed.
2. Wiring will not be located inside the VI system piping or within any other heating or cooling ductwork.
3. Any plugged cord used to supply power to a VI fan will be no more than 6 feet in length.
4. No plugged cord may penetrate a wall or be concealed within a wall.
5. A disconnecting means is a switch, a plugged cord, or a branch circuit overcurrent device.
 - A disconnecting means will be present in the electric circuit powering VI fans.
 - The disconnecting means will be located within sight of the VI fan.
 - Operation of the VI fan's disconnecting means must not interrupt the power to other electrical devices in the dwelling.
6. Flexible plugged cords, properly rated for electrical capacity and weather, may be used on VI fans inside or outside the building. These flexible plugged cords may also serve as a disconnecting means inside or outside the building.
7. Fan, cords, plugs, receptacles, receptacle enclosures, switches, switch enclosures, etc., intended for outside use must have a weatherproof and unattended use rating, and are different than what is generally used inside the building.
8. A hard-wired electrical connection (with a disconnect switch) will be installed outdoors.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

7.0 MATERIALS

1. As a minimum, all plastic VI system piping in depressurization systems will be made of Schedule 40 PVC piping material.
2. Fittings used in VI system piping will be of the same material as the piping itself. This material compatibility enables the required cementing of all piping connections. However, when mounting fans and when making removable connections which facilitate maintenance, rubber couplings suitable for use in sanitary sewer systems will be used instead of cemented pipe joints.
3. The plastic pipe cleaner and cement will be compatible with the kind of plastic in the VI system piping and will be used as recommended by its manufacturer.
4. When sealing holes for plumbing rough-in or other large openings in slabs and foundation walls that are below the ground surface, non-shrink mortar, grouts, expanding foam, or similar materials designed for such application will be used.
5. Any wood or other material that contacts masonry or soil will be pressure treated, or otherwise protected and resistant to decay and insect attack. Such material would be used to attach membranes to crawlspace walls, etc.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

8.0 MONITORING AND LABELING

1. The system will include a RadonAway Checkpoint IIa alarm mechanism that will provide a visual and audible indication of system degradation and failure.
 - The alarm mechanism will be located where it is easily seen and heard.
 - The RadonAway Checkpoint IIa alarm mechanism is capable of having its calibration quickly verified on site.
 - The RadonAway Checkpoint IIa alarm mechanism is powered by house current, it shall be installed on a nonswitched circuit and be designed to reset automatically after a power failure.
2. The system vacuum monitor will consist of a mechanical monitor such as a U-tube manometer with readout.
3. Mechanical VI mitigation system monitors will be clearly marked to indicate the initial pressure readings.
4. VI system description label will be placed on the mitigation system, the electric service entrance panel, or other prominent location.
 - This label will be legible from a distance of at least 3 ft.
 - This label will display the following information: the words "VI Mitigation System-Do Not Alter or Disconnect", the installer's name and phone number, the date of installation.
 - A label will be affixed to the electric circuit box stating "VI System Circuit Do Not Disconnect".
 - Labels will be placed on the soil ventilation piping in prominent areas stating "Soil Ventilation Pipe Not for Plumbing or Other Use" or similar.
5. The circuit breaker(s) controlling the circuits on which the fan and system failure warning devices operate will be labeled using the words "Vapor Intrusion", or if two circuits, "VI Fan", and "VI Monitor". If other rooms and appliances are on the circuit, they should also be shown on the label.

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK AVENUE
ATTICA, INDIANA**

9.0 OTHER SPECIFICATIONS

This section is not applicable.

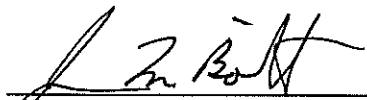
**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK STREET
ATTICA, INDIANA**

10.0 SIGNATURES/APPROVALS


10.1 DESIGN APPROVALS

This design was completed, reviewed, and approved by the individuals below.

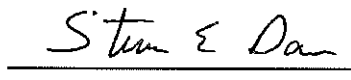
By:

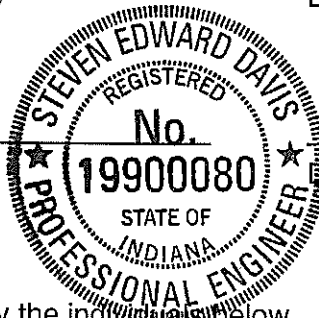

Preparer's Signature

07-14-10
Date


Project Manager's Signature

7/19/10
Date



Engineer's Signature/Seal



7/14/10
Date

This design was reviewed by the individuals below.

By:


Contractor Representative's Signature

7/14/10
Date

**SYSTEM SPECIFICATIONS
VAPOR INTRUSION MITIGATION SYSTEM
808 PARK STREET
ATTICA, INDIANA**

10.2 CONSTRUCTION APPROVALS

I have completed the inspection of the VI mitigation system and certify that the installation was completed in accordance with the approved design specifications and any approved modifications thereto.

By:

St E Da
CRA CQA Inspector's Signature

10/14/10
Date

D. Owen
Contractor's Representative's Signature

10-19-10
Date

St E
Engineer's Signature/Seal

10/20/10
Date



ATTACHMENT A

RESIDENTIAL INSPECTION FORM



**CONESTOGA-ROVERS
& ASSOCIATES**

6520 Corporate Drive
Indianapolis, Indiana 46278
Telephone: (317) 291-7007 Fax: (317) 328-2666
www.CRAworld.com

RESIDENTIAL INSPECTION FORM

Preparer's Name: J. Bolist Date: 06-24-10
Site Address: 808 Park

Part I - Occupants

List of Current Occupants/Occupation (include children)

Name	Age	Address: (Lot # or apt. #)	Sex (M/F)	Occupation	Basement Occupancy (Yes/No)	Attic Occupancy (Yes/No)
Jason Haddock	32		M	-	NO	NO
Brandon H.	5		M	-		
Tyler Jordan	14		M	-		
Emily H.	34		F	Factory	↓	↓

Part II - Building Characteristics

Building type: residential / multi-family residential / office / strip mall / commercial / industrial / other

Describe building: Green 2 story Year constructed: ~1940

Number of floors at or above grade: 2

Number of floors below grade: 1 (full basement / crawl space / partial basement / partial crawlspace / slab on grade)

Depth of basement below grade surface: ~8 ft Basement size: _____ ft²

Basement floor construction: concrete / soil / slab / stone / other (specify): _____

Describe further as appropriate: _____

Foundation walls: poured concrete / cinder blocks / stone / bricks / other (specify): _____

Basement sump present? Yes / No Sump pump? Yes / No Water in sump? Yes / No

Basement floor drains present? Yes / No 4 Water in drain? Yes / No

Significant cracks present in basement floor? Yes / No Describe: _____

Significant cracks present in basement walls? Yes / No Describe: _____

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Yes No

Is there a whole house fan? Yes No

Type of ground cover outside of building: grass / concrete / asphalt / other (specify) _____

Sub-slab vapor/moisture barrier in place? Yes / No / Don't know

Type of barrier: _____

Type of heating system (circle all that apply):

hot air circulation

hot air radiation

wood stove

steam radiation

heat pump

hot water radiation

kerosene heater

electric baseboard

central air conditioning

fireplace

other (specify): _____

Type of fuel utilized for heating system (circle all that apply):

Natural gas

/ electric / fuel oil / wood / coal / solar / kerosene / other (specify): _____

Type of fuel utilized for water heater:

Natural gas / electric

Backdrafting test conducted on non-electric appliances: Yes / No / Not Applicable

List appliances tested and observations: WH + F - PASS

Are utility penetrations present through basement walls, foundation walls, and floors of houses with crawlspaces? Yes / No Describe:

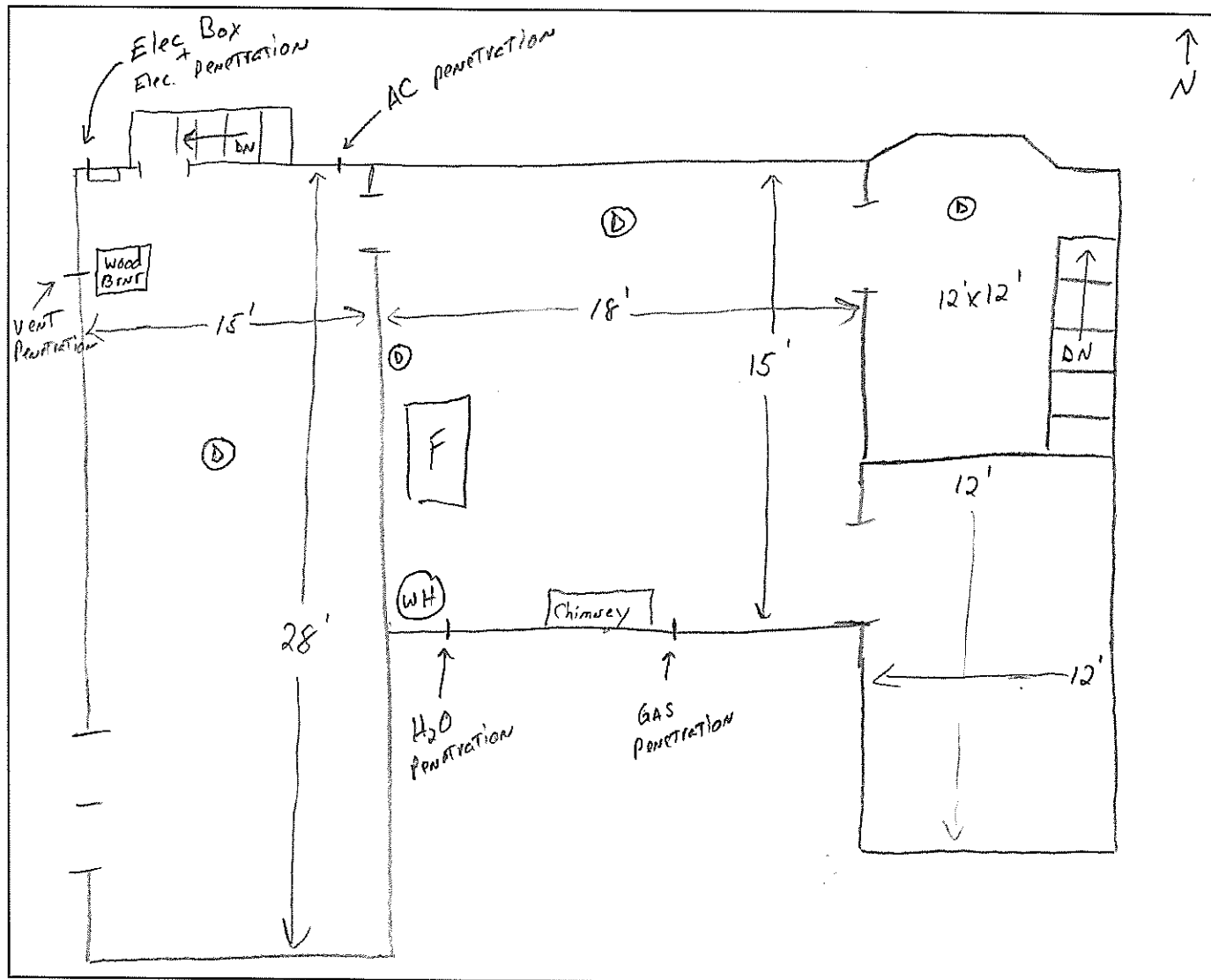
Elec, HVAC, GAS - WATER

Describe any other potential vapor diffusion routes observed (e.g., old coal chutes through basement walls, etc.)

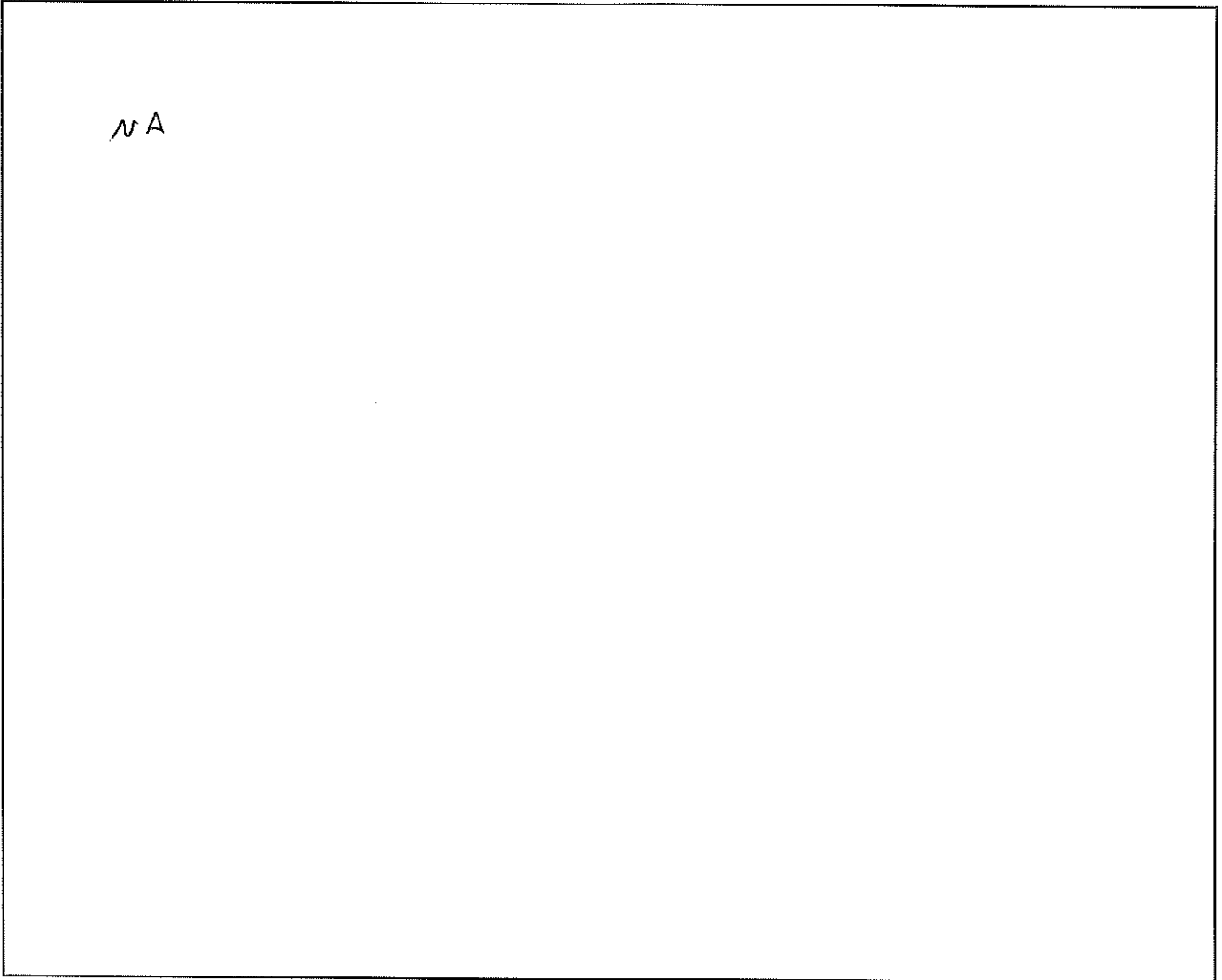
Attached Shop - see figure & notes

Provide Drawing of the lowest floor of the building

808 Park



Provide Drawing of the main floor of the building



N A

Provide Drawing of the second floor of the building, if present

NA

Part III - Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor & room) at the time of inspection.

Potential Sources	Location (s)
Gasoline storage cans	NO
Gas-powered equipment (mowers, etc)	Some - out board - moped - 4-wheeler - chain saw
Kerosene storage cans	NO
Paints / thinners / strippers	NO
Cleaning solvents	NO
Moth balls	NO
Insecticides	NO
New furniture / upholstery	NO
New carpeting / flooring	NO
Hobbies - glues, paints, lacquers, photographic darkroom chemicals, etc.	NO
Other (specify):	

Part IV - Miscellaneous Items

Do any of the occupants of the building smoke? Yes / (No)

Does the building have an attached garage directly connected to living space? Yes / (No)

If so, is a car usually parked in the garage? Yes / (No)

Are gas-powered equipment or cans of gasoline/fuels stored in the garage? Yes / (No)

Do the occupants of the building have their clothes dry cleaned? Yes / (No)

If yes, how often? Weekly / monthly / 3-4 times a year

When was the last dry cleaned garment brought home? _____

Do any of the occupants use solvents in work? Yes / (No)

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Yes / No

Has there ever been a fire in the building? Yes / (No) If yes, when? _____

Has painting or staining been done in the building in the last 6 months? (Yes) / No

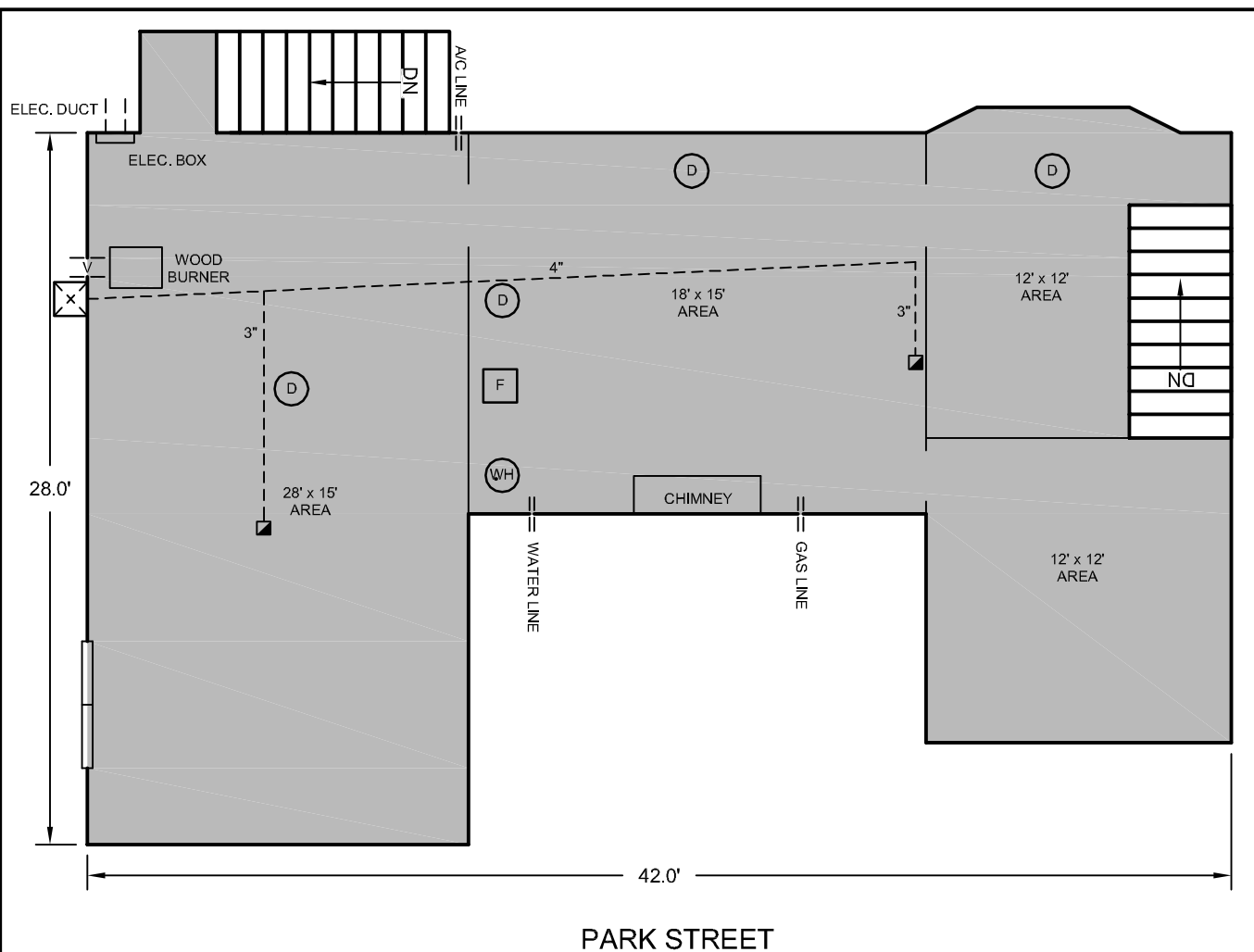
If yes, when? 1 month ago and where? bathroom

Other Observations:

propane - engine oils - lubricants - electronic cleaner - carb cleaner
Dry-cell battery

ATTACHMENT B

SITE PLAN



LEGEND (EXISTING)

- EXISTING FURNACE
- EXISTING WATER HEATER
- EXISTING FLOOR DRAIN

LEGEND (PROPOSED)

- EXTERIOR MOUNTED RADON FAN
- SUB SLAB EXTRACTION POINT
- VAPOR TIGHT COATING ON FLOOR AND WALLS (BLUE MAX OR EQUIVALENT)



NOTES

- EXISTING DRAINS WILL BE REPLACED WITH TRAPPED DRAINS.
- WOOD BURNING STOVE WILL BE REMOVED BY RESIDENT PRIOR TO SYSTEM INSTALL.

VAPOR INTRUSION MITIGATION SYSTEM DESIGN
808 PARK STREET
Attica, Indiana



ATTACHMENT C

TYPICAL SYSTEM DRAWING

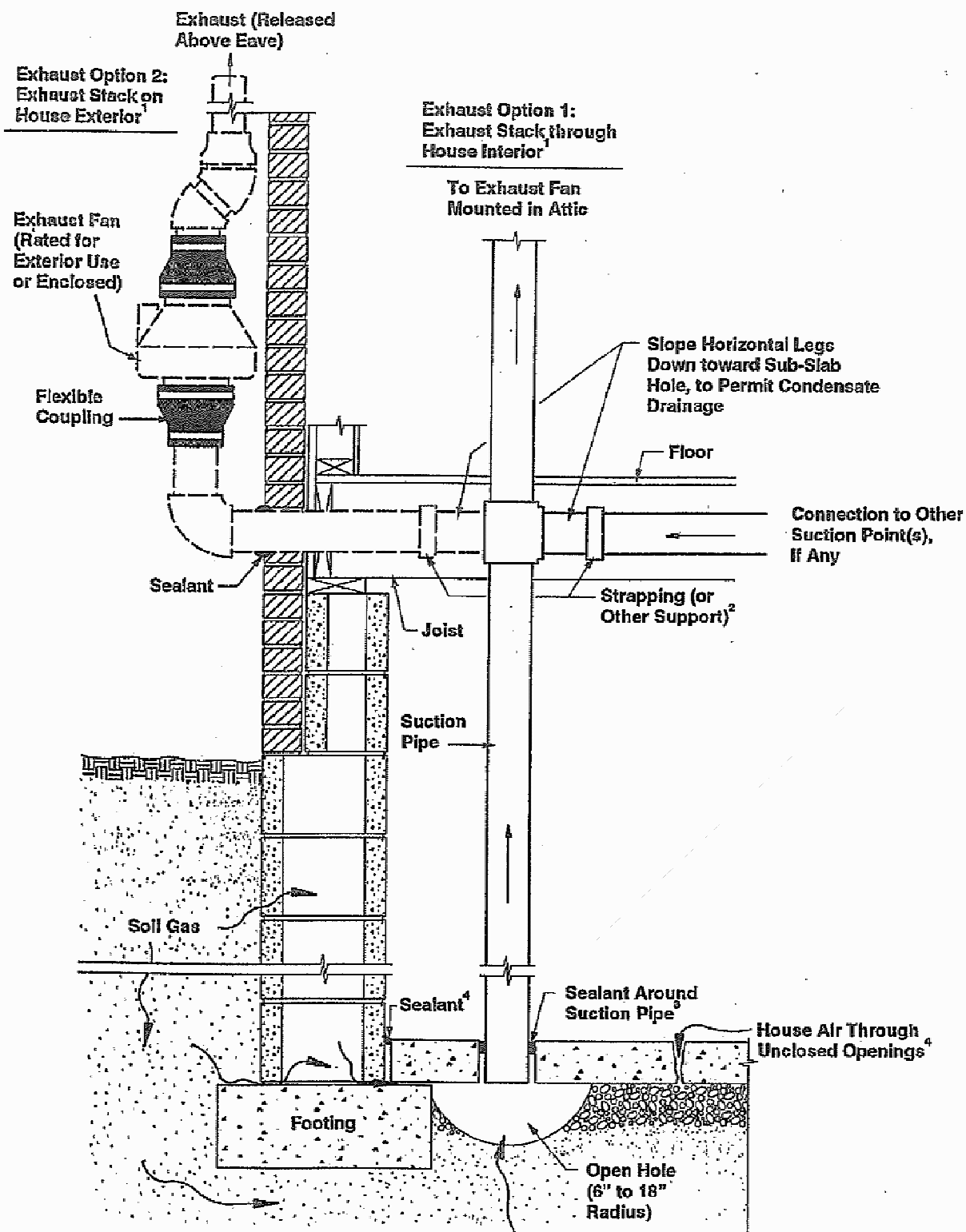


figure GS-1

TYPICAL SUBSLAB DEPRESSURIZATION (SSD) SYSTEM Attica, Indiana



REFERENCE: EPA/625/R-93/011

19190-01(034)GN-WA003 JAN 20/2010

ATTACHMENT D

SITE PHOTOGRAPHS BEFORE SYSTEM CONSTRUCTION



Photo 1 – Basement stairs and typical block wall construction



Photo 2 – Basement wall construction

SITE PHOTOGRAPHS



Photo 3 – Furnace, water heater, and vents to chimney



Photo 4 – Laundry room in southeast corner of basement

SITE PHOTOGRAPHS



Photo 5 – Blocked window in laundry room



Photo 6 – Wood burning heater, blocked window and former exterior access door in Northwest corner of basement shop

SITE PHOTOGRAPHS



Photo 7 – Former exterior entrance - concrete slab currently seals entrance



Photo 8 – Former exterior entrance stairs and concrete slab above

SITE PHOTOGRAPHS



Photo 9 – Shop area of basement with wash tub and double exterior doors



Photo 10 – Wood burning heater vent stack and proposed location of vent fan

SITE PHOTOGRAPHS

ATTACHMENT E

MATERIAL SPECIFICATIONS AND MSDS

**LIST OF MATERIAL SPECIFICATIONS AND MSDS
808 PARK AVENUE
ATTICA, INDIANA**

<i>Component</i>	<i>Product Code</i>
Adhesive Tape	Eternabond (DoubleStick)
Adhesive Tape Primer	Eternabond (EternaPrime)
Caulk	NuFlex 110 Gutter Seal
Fan	Fantech HP220
Fan Guard	FG-43
Fan Housing	WFH89
Foam Applicator Cleaning Agent	TriggerFoam Cleaner
Foam Sealant	Power Fasteners PowerFoam and TriggerFoam
Pipe Cement	WELD-ON 717
Pipe Insulation	Armaflex AF-424
Roofing Sealant	Geocel 3300
Sealant	Ames Block & Wall
Sealant	Ames Blue Max
Sealant	Ames Saf-T-Deck
System Alarm	RadonAway Checkpoint IIa
Vent Cap	RC40-4

ETERNABOND**DoubleStick***MicroSealant Putty Tape*

DoubleStick is pure EternaBond advanced MicroSealant with a removable siliconized release liner on each side. Designed to bond two surfaces, even two surfaces made of two or more dissimilar materials. DoubleStick creates a tight, permanent, waterproof seal. DoubleStick remains flexible to temperatures as low as -70°F making it virtually impossible to thermally shock the seal causing a leak.

DoubleStick Bonds to a wide range of surfaces including EPDM, TPO, most PVC, CSPE/Hypalon, CPE, SBS, APP modifieds, asphalt BURs, coal tar BURs, tiles, shingle, coated and non-coated aluminum and metal roofs, galvanized steel, gypsum board, wood, polyethylene, propylene, polystyrene, fiberglass, brick, concrete, masonry, OSB board, shielding membranes, etc.

Basic Use

DoubleStick tape is a self-sealing adhesive creating a water-tight, conformable seal between two or more irregular surfaces, and/or creates a weather proof, permanent bond between two or more similar or dissimilar surfaces. Use as a lap seal, under the foot of an equipment curb or skylight, or roll it into a bead or ball of MicroSealant to form a gasket, seal a gap or seal, or as needed.

Composition

DoubleStick utilizes EternaBond's advanced MicroSealant Technology, a 100% solids formulation of synthetic resins, thermoplastics and non-curing rubber (non butyl) with a built in primer, between two silicone release liners.

Technical Data

Adhesion	19lbs/in width
Application temperature	150°F to -20°F ambient
Available widths	Up to 48" as special order
Dielectric strength	Exceeds 12 kV
Elongation	>500%
Insulation resistance	10 to the 6 th power megohms
Low temperature flexibility	½" radius at -30°F
Permanence	.001 perms maximum
Pliability	No cracks in membrane
Shelf Life	Up to 5 years
Standard case quantity	100 sq. ft. per case
Standard roll sizes	1", 2", 4", 6" X 50'
Temperature flexibility range	-70°F - >200°F
Total thickness	standard 30 mils or 60mils 40 mils or 80 mils available
Water vapor test (ASTME 96B)	.005 grms/100" sq./24hrs/100°F

Surface Preparation

Surface must be clean and dry. Moisture, dust, dirt, or other foreign matter should be removed. Remove oil and grease, etc. with EternaClean or a non residue cleaner such as acetone or lacquer thinner. Remove salt and other contaminants

Application

To apply the DoubleStick, remove one side of the release liner and apply to the surface to be protected or bonded. Rub or roll with pressure using your hand or a steel roller to activate bonding process. Remove the second release liner and apply second surface to tape, apply pressure. DoubleStick also can be used as a putty. Remove both release liners and roll into a rope. Place over gap and mold to seal opening. This material may be applied to clean dry surfaces from 150°F to -20°F ambient. Treat surface with EternaPrime for installations from 40°F to -20°F ambient.

ETERNABOND, Inc.

75 E. Division
Mundelein, IL, USA
Telephone: 888-336-2663
Fax: 847-837-9449
www.eternabond.com

Provided by: ETERNABOND, INC.
75 E. Division St.
Mundelein, IL 60060
847-837-9400

This form is designed to meet the requirements of the U.S. Labor Department OSHA form no 174.

SECTION I – PRODUCT IDENTIFICATION

Product: **ETERNABOND DOUBLESTICK**
24 Hour Emergency Assistance – Infotrac (800)-535-5053

Chemical Name: N/A
Chemical Family: Polyolefin and Synthetic Elastomer
Formula: N/A

HMIS/NFPA HAZARD RATINGS:

Health Hazard:	0
Flammability Hazard	1
Reactivity Hazard	0

SECTION II – HAZARDOUS COMPONENTS

NONE

SECTION III – PHYSICAL DATA

Boiling Point Range: N/A	Percent Volatile by Weight: N/A
Vapor Pressure: N/A	Evaporation Rate: N/A
Vapor Density: N/A	Appearance and Odor: Gray Sealant
Solubility in Water: Insoluble	Specific Gravity: 1.04 (adhesive)

SECTION IV– FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method: 450 Degrees Fahrenheit COC
Flammable Limits: N/A
Extinguishing Media: Carbon dioxide, dry chemical, foam, water fog, and water spray
Special Fire Fighting Procedures: Use water spray to cool fire exposed surfaces and to protect personnel.
Unusual Fire and Explosion Hazards: To

SECTION V – HEALTH HAZARD DATA

Permissible Exposure Level: N/A
Effects of Overexposure:

- **Eyes:** N/A
- **Ingestion:** Acute oral LD50 is greater than 10g/kg
- **Inhalation:** N/A
- **Skin:** N/A.

Emergency and First Aid Procedures:

- **Eyes:** Flush with water.
- **Ingestion:** Contact a physician
- **Inhalation:** N/A
- **Skin:** Remove with waterless hand cleaner. Wash with soap and water

Medical Conditions generally aggravated by exposure: N/A

Primary Routes of Entry:

- **Eyes:** None
- **Ingestion:** Not a normal exposure
- **Inhalation :** None
- **Skin:** None

Chemicals contained herein listed as carcinogens or potential carcinogens:**NTP:** NONE **IARC:** NONE **OSHA:** NONE**SECTION VI – REACTIVITY DATA****Stability:** Stable**Conditions to Avoid:** Overheating**Incompatibility (Material to Avoid):** Avoid contact with strong oxidizing agents**Hazardous Decomposition Products:** Flammable Hydrocarbons**Hazardous Polymerization:** Will not occur.**SECTION VII – SPILL OR LEAK PROCEDURES****Steps to be taken in case material is released or spilled:** Sweep up**Waste disposal method:** Dispose of in accordance with Federal, State and local regulations.**SECTION VIII – SPECIAL PROTECTION INFORMATION****Respiratory Protection:** N/A**Eye Protection:** N/A**Ventilation:** N/A**Protective Gloves:** N/A**SECTION IX – SPECIAL PRECAUTIONS****Precautions to be taken in handling and storing:** Do not store near flame, heat or strong oxidizing agents.**SECTION X - NOTES****Note:** N/A = not applicable**NE = not established****Issue Date:** February 21, 1996 (kk)**Issued By:** D. Kathrein**Revision Date:** March 17, 2000**Review Date:** September 1, 2009 D Kathrein

Information herein is given in good faith and is, to the best of our knowledge and belief, accurate and reliable. However, since information herein was obtained, in part, from independent suppliers not under the direction and supervision of ETERNABOND, INC., ETERNABOND, INC., makes no warranty or representation, express or implied, that information is accurate, reliable, complete or representative. ETERNABOND, INC., warrants only that it has made no effort to censor other than trade secret information or to conceal deleterious aspects of its products. The data shown above in no way modifies, amends, or enlarges any specifications or warranty.

All components of this product are listed in the EPA/TSCA Inventory or Chemical Substances.

ETERNABOND

EternaPrime

EternaBond EternaPrime is a specially formulated primer developed specifically for EternaBond tapes. EternaPrime is based on a VOC exempt solvent. EternaPrime meets all federal standards for health and environmental safety.

EternaPrime is designed to work with all EternaBond tapes and was specifically developed for preparation of surfaces when installing EternaBond tapes in low ambient temperatures from 40°F down to -20°F. It is also widely used as a coalescing agent on surfaces which have difficult to remove dirt or conditions which may encapsulate the EternaBond tape.

*Do not use on PVC.

Basic Use

EternaPrime is used to prepare surfaces for application of all EternaBond tapes. Recommended uses include, but are not limited to dirty surfaces which are difficult to clean completely (tar and gravel), potentially loose surfaces (mortar), porous surfaces (wood or concrete), and anytime the EternaBond tape is applied at temperatures below 40°F ambient.

Composition

EternaPrime is based on a VOC exempt solvent with a blend of our elastomers and resins infused into the solvent.

Technical Data

Application Temperature	-20°F – 205°F
Coverage	300+ Sq. Ft. per gallon
Drying Time at 60°F	15 Minutes
Film thickness	+/- 4 mils when wet
Flash Point	110°F
Standard can sizes	½ pint, 1 quart, 1 gallon
Standard case quantity	24 ½ pints per case, 12 quarts per case, 1 gal. per case.
Viscosity	135 – 152 cps
Weight	10 lbs. per gallon

Surface Preparation

Surface must be dry. Remove heavy accumulations of loose rust and scale, dust, talc, and dirt. Oil, grease, and other contaminants should be removed with EternaClean or a non-residue cleaner. Do not use EternaPrime on PVC roofs as reactivation of some plasticizers may occur.

Application

EternaPrime can be sprayed, rolled, or brushed onto surface (stir frequently).

ETERNABOND, Inc.

75 E. Division
Mundelein, IL, USA
Telephone: 888-336-2663
Fax: 847-837-9449
www.eternabond.com

Provided by: ETERNABOND, INC.
75 E. Division St.
Mundelein, IL 60060
847-837-9400

This form is designed to meet the requirements of the U.S. Labor Department OSHA form no 174.

SECTION I – PRODUCT IDENTIFICATION

Product: **ETERNABOND ETERNAPRIME**
24 Hour Emergency Assistance – Infotrac (800)-535-5053

Chemical Name: Mixture
Chemical Family: Mixture

HMIS/NFPA HAZARD RATINGS:

Health Hazard:	1
Flammability Hazard	3
Reactivity Hazard	0

SECTION II – HAZARDOUS COMPONENTS

NAME	C.A.S. #	EXPOSURE LIMITS	% by Weight
Thermoplastic Rubber	66070-58-4	OSHA PEL NA ACGIH TLV NA	3-7
Hydrocarbon Resin	69430-35-9	OSHA PEL NA ACGIH TLV NA	5-11
*Hexane	110-54-3	OSHA TWA: 50ppm (skin) 50 ppm (skin)	80-95
Tetrakis[methylene(3,5,-di-(tert)-butyl -4-hydroxyhydrocinnamate)]methane	6683-19-8	OSHA TWA: NE ACGIH TWA: NE	.01-.05

~Denotes constituent of above listed ingredient. % Concentration is of product mass.

* Identified as SARA section 313 reportable.

SECTION III – PHYSICAL DATA

BOILING POINT:	69° C	SPECIFIC GRAVITY:	.75
FLASH POINT (SETA):	<0° C	VAPOR DENSITY:	3.0
EVAPORATION RATE: (butyl acetate = 1.0)	8.1	SOLUBILITY:	NEG

APPEARENCE AND ODOR: Clear liquid with a hydrocarbon odor.

SECTION IV– FIRE AND EXPLOSION HAZARD DATA

EXTINGUISHING MEDIA: Class "B" dry chemical, carbon dioxide, or other suitable extinguishing material such as dry sand. Do not use halogenated agents. When flames have been eliminated, cover residue with dry extinguishing agent or dry sand and allow it to remain undisturbed until it has cooled. If fire appears to increase in intensity, stop using these agents. Apply Class "D" extinguishing agent or more dry, inert, granular material. Ring fire with extinguishing material and allow the fire to burn out.

SPECIAL FIRE FIGHTING PROCEDURES: If the fire does not respond to above agents or they are not available, use foam or water FOG as a last resort. Water may also be used to cool exposed, but not burning, containers. These products may float and be re-ignited on top of water. Personnel fighting fire should use a self contained breathing apparatus.

UNUSUAL FIRE and/or EXPLOSION HAZARDS: Closed containers may explode in a fire. Keep containers cool and remove to a safe location.

SECTION V – HEALTH HAZARD DATA

EYE CONTACT: These products are mildly irritating to the eyes. The effect of prolonged eye contact is not known. Flush with water immediately for at least 15 minutes. Seek Medical attention immediately.

SKIN CONTACT: Prolonged or repeated contact can cause dermatitis. Wash skin with waterless hand cleaner followed by soap and water. If redness appears treat it as a sunburn, if redness persists or rash appears seek medical attention immediately.

INHALATION: Upper respiratory tract irritation. May cause nausea or dizziness. High vapor concentrations can cause central nervous system depression, liver, and kidney damage. Remove individual to fresh air, upwind from fume source. If irritation persists seek medical attention immediately.

INGESTION: Acute gastrointestinal tract irritation. DO NOT INDUCE VOMITING. Prevent aspiration into lungs. Aspiration of even small amounts into lungs may result in aspiration pneumonitis. Seek medical attention immediately.

Pre-existing eye, skin, and respiratory disorders may be aggravated by exposure to these products. Exposure to high concentrations of fumes may have an anesthetic effect.

SECTION VI – REACTIVITY DATA

STABILITY:	Stable
HAZARDOUS POLYMERIZATION:	Will not occur
INCOMPATIBILITY:	Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS:	Oxides of carbon, various hydrocarbon fragments

SECTION VII – SPILL OR LEAK PROCEDURES

PRECAUTIONS IN CASE OF SPILL: Contain spill as quickly as possible. Keep flowing material away from heat, sparks, or open flames. Do not smoke near a spill. Use clay (Oil Dry™), sand, earth, etc. to absorb the spill. Put material into a suitable steel drum which can be closed securely.

WASTE DISPOSAL: Bury in an approved landfill according to federal, state, and local regulations. Empty containers that have been completely emptied and the residue allowed to dry are not considered hazardous waste.

HANDLING & STORAGE PRECAUTIONS: Store away from heat, sparks, and open flames. Solvent vapors are heavier than air and may be moved from the source location by ventilation systems to points far away. Do not store near oxidizers.

OTHER PRECAUTIONS: Keep container closed when not in use. Store in a dry ventilated area. Maintain package labeling during storage.

SECTION VIII – SPECIAL PROTECTION INFORMATION

VENTILATION: Use natural cross ventilation, local (mechanical) pick-up, and/or general area mechanical cross ventilation. Ventilation pattern should be designed to prevent accumulation of heavier than air solvent vapors. Ventilation must be sufficient to maintain solvent vapor concentrations below the TLV.

RESPIRATORY PROTECTION: As required if airborne concentrations are above the TLV. If respirators become necessary use NIOSH approved unit for organic vapor and dusts.

PROTECTIVE CLOTHING: As necessary to prevent wetting of the skin.

EYE PROTECTION: As necessary in accordance with 29 CFR 1910.113

OTHER PRECAUTIONS: With good industrial hygiene no other precautions should be necessary. These products are intended for professional use. Use only after the appropriate Product Data Bulletin has been read and understood.

SECTION IX – SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing: For industrial use only. Keep out of reach of children. Keep container closed. Avoid prolonged or repeated contact with skin. Avoid breathing vapors. Do not take internally. Store in a cool place. Store in tightly closed containers in a ventilated fire resistant area away from heat, open flame, sparks or strong oxidizing agents. Ground all equipment. Use only in a well ventilated area. Use only non-sparking tools. Vapors are heavier than air and will collect in low areas such as pits. Chronic overexposure may create health risks. Wash thoroughly after handling or contact. Do not eat, drink or smoke in areas where this product is used. Do not apply air pressure, puncture or weld on or near containers. Do not reuse containers.

SECTION X – NOTES

DOT INFORMATION:

EternaPrime is regulated as Flammable Liquids per CFR 172.504. All bulk shipments in containers with a capacity of 119 gallons or more and all other shipments over 1000 lbs. MUST display Flammable placards and be fully secured before and during transit. They must be placed on all four sides of the vehicle.

UN#: 1133

Class: 3

Packing Group: II

NA

Note: NA = not applicable

NE = not established

Issue Date: May 1, 2006

Issued By: R. Barry

Revision Date: September 1, 2009

Information herein is given in good faith and is, to the best of our knowledge and belief, accurate and reliable. However, since information herein was obtained, in part, from independent suppliers not under the direction and supervision of ETERNABOND, Inc., ETERNABOND, Inc. makes no warranty or representation, express or implied, that the information is accurate, reliable, complete or representative. ETERNABOND, Inc., warrants only that it has made no effort to censor other than trade secret information or to conceal deleterious aspects of its products. The data shown above in no way modifies, amends, or enlarges any specification or warranty.

110 Butyl Rubber Gutter Seal

NuFlex® 110 Butyl Rubber Caulk and Gutter Seal is a single component, "solvent release" butyl, designed to provide excellent exterior weathering properties. **NuFlex® 110** is formulated for use on many dissimilar building surfaces. It is our best narrow-bead sealant. Ideal for sealing gutter down spouts, metal storm windows, doors and lap joints. It adheres well to damp surfaces.

FEATURES & TYPICAL USES:

NuFlex® 110 is for use in areas where a sealant of more resiliency than ordinary caulk is required. Principal use is to seal narrow seams. **NuFlex® 110** is excellent under shower tracks or metal thresholds and other exterior building materials. **NuFlex® 110** can be used successfully on metal, glass, wood, brick, stone, masonry and paint to prevent the passage of air and moisture through narrow openings, whether the construction materials are similar or dissimilar. **NuFlex® 110** is not recommended where joints will have extreme movement or where openings are over 9.5 mm (3/8") wide.

Easy application:	NuFlex® 110 can be easily applied with standard caulking guns or power caulking equipment.
Exceptional adhesion:	NuFlex® 110 adheres well to most exterior sealing applications.
High durability:	NuFlex® 110 will not crack and is resistant to sunlight, ozone, water, vapour transmission, cleaning chemicals and weathering.
Good stretch recovery:	NuFlex® 110 will recover 70% of 100% elongation.
Extensive flexibility:	NuFlex® 110 remains flexible over an extreme temperature range.
Optional painting:	NuFlex® 110 forms a skin within 24 hours. Painting is unnecessary, but if desired, can be done after NuFlex® 110 has cured for one week. NuFlex® 110 is non-staining, with no discoloration.

SURFACE PREPARATION & APPLICATION:

The surface to be caulked should be sound, clean and dry, and be free of oil, grease, rust, corrosion or loose paint. A Primer may be required for certain surfaces. **NuFlex® 110** should not be applied when temperature is 4°C (40°F) or less. **NuFlex® 110** should be at room temperature when applied. If the sealant has been stored in a cool area, place in a heated room for several hours before using. Cut tip off cartridge just above threads, cut tip of nozzle to desired bead size and attach to cartridge. Insert cartridge into standard caulking gun to apply, or use any power equipment for normal caulking compounds or sealants. This product may be smoothed with a knife dipped in mineral spirits or water. Clean tools with mineral spirits or paint thinner. Care should be exercised when using **NuFlex® 110** on certain types of plastic, as crazing might result.

CAUTION:

Use in well ventilated areas and avoid breathing vapors. On contact, uncured sealant irritates eyes. Flush eyes with lukewarm water. Call physician. Avoid skin contact and do not ingest. Consult the Material Safety Data Sheet. Combustible, keep away from heat and open flame. **Keep out of reach of children.**

SHELF-LIFE & STORAGE:

Shelf-life is 12 months from date of shipment from our plant when stored in a clean, dry area with temperatures between 18°C to 43°C (65°F to 110°F). Avoid repeated freeze/thaw of **NuFlex® 110** while still in the cartridge. For best results, keep the sealant in tightly closed containers when not in use.

MANUFACTURED BY:

NUCO INC.	T:	519.823.4994	TF:	1.800.853.3984
150 Curtis Drive	F:	519.823.1099	E:	sales@nucoinc.com
Guelph, ON N1K 1N5				



FEATURES:

- Skinning butyl rubber.
- Exterior / interior use.
- Adheres to many dissimilar building materials.
- The ideal exterior weathering sealant.

AVAILABLE SIZES & COLOUR:

- 300 mL (10.1 fl.oz.) cartridge
- 12 cartridges per case
- 144 cases per skid
- Available in larger sizes*
- Available colors include: white, grey, and black.
- *Special order items may require lead times and minimum order quantities.



110 Butyl Rubber Gutter Seal



SPECIALTY SEALANTS TECHNICAL DATA SHEET

Page 2 of 2

SPECIFICATIONS:

NuFlex® 110 meets:

- CGSB 19-GP-14
- ASTM C-1311
- U.S. Federal Spec TT-S-001657, Type 1, TT-C-05 98C, TTC-1796A,
- AAMA 808.3.

WARRANTY INFORMATION:

NUCO Inc., warrants only that its product will meet its specifications. NUCO shall in no event be liable for incidental or consequential damage. NUCO's liability, expressed or implied is limited to the stated selling price of any goods found to be defective.

TYPICAL PROPERTIES:

These values are not intended for use in preparing specifications. Spec Writers; please contact NUCO Inc. before writing specifications if any further information is required.

Description	Specification
As Supplied	
Specific Gravity:	1.32
% Solid:	80% minimum
Flash Point:	40°C (105°F)
Slump Resistance – (ASTM D2202):	Pass
Application Temperature Range – (ASTM 603):	4°C to 49°C (40°F to 120°F)
Tack-Free Time – (ASTM D2377):	2 hours
Cure Time:	21 days, solvent release
As Cured	
Joint Movement:	± 7.5%
Weight per gallon – (ASTM D1475):	11.0 lbs
Volume Shrinkage – (ASTM C1241):	20% maximum
Staining – (ASTM D2203):	Pass
Service Temperature Range – (ASTM C1299):	-29°C to 93°C (-20°F to 200°F)

DISCLOSURE

The information and data contained herein is BASED ON INFORMATION WE BELIEVE TO BE RELIABLE. Please read all statements, recommendations or suggestions herein in conjunction with our CONDITIONS of SALE which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions, nor do we intend them as recommendation for any use which would infringe any patent or copyright.

MANUFACTURED BY:

NUCO INC. T: 519.823.4994 TF: 1.800.853.3984
150 Curtis Drive F: 519.823.1099 E: sales@nucoinc.com
Guelph, ON N1K 1N5



FORM: 110_TDS.DOC

REV.: 3 DATE: 05/08



www.NuFlex.com

MATERIAL SAFETY DATA SHEET

SECTION 01 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

Chemical Name: **NUFLEX® 110 GUTTER SEAL, BUTYL RUBBER SEALANT**

Manufacturer: **NUCO INC.**
150 Curtis Drive
Guelph, Ontario N1K 1N5
Tel: (519)-823-4994
Fax: (519)-823-1099
Infotrac 24 Hour Emergency Tel: (800)-535-5053

Date: July 1, 2008

Prepared by: Technical Services Department

WHMIS Classification: B3, D2B

Product Use: Caulking compound

SECTION 02 – COMPOSITION / INFORMATION ON INGREDIENTS:

Ingredients	CAS No.	%	LD50(Oral-rat)	LC50(Inhalation-rat)
Mineral Spirits	8052-41-3	10.0 – 30.0	Not available	Not available

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555 or 29 CFR 1910.1200

SECTION 03 – HAZARDS IDENTIFICATION:

ROUTES OF ENTRY INTO THE BODY (ACUTE EFFECTS):

Eyes: Direct contact may cause mild irritation.

Skin: May cause slight irritation. Symptoms may include localized redness, swelling and itching.

Inhalation: Irritates respiratory passages very slightly. Overexposure may cause upper respiratory tract irritation, headache, dizziness, drowsiness, and slowed reaction time.

Ingestion: Low ingestion hazard in normal use. Irritation may cause abdominal pain, nausea, diarrhea and vomiting.

WHMIS HAZARD SYMBOL(S):



SECTION 04 - FIRST AID MEASURES:

Eyes: Flush with copious quantities of lukewarm water. Do not attempt to physically remove the solids or gums from the eye. Seek medical attention immediately.

Skin: Remove contaminated clothing. Wash thoroughly with warm water and non-abrasive soap. Seek medical attention if you feel ill or a reaction develops.

Inhalation: Remove to fresh air and provide water. Seek medical attention if you feel ill or a reaction develops.

Ingestion: Get medical attention.

SECTION 05 - FIRE FIGHTING MEASURES:

Flammable Conditions: Avoid direct sources of heat or ignition in uncured state. Solvent vapors are heavier than air and may travel along the ground and be ignited by sources distant from handling points.

Extinguishing Media: Carbon dioxide, dry chemical, water fog or foam. Water can be used to cool fire exposed containers.

Fire Fighting Measures: Treat as a Class "B" fire. Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving

Flash Point:	chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan.
Flammability Limits:	Closed cup 106°F (41°C)
	Lower Explosion Limit - 0.5% by volume
	Upper Explosion Limit - 6.0% by volume
Autoignition Temperature:	490°F (254°C)
Hazardous Decomposition Products:	Carbon oxides, aldehydes and traces of incompletely burned carbon products.
Sensitivity - Impact:	Not available
Static:	Not available

SECTION 06 – ACCIDENTAL RELEASE MEASURES:

Containment / Clean Up:	Restrict access to the area of the spill. Provide ventilation, NIOSH / MSHA approved respirator and protective clothing. Scrape up caulk and place in container for disposal. Cleaning may require steam or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup.
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SECTION 07 – HANDLING AND STORAGE:

Handling and Storage:	Store in an adequately ventilated area under dry conditions between 50°F (10°C) to 77°F (25°C) and keep container tightly sealed when not in use. Use only in well ventilated area. Containers may retain product residues and vapors.
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SECTION 08 – EXPOSURE CONTROL / PERSONAL PROTECTION:

Component Exposure Limits:	<u>Mineral Spirits (CAS# 8052-41-3):</u> Provide adequate ventilation to control exposures within the following exposure guidelines: ACGIH TLV: 100 ppm, OSHA PEL: 500 ppm.
Respiratory:	Wear an organic vapor NIOSH / MSHA approved respirator.
Ventilation:	In indoor applications, passive ventilation (opening of doors and windows) is recommended. Local exhaust as necessary to keep exposure levels within guidelines.
Personal Protective Equipment:	Safety glasses with side-protection, impermeable gloves (e.g., neoprene, nitrile, silver shield (R)), coveralls or apron are important in preventing contamination of eyes, skin and clothing. Wash thoroughly after handling.

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Paste, various colors
Odor and Appearance:	Solvent odor, thixotropic caulk
Odor Threshold:	Not available
Specific Gravity:	1.32
Vapor Pressure:	5 mm Hg @ 78°F (26°C)
Vapor Density:	5.0
Evaporation Rate:	0.12
Boiling Point:	352°F (178°C)
Freezing Point:	Not available
pH:	Not available
Coeff. Oil/Water Distribution:	Not available

SECTION 10 – STABILITY AND REACTIVITY:

Chemical Stability:	Stable
Incompatible Materials:	Strong oxidizing agents
Reactive Conditions:	Incompatible materials.
Hazardous Polymerization:	Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION:

Effects of overexposure:	Prolonged and repeated skin contact may cause dermatitis or aggravate pre-existing skin disorders. Inhalation of high vapor concentration or ingestion may cause headache, vomiting, dizziness and nausea.
Sensitization:	No known applicable information.
Carcinogenicity:	No ingredients considered by IARC, NTP or OSHA to be carcinogens.

Reproductive Toxicity:	No known applicable information.
Teratogenicity:	No known applicable information.
Mutagenicity:	No known applicable information.
Synergistic Products:	No known applicable information.

SECTION 12 – ECOLOGICAL INFORMATION:

Air:	Complete information is not yet available.
Water:	Complete information is not yet available.
Soil:	Complete information is not yet available.

SECTION 13 – DISPOSAL CONSIDERATIONS:

Waste Disposal:	Dispose in accordance with Federal, State / Provincial and local regulations. Under RCRA 40 CFR 261 deemed to be a hazardous waste due to ignitability.
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SECTION 14 - TRANSPORT INFORMATION:

Shipping Information:	DOT PROPER SHIPPING NAME: Adhesive containing Flammable Liquid. DOT HAZARD CLASS: UN 1133 IDENTIFICATION NO.: NMFC Item No. 149610 TDG CLASSIFICATION: Class 3.3, Packing Group III (General Exemption 1.33 for Domestic Shipments).
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SECTION 15 - REGULATORY INFORMATION:

TSCA Inventory Status:	Chemical components listed on TSCA inventory except as exempted.
NFPA Profile:	Health 1, Flammability 2, Reactivity 0
SARA TITLE III Chemical Listings:	Section 302 Extremely Hazardous Substances (40 CFR 355): None Section 304 CERCLA Hazardous Substances (40 CFR 302): None Section 311/312 Hazard Class (40 CFR 370): Acute: Yes; Chronic: Yes; Fire: Yes; Pressure: No; Reactive: No Section 313 Toxic Chemicals (40 CFR 372): None present or none present in reportable quantities.
State Substance List:	This product contains a listed substance(s) that appears on one or more of the Substance Lists for Pennsylvania, Massachusetts and New Jersey: mineral spirits (CAS# 8052-41-3).
California Proposition 65 List:	No known applicable information.
Volatile Organic Content:	248 grams per liter (2.07 lb/gallon), 18.79% by weight (CARB Method 310).
Domestic Substance List:	Chemical components listed on DSL except as exempted.

SECTION 16 - OTHER INFORMATION:

The information herein is given in good faith, but no warranty, express or implied, is made. Product users should make independent judgements of the suitability of this information to ensure proper use and to protect the health and safety of employees.

Form: MSDSNUFLEX110BGUTTERSEAL,BUTYLRUBBERSEALANT Rev.: 6 Date: 06/08

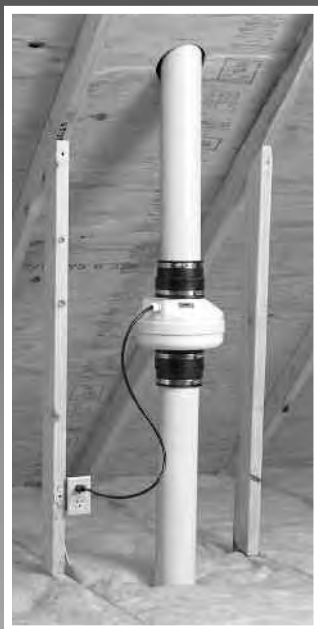


Fantech

HP SERIES

FANS FOR RADON APPLICATIONS

WITH IMPROVED UV RESISTANCE!



US EPA ARCHIVE DOCUMENT

TRUST THE INDUSTRY STANDARD. **HERE'S WHY:**

Don't put your reputation at stake by installing a fan you know won't perform like a Fantech! For nearly twenty years, Fantech has manufactured quality ventilation equipment for Radon applications. Fantech is the fan Radon contractors have turned to in over 1,000,000 successful Radon installations worldwide.



Fantech external rotor motor

FANTECH HP SERIES FANS MEET THE CHALLENGES OF RADON APPLICATIONS:

HOUSING

- UV resistant, UL Listed durable plastic
- UL Listed for use in commercial applications
- Factory sealed to prevent leakage
- Watertight electrical terminal box
- Approved for mounting in wet locations - i.e. Outdoors

MOTOR

- Totally enclosed for protection
- High efficiency EBM motorized impeller
- Automatic reset thermal overload protection
- Average life expectancy of 7-10 years under continuous load conditions

RELIABILITY

- Five Year Full Factory Warranty
- Over 1,000,000 successful radon installations worldwide

IMPROVING INDOOR AIR QUALITY THROUGH BETTER VENTILATION

www.fantech.net



HP Series Fans are Specially Designed with Higher Pressure Capabilities for Radon Mitigation Applications

MOST RADON MITIGATORS WHO PREVIOUSLY USED THE FANTECH FR SERIES FANS HAVE SWITCHED TO THE NEW HP SERIES.

PERFORMANCE DATA

Fan Model	Volts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.								Max. Ps
				0"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	
HP2133	115	14 - 20	0.17	134	68	19	-	-	-	-	-	0.84
HP2190	115	60 - 85	0.78	163	126	104	81	58	35	15	-	1.93
HP175	115	44 - 65	0.57	151	112	91	70	40	12	-	-	1.66
HP190	115	60 - 85	0.78	157	123	106	89	67	45	18	1	2.01
HP220	115	85 - 152	1.30	344	260	226	193	166	137	102	58	2.46

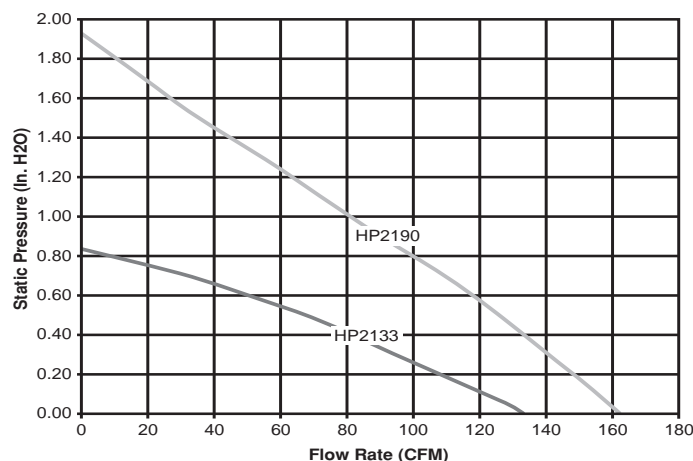
PERFORMANCE CURVES

Fantech provides you with independently tested performance specifications.

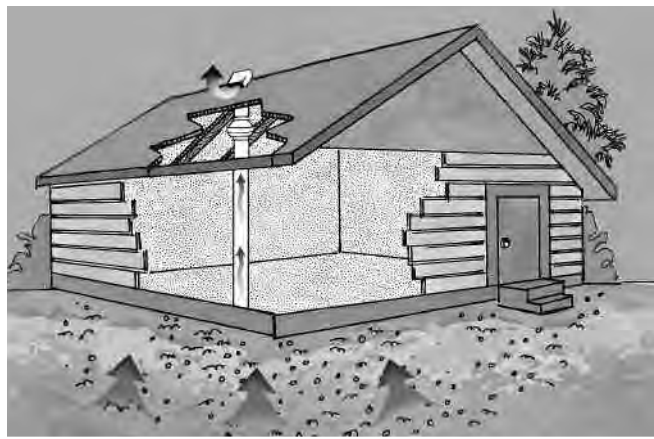
The performance curves shown in this brochure are representative of the actual test results recorded at Texas Engineering Experiment Station/Energy Systems Lab, a recognized testing authority for HVI. Testing was done in accordance with AMCA Standard 210-85 and HVI 916 Test Procedures. Performance graphs show air flow vs. static pressure.

Use of HP Series fans in low resistance applications such as bathroom venting will result in elevated sound levels. We suggest FR Series or other Fantech fans for such applications.

HP2133 & HP2190 RADON MITIGATION FANS



Tested with 4" ID duct and standard couplings.



HVI
MEMBER™

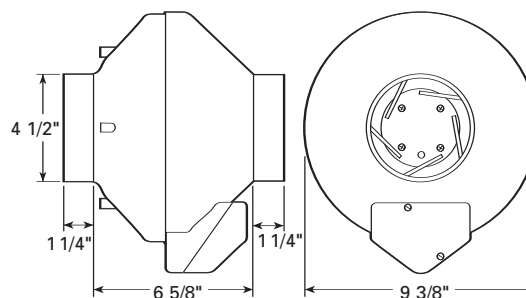
HP FEATURES INCLUDE

- Improved UV resistant housings approved for commercial applications.
- UL Approved for Wet Locations (Outdoors)
- Sealed housings and wiring boxes to prevent Radon leakage or water penetration
- Energy efficient permanent split capacitor motors
- External wiring box
- Full Five Year Factory Warranty



NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.



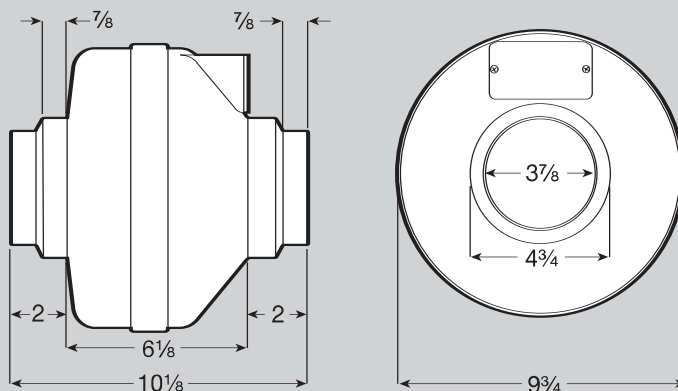
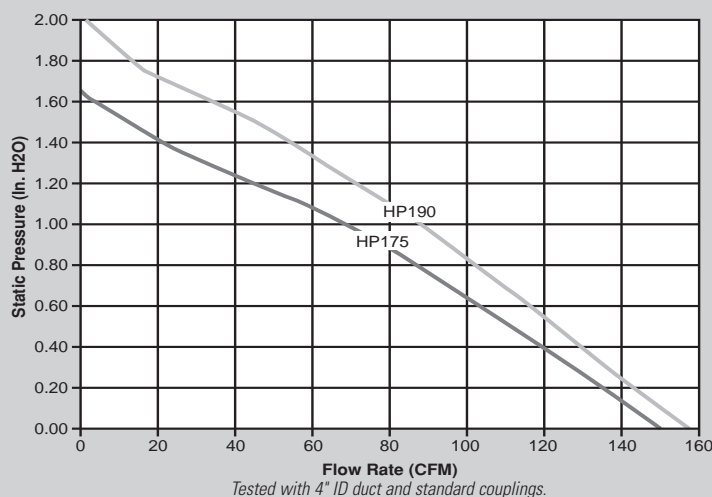
HP2133 – For applications where lower pressure and flow are needed. Record low power consumption of 14-20 watts! Often used where there is good sub slab communication and lower Radon levels.

HP2190 – Performance like the HP190 but in a smaller housing. Performance suitable for the majority of installations.

Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #156-44, Pipeconx PCX 56-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP175 & HP190 RADON MITIGATION FANS



HP175 – The economical choice where slightly less air flow is needed. Often used where there is good sub slab communication and lower Radon levels.

HP190 – The standard for Radon Mitigation. Ideally tailored performance curve for a vast majority of your mitigations.

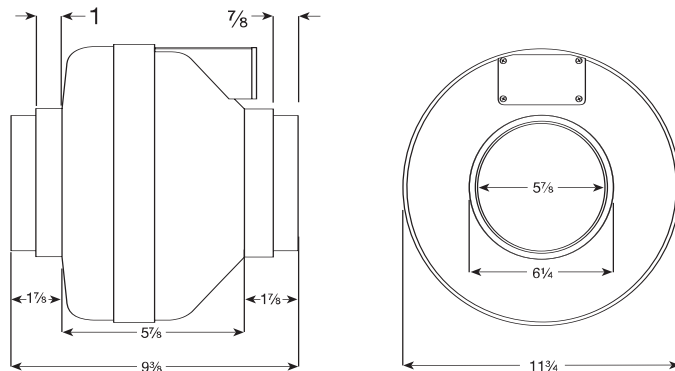
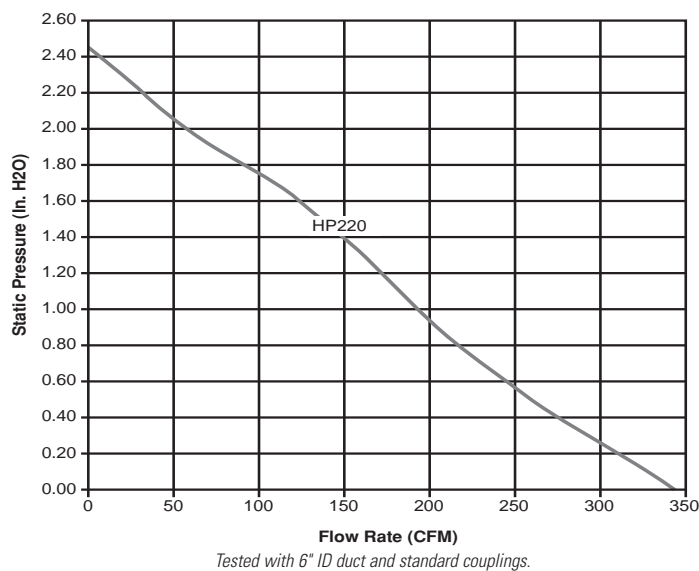
Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #151-44, Pipeconx PCX 51-44 or equivalent.

For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.



HP220 RADON MITIGATION FAN



HP 220 – Excellent choice for systems with elevated radon levels, poor communication, multiple suction points and large subslab footprint. Replaces FR 175.

Fans are attached to PVC pipe using flexible couplings.

For 4" PVC pipe use Indiana Seals #156-64, Pipeconx PCX 56-64 or equivalent.

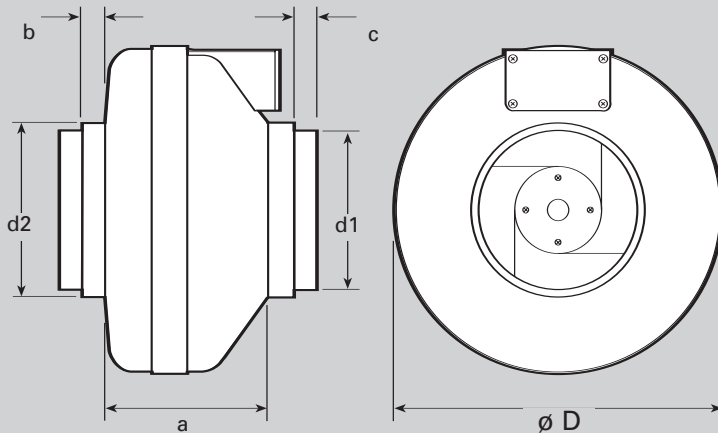
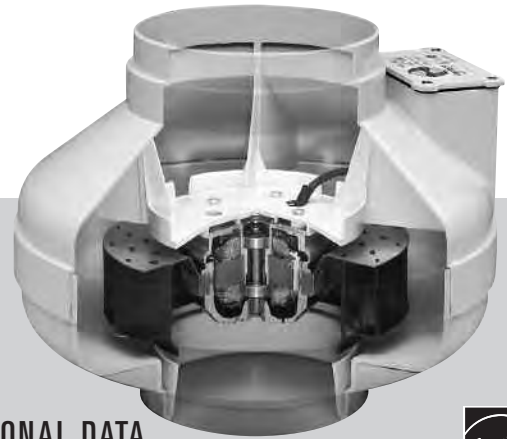
For 3" PVC pipe use Indiana Seals #156-63, Pipeconx PCX 56-63 or equivalent.



Fantech

FR SERIES

THE ORIGINAL MITIGATOR



DIMENSIONAL DATA

model	øD	d1	d2	a	b	c
FR100	9 1/2"	3 7/8"	4 7/8"	6 1/8"	7/8"	7/8"
FR110	9 1/2"	3 7/8"	4 7/8"	6 1/8"	7/8"	7/8"
FR125	9 1/2"	—	4 7/8"	6 1/8"	7/8"	—
FR140	11 3/4"	5 7/8"	6 1/4"	5 7/8"	1"	7/8"
FR150	11 3/4"	5 7/8"	6 1/4"	5 7/8"	1"	7/8"
FR160	11 3/4"	5 7/8"	6 1/4"	6 3/8"	1"	7/8"
FR200	13 1/4"	7 7/8"	9 7/8"	6 1/4"	1 1/2"	1 1/2"
FR225	13 1/4"	7 7/8"	9 7/8"	6 1/4"	1 1/2"	1 1/2"
FR250	13 1/4"	—	9 7/8"	6 1/4"	—	1 1/2"

All dimensions in inches



PERFORMANCE DATA

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2900	115	19	13 - 19	0.18	122	100	78	55	15	-	-	0.87"	4"
FR125	✓	2950	115	18	15 - 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	71	54 - 72	0.67	263	230	198	167	136	106	17	1.58"	6"
FR160	-	2750	115	129	103 - 130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 - 128	1.11	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 - 152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250*	-	2850	115	241	146 - 248	2.40	649	600	553	506	454	403	294	2.58"	10"

FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program, charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2 inches WG.

* Also available with 8" duct connection. Model FR 250-8. Special Order.

NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

FIVE YEAR WARRANTY

DURING ENTIRE WARRANTY PERIOD:

FANTECH will replace any fan which has a factory defect in workmanship or material. Product may need to be returned to the Fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST:

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty fan and is invoiced. The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

FANTECH WARRANTY TERMS DO NOT PROVIDE FOR REPLACEMENT WITHOUT CHARGE PRIOR TO INSPECTION FOR A DEFECT. REPLACEMENTS ISSUED IN ADVANCE OF DEFECT INSPECTION ARE INVOICED, AND CREDIT IS PENDING INSPECTION OF RETURNED MATERIAL. DEFECTIVE MATERIAL RETURNED BY END USERS SHOULD NOT BE REPLACED BY THE DISTRIBUTOR WITHOUT CHARGE TO THE END USER, AS CREDIT TO DISTRIBUTOR'S ACCOUNT WILL BE PENDING INSPECTION AND VERIFICATION OF ACTUAL DEFECT BY FANTECH.

THE FOLLOWING WARRANTIES DO NOT APPLY:

- Damages from shipping, either concealed or visible. Claim must be filed with freight company.

- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:
 1. Improper maintenance
 2. Misuse, abuse, abnormal use, or accident, and
 3. Incorrect electrical voltage or current.
- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty, expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

DISTRIBUTED BY:



Fantech

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Canada 50 Kanalfiakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.ca

Fantech, reserves the right to modify, at any time and without notice, any or all of its products' features, designs, components and specifications to maintain their technological leadership position.

Item #: 411741
Rev Date: 120407



MSDS No: 31
Rev Date: 1/20/10
Rev No: 2

1 MATERIAL SAFETY DATA SHEET

Product Name: **TriggerFoam™ Cleaner**
Description: Cleaning agent for TriggerFoam™ Dispensing Tools
Supplier: Powers Fasteners, Inc. 2 Powers Lane, Brewster, NY 10509
Customer Service: 800-524-3244
Emergency Phone: (CHEMTREC) Within USA: (800) 424-9300; Outside USA: 01 (703) 527-3887

2 INGREDIENTS

	<u>CAS Number</u>	<u>ACGIH TWA</u>	<u>OSHA PEL</u>
Acetone	76-64-1	500ppm	1000ppm
Propane	74-98-6	1000ppm*	1000ppm
Isobutane	75-28-5	1000ppm*	NE
Butane	107-97-9	1000ppm*	NE

*Note: The ACGIH TLVs for Propane, Isobutane and Butane are as *Aliphatic hydrocarbon gases*.
This product is classified as hazardous under OSHA regulations (29CFR 1910.1200).

Abbreviations: NE= Not established

3 SAFE USAGE RECOMMENDATIONS

Ventilation: Avoid breathing vapors or mist. Use with adequate ventilation, either natural or mechanical.

Eye Protection: Safety goggles are recommended. Safety glasses with side shields should be used as a minimum. Direct eye contact with product can cause irritation and corneal burns.

Skin Protection: Avoid skin contact. Use neoprene or rubber gloves. Prolonged skin contact may cause irritation and dryness.

Respiratory Protection: Avoid breathing vapors or mist. Can be irritating to respiratory tract. Excessive exposure in poorly ventilated areas may cause dizziness or headache.

Notice: For professional use. Keep away from children.

4 EMERGENCY AND FIRST AID PROCEDURES

Eyes: Immediately flush eyes with clean water for 15 minutes and call a physician.

Skin: Wash with soap and water. Launder clothing before reuse.
Seek medical attention if any symptoms develop.

Inhalation: Move to fresh air if dizziness or headache occurs. Contact physician if symptoms persist.

Ingestion: Immediately rinse mouth with water and call a physician. Drink 1-2 glasses of water. Do not induce vomiting unless directed by a physician.

Other: Contact a physician if there is any question about the seriousness of the exposure.

5 HEALTH HAZARD INFORMATION

Hazards: Pressurized flammable liquid and gas. Keep away from fire and heat (>120F).
Do not smoke while using product.

6

PHYSICAL CHARACTERISTICS

Appearance:	Clear liquid and gas.	
Boiling Point:	NE	Flash Point: -18F (0C)
(Air=1) Vapor Density:	>1	
(Water=1) Evaporation Rate:	NE	
Specific Gravity:	1.1	
VOC Content:	0.2	
Odor:	Mild amine-like	
Solubility in Water:	Insoluble	
pH:	NE	

7

FIRE, HAZARD AND REACTIVITY DATA

Flammability:	Extremely Flammable
Stability:	Stable. Hazardous polymerization will not occur.
Incompatibility:	Strong acids, bases and alcohols.
Unusual fire or Explosion Hazards:	None Known.
Extinguishing Media:	Foam, CO ₂ , Dry Chemical
Fire Fighting:	Self-contained breathing equipment recommended.
Hazardous Combustion Products:	CO, NO, HCN, HCL

8

TRANSPORTATION AND REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910. 1200.		
HMIS Codes:	Health 2, Flammability: 3, Physical Hazard: 2	PPE: B	Flash Point: -18F (0C)
US DOT Proper Shipping Name:	Consumer Commodity	ORM-D	
	UN 1950	Class: 2.1	PG: N/A
Canadian TDGR Proper Shipping Name:	Aerosols		
	UN 1950	Class: 2.1	PG: N/A
IMO/IMDG Proper Shipping Name:	Aerosols		
	UN 1959	Class 2.1	PG: N/A EmS: F-d, S-U
TSCA Inventory Status:	Chemical components listed on TSCA inventory.		
SARA Title III, Section 313:	This product does not contain any Section 313 reportable ingredients.		

9

STORAGE, CLEAN-UP, AND DISPOSAL

Storage:	Store in a cool, dry place. Keep from freezing and extreme heat, which may shorten shelf life.
Spills:	Collect spilled contents with absorbent material and place in a sealable container for proper disposal.
Waste Disposal:	Dispose of in accordance with federal, state and local regulations.
EPA Waste Codes:	D001, D003 (aerosol cans)

The information and recommendations provided herein are based on information available to us at the time of preparation. We make no other warranty, expressed or implied, as to its correctness, completeness, or as to the results and reliance of the information.

Fills, Bonds,
Seals &
Insulates



29 oz. Gun Foam



12 oz. Straw Foam

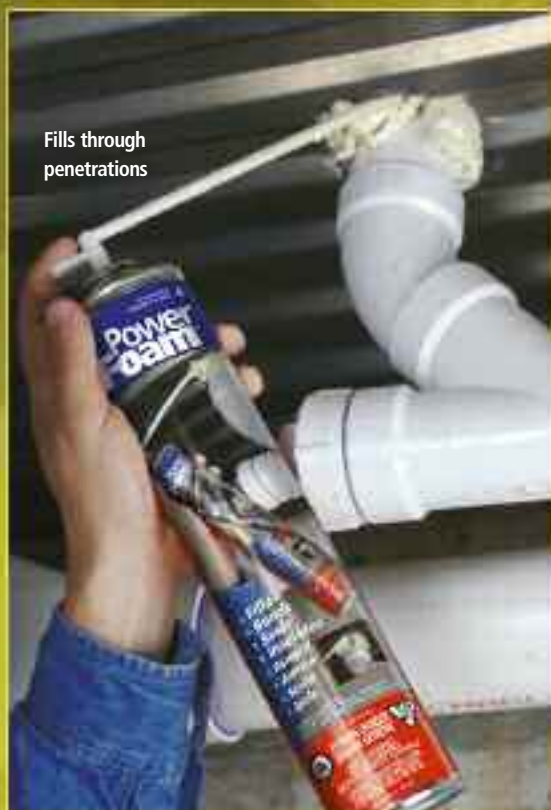


29 oz. Straw Foam

Power Foam & Trigger Foam



Powers
FASTENERS



Fills through
penetrations

PowerFoam™

PowerFoam™ is a single component, moisture curing expanding polyurethane foam. The adhesive strength of PowerFoam™ allows it to be set on various types of building elements including concrete, brick, wood, metal, aluminum and steel. When installing the foam, consideration should be given to the two fold expansion of the foam after it leaves the plastic tube. The surface of the foam initially dries within 1-4 hours and becomes fully cured in 12-15 hours. The foam works best at room temperature. It is dispensed through a straw-like plastic tube that is packaged with the can. The structure of the hardened foam provides excellent insulation against heat and noise.

APPLICATIONS

PowerFoam™ is for applications where it is not necessary to control the size of the bead or the rate of flow. PowerFoam™ can be used in a wide variety of applications. Use it to fill, seal or insulate. It blocks drafts, stops leaks, saves energy, adheres to all types of construction material, deadens sound, acts as a buoyancy material once cured, controls radon, confines asbestos fibers, and can be used in HVAC applications. PowerFoam™ also seals and keeps out insects and rodents. After installation, it is recommended that a full 24 hours elapse prior to scraping, sanding, staining or painting.

TYPICAL USES

INSULATING

- Around window frames, sills, door frames floor / wall joints
- Electrical junction boxes
- Attics
- Refrigeration units and pipes
- Air conditioning systems

FILLING

- Breaches in walls
- Pipe penetrations in non-fire-rated walls
- Voids in concrete forms
- Underground utility ductwork
- Sound dampening

FEATURES

- CFC free propellant
- Polyurethane system
- Class B3 flame retardant
- Contains no urea formaldehyde or PCBs
- Works with PVC
- Physiologically harmless when fully cured
- Neutral odor
- Does not rot or deteriorate with age
- Water resistant

ADVANTAGES

- High foam yield - up to 1.6ft³ per 29 oz. can
- Also available in convenient 12 oz. cans
- Precision plastic valve helps prevent pressure loss and prolongs shelf life
- Minimal subsequent expansion (+/- 10%)



29 oz.
Straw
Foam

12 oz. Straw Foam

TECHNICAL DATA

Volume yield	1.4 - 1.6 ft ³ (40-45 liters) free foamed
Specific gravity (of foamed product)	1.25 - 1.56 lb./ft ³
Application temperature	+ 32°F / 0°C min. (for application surfaces)
Tack free time	5 - 10 minutes (depending on temp. and humidity)
Cutting time	15 - 20 minutes (depending on temp. and humidity)
Initial drying time	1 - 4 hours (depending on temp. and humidity)
Full curing time	12 - 15 hours (depending on temp. and humidity)
Water absorption	Max. 1% of volume
Temperature resistance	-8°F to +212°F
Tensile strength	7.25 - 14.5 psi
Elongation at breakage	20 - 25 %
Contents	12 oz. (375g) Net Weight and 29 oz. (900g) Net Weight
Shelf life	24 months (+40°F to +75°F - higher temp., shorter shelf life) Must be stored in vertical position

POWERFOAM

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8130	PowerFoam™ 12 oz.	12	12
8132	PowerFoam™ 29 oz.	12	12

APPROVALS & LISTINGS

Underwriters Laboratories - File No. R16754
Caulking and Sealants Surface Burning Characteristics
ASTM E 84 (12.5%)
Flame Spread 10
Smoke Developed 30



29 oz. Gun Foam

TriggerFoam™

TriggerFoam™ is a one part polyurethane expanding foam which sets into its final form by using moisture present in the air. When installing the foam, consideration should be given to the two fold expansion of the foam after it leaves the nozzle. The surface of the foam initially dries within 1-4 hours and becomes fully cured in 12-15 hours. TriggerFoam™ sets well on ordinary surfaces such as concrete, brick, metal etc. Surfaces do not require preparation and can also be damp. After installation, it is recommended that a full 24 hours elapse prior to scraping, sanding, staining or painting. The foam has a R-5 value when used in place of traditional installation methods.

APPLICATIONS

TriggerFoam™ is dispensed through a special gun that allows the user to control the rate of flow as well as the size of the bead for more precise placement of the product, allowing it to be used in a wide variety of applications. Use it to fill, seal or insulate. It blocks drafts, stops leaks, saves energy, adheres to all types of construction material, deadens sound, acts as a buoyancy material once cured, controls radon, confines asbestos fibers, and can be used in HVAC applications.

TYPICAL USES

INSULATING

- Around window frames, sills, door frames floor / wall joints
- Electrical junction boxes
- Attics
- Refrigeration units and pipes
- Air conditioning systems

FILLING

- Breaches in walls
- Pipe penetrations in non-fire-rated walls
- Voids in concrete forms
- Underground utility ductwork
- Sound dampening



Fills around pipe and electrical conduit



Trigger cleaner makes clean up simple and easy.

FEATURES

- CFC free propellant
- Polyurethane system
- Class B2 flame retardant
- Contains no urea formaldehyde or PCBs
- Works with PVC
- Physiologically harmless when fully cured
- Neutral odor
- Does not rot or deteriorate with age

ADVANTAGES

- Stop and Go application product remains liquid in applicator until dispensed
- Easily adjustable applicator can dispense foam beads as small as 1/8"
- High foam yield - up to 1.6ft³ per 29 oz. can
- Precision plastic valve helps prevent pressure loss and prolongs shelf life
- Minimal subsequent expansion (+/- 10%)
- Hardened steel dispenser tip for longer life on metal tool



TRIGGERFOAM

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8136	TriggerFoam™ 29 oz.	1	1

APPROVALS & LISTINGS

Underwriters Laboratories - File No. R16754	ASTM E 90
Caulking and Sealants Surface Burning Characteristics	Sound Transmission
ASTM E 84 (12.5%)	Classification 60
Flame Spread 5	
Smoke Developed 10	

TECHNICAL DATA

Volume yield	1.4 - 1.6 ft³ (40-45 liters) free foamed
Specific gravity (of foamed product)	1.25 - 1.56 lb./ft³
Application temperature	+ 32°F / 0°C min. (for application surfaces)
Tack free time	5 - 10 minutes (depending on temp. and humidity)
Cutting time	15 - 20 minutes (depending on temp. and humidity)
Initial drying time	1 - 4 hours (depending on temp. and humidity)
Full curing time	12 - 15 hours (depending on temp. and humidity)
Water absorption	Max. 1% of volume
Temperature resistance	-8°F to +212°F
Tensile strength	7.25 - 14.5 psi
Elongation at breakage	20 - 25 %
Contents	29 oz. (900g) Net Weight
Shelf life	24 months (+40°F to +75°F - higher temp., shorter shelf life) Must be stored in vertical position



TRIGGERFOAM TOOLS & ACCESSORIES

CAT. NO.	DESCRIPTION	STD. BOX	STD. CTN.
8137	TriggerFoam™ Subfloor Gun 22"	1	1
8139	TriggerFoam™ Plastic Gun	1	1
8140	TriggerFoam™ Gun	1	1
8141	TriggerFoam™ Gun replacement brass tip	1	10
8142	TriggerFoam™ Cleaner 20 oz.	12	12

POWERS FASTENERS **BRANCH INFORMATION****USA LOCATIONS**

CITY	ADDRESS	CONTACT	PHONE	FAX
Atlanta	5405 Buford Hwy Suite 410 Norcross, GA 30071-3984	Robert Brito	678-966-0000	678-966-9242
Boston	2 Powers Lane, Brewster, NY 10509	Jack Armour	800-524-3244	914-576-6483
Charlotte	349 L West Tremont Avenue, Charlotte, NC 28203	Bob Aurisy	704-375-5012	704-376-5517
Chicago	2472 Wisconsin Avenue, Downers Grove, IL 60515	Dan Gilligan	630-960-3156	630-960-3912
Dallas	10625 King Williams Drive, Dallas, TX 75220	Chad Estill	972-506-9258	972-506-9290
Denver	2475 West Second Street #35, Denver, CO 80223	Aaron Minnis	303-922-9202	303-922-9228
Detroit	21600 Wyoming Avenue, Oak Park, MI 48237	Glen Gaskill	248-543-8600	248-543-8601
Florida	9208 Palm River Road, Bldg. 3, Suite 305, Tampa, FL 33619	T.J. Bland/Mark Mamula	813-626-4500	813-626-4545
Houston	20 North Sampson Street, Houston, TX 77003	Chris Salisbury	713-228-1524	713-228-1528
Indianapolis	15290 Stony Creek Way, Noblesville, IN 46060	Bill Trainor	317-773-1668	317-773-1690
Kansas City / St Louis	716 East 16th Avenue, North Kansas City, MO 64116	Don James, Jr.	816-472-5038	816-472-5040
Los Angeles	2761 Dow Avenue, Tustin, CA 92780	Jack Stewart	714-731-2500	714-731-2566
Maryland	3137-B Pennsy Drive, Landover, MD 20785	Gary Engleman	301-773-1722	301-341-5119
Milwaukee	12020 W. Feerick Street, Milwaukee, WI 53222	Donn Raduenz	414-466-2400	414-466-3993
Minneapolis	351 Wilson Street, NE Minneapolis, MN 55413	Rick Gruye	612-331-3756	612-331-3549
Nashville/Memphis	221 Blanton Avenue, Nashville, TN 37210	Ira Liss	615-248-2667	615-248-2676
New Orleans	14141 Airline Highway, Tezcuco Building #3, Baton Rouge, LA 70809	Cal Zenor	225-756-7871 or 225-756-7851	225-756-7981
New York	2 Powers Lane, Brewster, NY 10509	John Partridge	914-235-6300	914-576-6483
Philadelphia	2 Powers Lane, Brewster, NY 10509	Curtis Fickert	800-524-3244	914-576-6483
Phoenix	3602 E. Southern Ave, Suite 5 Phoenix, AZ 85040	Craig Hering	602-431-8024	602-431-8027
Pittsburgh	1360 Island Avenue, McKees Rocks, PA 15136	Bill Dugan	412-771-3010	412-771-9858
Rochester	410 Atlantic Avenue, Rochester, NY 14609	Mike Kolstad	585-288-2080	585-288-8732
Salt Lake City	2212 SW Temple #4, Salt Lake City, UT 84115	Bruce Burnett	801-466-3406	801-484-0731
San Francisco	28970 Hopkins Street, Suite B+C, Hayward, CA 94545	Frans Honig	510-293-1500	510-293-1505
Seattle	129 South Kenyon, Seattle, WA 98108	Darin Arnold/Jim Swink	206-762-5812	206-762-5817

INTERNATIONAL LOCATIONS

CITY	ADDRESS	CONTACT	PHONE	FAX
Australia	Factory 3, 205 Abbotts Road, Dandenong, South Victoria 3175	Phil Rose	+61 3 8787 5888	+61 3 8787 5899
British Columbia	63 Fawcett Road Coquitlam, V3K 6V2	Distributor	604-540-0200	604-540-0212
Canada	6950 Edwards Blvd. Mississauga Ontario L5T 2W2	Mark Russell	905-673-7295	905-673-6490
Europe	Westrak 208, 1771 SV Wieringerwerf, Netherlands	Paul Geuvers	+31 888 769 377	+31 227 594 759
Manitoba	1810 Dublin Avenue Man. Winnipeg, R3H 0H3	Distributor	204-633-0064	204-694-1261
New Zealand	PO Box 302 076 North Harbour Auckland	Claye Sesto	+64 9415 2425	+64 9415 2627
Quebec	For name of nearest distributor call Powers Industries Ltd at	Mark Russell	905-673-7295	905-673-6490
Thailand	80/89 MOO4 Petchakasem Road, Bangkae Bangkok 10160	Chalee Surakavanichakorn	+661 826 5821	

LATIN & CARIBBEAN DISTRIBUTION INQUIRIES

COUNTRY/REGION	ADDRESS	CONTACT	PHONE	FAX
Brasil	HARD, Rua Dr. Humberto Pinheiro Viera, 150 Lote B, 1 B Distrito Industrial, Joinville, Brasil		(55) 4749 7209	
Colombia	Electrogeno, S.A., Carrera 52 #71c-38, Bogota, Colombia		(57) 1 6600 9436	
Costa Rica	Electro Mechanics Supply, La Uruca Contiguo Banco Ntnl., De Costa Rica Condominio, Horizontal Bodega #9, San Jose, Costa Rica		(506) 2233-2595	
Dominican Republic	Calle Estancia Nueva #17 E Esquina Cul-De-Sac 9, San Geronimo, Santo Domingo	Rodfor Team	809-224-5615	809-472-8640
Ecuador	Av. Colon E 4 - 127 (1424), Entre Amazonas Y 9 De Octubre Los Rios #100 Y Manual Galecio	Sermaco - Quito (Casa Matriz) Sermaco - Guayaquil	593-2254-3703	593-2250-5013
Guatemala	Tecnofijaciones, 6 Avenue 8-56 Zona 9, Zona 9, Guatemala	Oscar Lucas Penagos	502-233-4-3478	-
Latin America	9208 Palm River Road, Ste 305, Tampa, Florida 33619	Michael Gaffigan	954-914-6665	813-626-4545
Panama	Centro-Industrial, Via Cincuentenario, No. 7910, Ciudad Panama, Panama		(507) 302-8022	
Venezuela	Calle Sucre/Qta. Maudora, #1721 Entre Cec Acosta Y San Ignacio Chacao, Caracas	Distributor	58 212 264 1313	58 212 263 0219
Trinidad - Tobago	Ft. Farfan, 3-5 Ibis Avenue, Ibis Acres, San Juan	Derek Cumming	(868) 674-7896	

Note: The information and data contained within this documentation was current as of January 2009. The information is for marketing purposes only and is subject to change and updates as needed. Powers Fasteners, Inc. reserves the right to change designs and specifications without notice or liability for such changes. Please contact Powers Fasteners for the most current and up to date available information or refer to our website at www.powers.com

Powers Fasteners 2 Powers Lane, Brewster, NY 10509 P: (914) 235-6300 F: (914) 576-6483

Powers Fasteners Canada Ltd. 6950 Edwards Boulevard Mississauga Ontario L5T-2W2 Canada

P: (905) 673-7295 or 1-800-387-3480 F: (905) 673-6490

www.powers.com

Cat. No. 49040 1/09

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MSDS No: 30
Rev Date: 1/20/10
Rev No: 2

1 MATERIAL SAFETY DATA SHEET

Product Name: **POWERFOAM™ / TRIGGERFOAM™**
Description: Polyurethane foam filler, insulating foam, backing foam, penetration sealant
Supplier: Powers Fasteners, Inc. 2 Powers Lane, Brewster, NY 10509
Customer Service: 800-524-3244
Emergency Phone: (CHEMTREC) Within USA: (800) 424-9300; Outside USA: 01 (703) 527-3887

2 INGREDIENTS

	CAS Number		ACGIH TWA	OSHA PEL
Polymethylene polyphenyl isocyanate	9016-87-9	(as MDI)	0.005 ppm	0.02ppm
Dimethyl ether	115-10-6		1000ppm*	NE
Propane	74-98-6		1000ppm*	1000ppm
Isobutane	75-28-5		1000ppm*	NE

*Note: The ACGIH TLV listed above is for Dimethyl ether is an AIHA WEEL. The ACGIH TLVs listed above for Propane and Isobutane are as Aliphatic hydrocarbon gases

This product is classified as hazardous per OSHA regulations (29CFR 1910-1200).

Abbreviations: NE= Not established

3 SAFE USAGE RECOMMENDATIONS

Ventilation: Avoid breathing vapors or mist. Use with adequate ventilation, either natural or mechanical. Sensitized individuals should avoid using this product.
Eye Protection: Avoid eye contact. Safety goggles recommended. Wear safety glasses with side shields as a minimum, as product can stick to eyes.
Skin Protection: Avoid skin contact. Wear impermeable gloves. Product can adhere to skin and cause a rash or sensitization.
Respiratory Protection: Vapor may cause irritation of the breathing tract and sensitization. Use in a well-ventilated area.

Notice: For professional use. Keep away from children.

4 EMERGENCY AND FIRST AID PROCEDURES

Eyes: Immediately flush eyes with clean water for 15 minutes and call a physician.
Skin: Wash with soap and water. Launder clothing before reuse. Seek medical attention if any symptoms develop.
Inhalation: If breathing becomes uncomfortable or asthma-like symptoms develop, discontinue use and move to fresh air. Contact physician if symptoms persist.
Ingestion: Immediately rinse mouth with water and call a physician. Drink 1-2 glasses of water. Do not induce vomiting unless directed by a physician.
Other: Contact a physician if there is any question about the seriousness of the exposure.

5 HEALTH HAZARD INFORMATION

Hazards: Direct, prolonged contact with product can cause irritation and sensitization to some individuals. Those who develop an allergic response should avoid future use of this product.
Contents are pressurized for dispensing and are extremely flammable.

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PHYSICAL CHARACTERISTICS

Appearance:	Beige foam. Sticky when wet.
Density	1.1
Boiling Point:	NE
(Air=1) Vapor Density:	>1
(Water=1) Evaporation Rate:	NE
Specific Gravity:	1.1
VOC Content:	100 g/l
Odor:	Mild amine-like
Solubility in Water:	Insoluble
pH:	NE

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FIRE, HAZARD AND REACTIVITY DATA

Flammability:	Extremely Flammable	Flash Point: 0F, -18C Boiling Point: NE
Stability:	Stable. Hazardous polymerization will not occur.	
Incompatibility:	Strong acids, bases and alcohols.	
Unusual fire or Explosion Hazards:	Extremely flammable. Contains pressurized, flammable propellants. Containers can rupture if exposed to fire or direct heat.	
Extinguishing Media:	Foam, CO _x , HCN, Nox	
Fire Fighting:	Self-contained breathing equipment recommended.	
Hazardous Combustion Products:	CO, NO, HCN, HCL	

8

TRANSPORTATION AND REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910. 1200.		
HMIS Codes:	Health: 3, Flammability: 3, Physical Hazard: 1.	PPE: B	Flash Point: -18F (0C)
US DOT Proper Shipping Name:	Consumer commodity	ORM-D	
Canadian TDGR Proper Shipping Name:	Consumer commodity	(Aerosols)	
	UN1950 Class 2.1, PG: None		
IATA/ICAO Proper Shipping Name:	AEROSOLS		
	UN1950 Class 2.1, PG: None		
IMO/IMDG Proper Shipping Name:	AEROSOLS		
	UN1950 Class 2.1, PG: None	EmS: F-D, S-U	
Packing Instructions:	Passenger Aircraft: Y203 or 203		
	Cargo Aircraft Only: 203		
TSCA Inventory Status:	Chemical components listed on TSCA inventory.		
SARA Title III, Section 313:	Contains Polymethylene polyphenyl isocyanate.		

9

STORAGE, CLEAN-UP, AND DISPOSAL

Storage:	Store in a cool, dry place. Keep from freezing and extreme heat, which may shorten shelf life.
Spills:	Follow above personal protective measures. Product will harden upon contact with air and moisture. After hardening, scrape up foam and dispose of in a sealable container.
Waste Disposal:	Dispose of in accordance with federal, state and local regulations.
EPA Waste Codes:	D001, D003 (aerosol cans)

The information and recommendations provided herein are based on information available to us at the time of preparation. We make no other warranty, expressed or implied, as to its correctness, completeness, or as to the results and reliance of the information.





GHS SAFETY DATA SHEET

WELD-ON® 717™ Low VOC Cements for PVC Plastic Pipe

Date Revised: FEB 2010

Supersedes: SEP 2009

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: WELD-ON® 717™ Low VOC Cements for PVC Plastic Pipe**PRODUCT USE:** Low VOC Solvent Cement for PVC Plastic Pipe**SUPPLIER:****MANUFACTURER:** IPS Corporation

17109 South Main Street, Carson, CA 90248-3127

P.O. Box 379, Gardena, CA 90247-0379

Tel. 1-310-898-3300

EMERGENCY: Transportation: Tel. 800.424.9300, 703.527.3887 CHEMTREC (International)**Medical:** Tel. 800.451.8346, 760.602.8703 3E Company (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health	Environmental	Physical
Acute Toxicity: Category 4	Acute Toxicity: None Known	Flammable Liquid Category 2
Skin Irritation: Category 3	Chronic Toxicity: None Known	
Skin Sensitization: NO		
Eye: Category 2B		

GHS LABEL:

OR

**Signal Word:**
Danger**WHMIS CLASSIFICATION:** CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	25 - 70
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 36
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	10 - 25

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.

* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).

SECTION 4 - FIRST AID MEASURES

Contact with eyes:	Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact:	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation:	Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion:	Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media:	Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.	HMIS	NFPA	0-Minimal
Unsuitable Extinguishing Media:	Water spray or stream.	Health	2	1-Slight
Exposure Hazards:	Inhalation and dermal contact	Flammability	3	2-Moderate
Combustion Products:	Oxides of carbon, hydrogen chloride and smoke	Reactivity	0	3-Serious
Protection for Firefighters:	Self-contained breathing apparatus or full-face positive pressure airline masks.			4-Severe

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep away from heat, sparks and open flame. Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment. Prevent contact with skin or eyes (see section 8).
Environmental Precautions:	Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up:	Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up:	Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling:	Avoid breathing of vapor, avoid contact with eyes, skin and clothing. Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods. Do not eat, drink or smoke while handling.
Storage:	Store in ventilated room or shade below 44 °C (110 °F) and away from direct sunlight. Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates. Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:	Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL:
	Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	
	Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	
	Cyclohexanone	20 ppm	50 ppm	50 ppm	

Engineering Controls: Use local exhaust as needed.**Monitoring:** Maintain breathing zone airborne concentrations below exposure limits.**Personal Protective Equipment (PPE):****Eye Protection:** Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.**Skin Protection:** Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.**Respiratory Protection:** Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Gray or clear, heavy syrupy liquid	Odor Threshold:	0.88 ppm (Cyclohexanone)
Odor:	Ketone	Boiling Range:	66 °C (151 °F) to 156 °C (313 °F)
pH:	Not Applicable	Evaporation Rate:	> 1.0 (BUAC = 1)
Melting/Freezing Point:	-108.5 °C (-163.3 °F) Based on first melting component: THF	Flammability:	Category 2
Boiling Point:	66 °C (151 °F) Based on first boiling component: THF	Flammability Limits:	LEL: 1.1% based on Cyclohexanone UEL: 11.8% based on THF
Flash Point:	-20 °C (-4 °F) TCC based on THF	Vapor Pressure:	129 mm Hg @ 20 °C (68 °F) based on THF
Specific Gravity:	0.963 @23 °C (73 °F)	Vapor Density:	>2 (Air = 1)
Solubility:	Solvent portion soluble in water. Resin portion separates out.	Other Data: Viscosity:	Heavy bodied
Partition Coefficient n-octanol/water:	Not Available		
Auto-ignition Temperature:	321 °C (610 °F) based on THF		
Decomposition Temperature:	Not Applicable		
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A, VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Hazardous decomposition products:	None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.
Conditions to avoid:	Keep away from heat, sparks, open flame and other ignition sources.
Incompatible Materials:	Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation:	Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.
Eye Contact:	Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.
Skin Contact:	Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.
Ingestion:	May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: None known to humans

Toxicity:	LD ₅₀	LC ₅₀
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m ³ (rat)
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m ³ (rat)
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	None Known
Mobility:	In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.
Degradability:	Biodegradable
Bioaccumulation:	Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name:	Adhesives
Hazard Class:	3
Secondary Risk:	None
Identification Number:	UN 1133
Packing Group:	PG II
Label Required:	Class 3 Flammable Liquid
Marine Pollutant:	NO

EXCEPTION for Ground Shipping

DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D".

TDG INFORMATION

TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information:	Highly Flammable, Irritant	Ingredient Listings:	USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)
Symbols:	F, Xi		
Risk Phrases:	R11: Highly flammable. R20: Harmful by inhalation. R36/37: Irritating to eyes and respiratory system.	Safety Phrases:	S9: Keep container in a well-ventilated place. S16: Keep away from sources of ignition - No smoking. S25: Avoid contact with eyes.
			R66: Repeated exposure may cause skin dryness or cracking R67: Vapors may cause drowsiness and dizziness S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S33: Take precautionary measures against static discharges. S46: If swallowed, seek medical advice immediately and show this container or label.

SECTION 16 - OTHER INFORMATION

Specification Information:		
Department issuing data sheet:	IPS, Safety Health & Environmental Affairs	All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).
E-mail address:	<EHSinfo@ipscorp.com>	
Training necessary:	Yes, training in practices and procedures contained in product literature.	
Reissue date / reason for reissue:	2/23/10 / Updated GHS Standard Format	
Intended Use of Product:	Solvent Cement for PVC Plastic Pipe	

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

Description

AP Armaflex Pipe (Tube) Insulation is a flexible elastomeric thermal insulation, black in color, supplied as unslit tubing, in:

- nominal wall thicknesses of 3/8", 1/2", 3/4", 1" and 1-1/2" (10, 13, 19, 25 and 38mm)
- popular sizes up to 6" IPS.

The expanded closed-cell structure of AP Armaflex Pipe Insulation makes it an efficient insulation. It is manufactured without the use of CFC's, HFC's or HCFC's. It is also formaldehyde free, low VOCs, fiber free, dust free and resists mold and mildew.

Factory Mutual Approvals System

AP Armaflex is approved through continuing supervision by Factory Mutual Approvals to consistently provide actual values on these key performance criteria for mechanical system insulation:

Thermal Conductivity: 0.27 BTU-in/hr. ft² °F
Water Vapor Transmission: 0.08 perm-inchFire
Rating: will not contribute significantly to fire (simulated end-use testing).

AP Armaflex Pipe Insulation, in thicknesses through 1-1/2" (38mm) has a flame-spread index of less than 25 and a smoke-developed index of less than 50 as tested by ASTM E 84 and CAN/ULC S-102, "Method of Test for Surface Burning Characteristics of Building Materials," through 1-1/2" wall thickness.

Note: Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for use in the selection of products to meet limits specified.

Uses

AP Armaflex Pipe Insulation is used to retard heat gain and control condensation drip from chilled-water and refrigeration systems. It also efficiently reduces heat flow for hot-water plumbing and liquid-heating and dual-temperature piping. The recommended temperature usage range for AP Armaflex Pipe Insulation is -297°F to +220°F (-183°C to +105°C).

For use on cold pipes, AP Armaflex Pipe Insulation thicknesses have been calculated to control condensation on the insulation outer surface, as shown in the table of thickness recommendations.

AP Armaflex Insulation is acceptable in wall thicknesses through 1-1/2" for use in air plenums. Conforms to NFPA 90A and NFPA 90B requirements.

AP/Armaflex meets the energy code requirements of ASHRAE 90.1, ASHRAE 90.2, International Energy Conservation Code (IECC) and other building codes.

Resistance To Moisture Vapor Flow

The closed-cell structure of AP Armaflex Insulation prevents moisture from wicking and makes it an efficient insulation. AP Armaflex normally requires no supplemental vapor-retarder protection. Additional vapor-retarder protection may be necessary for AP

Armaflex when installed on very-low-temperature piping or where exposed to continually high humidity conditions.

Application

AP Armaflex Pipe Insulation in unslit tubular form can be slipped onto piping before it is connected, or it can be slit lengthwise and snapped



over piping already connected. Fitting covers are fabricated from miter-cut tubular form. In all cases, butt joints and seams are to be sealed with Armaflex 520 Adhesive or, where a low V.O.C. adhesive is required, Armaflex 520 BLV Adhesive. 520 Adhesives are contact adhesives; therefore, in all cases, both surfaces to be joined are coated with adhesive.

For pipes greater than 6" IPS, use AP/Armaflex Sheet/Roll insulation. For thicknesses greater than 1", sleeve the insulation. See technical bulletin #030 for additional information. AP/Armaflex pipe insulation is available in 1-1/2" wall thickness with 25/50 rating for ID size range from 7/8" to 4" IPS

AP Armaflex is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied. WB Armaflex Finish is recommended.

Armaflex insulation products must be installed according to "Installation of Armaflex Insulations" brochure. Proper installation is required to assure Armaflex insulation performance.

Specification Compliance

AP Armaflex Pipe Insulation developed to meet:
ASTM C 534, Type I—Tubular Grade 1
ASTM E 84, NFPA 255, UL 723
CAN/ULC S102
UL 94 5V-A, V-O, File E 55798
NFPA 90A, 90B
UL 181
ASTM G-21/C1338, ASTM G-22
ASTM D 1056, 2B1
MIL-P-15280J, FORM T
MIL-C-3133C (MIL STD 670B), Grade SBE 3
MEA 96-85-M
City of LA - RR 7642

AP/Armaflex® TUBES

Physical Data**Physical Properties****Test Method**

Thermal conductivity, Btu • in./h • ft ² • °F (W/mK) 75°F mean temp (24°C) 90°F mean temp (32°C)	0.27 (0.039) 0.276 (0.040)	ASTM C 177 or C 518	Notes ① On the heating cycle, AP Armaflex Pipe Insulation will withstand temperatures as high as 220°F (105°C). 520 or 520 BLV Adhesive may be used with pipe insulation applications up to 220°F (105°C). ② At -20°F (-29°C), flexible AP Armaflex Insulation becomes hard and, as temperatures drop below -20°F (-29°C), will be increasingly brittle; however, this hardening characteristic does not affect thermal efficiency or water vapor permeability. * For applications of -40°F to -297°F (-40°C to -183°C), contact Armacell. ③ Reference only. <hr/> Performance approved through continuing supervision by Factory Mutual Approvals.
Water vapor permeability, perm-in. [Kg/(s•m•Pa)]	0.08 (1.16 x 10 ⁻¹³)	ASTM E 96 Procedure A	
Flame spread and smoke developed index through 1-1/2" (38mm)	25/50	ASTM E 84 CAN/ULC S102	
Mold growth fungi resistance Bacterial resistance	UL181 ASTM G21/C1338 ASTM G22	Meets requirements Meets requirements Meets requirements	
Water absorption, % by volume	0.2	ASTM C 209	
Upper use limit ①	220°F (105°C)	—	
Lower use limit, °F ②	-297°F (-183°C)*	—	
Ozone resistance	GOOD	—	
Sizes Wall thickness, (nominal)	3/8", 1/2", 3/4", 1", 1-1/2" (10, 13, 19, 25 and 38mm)	—	
Inside diameter, tubular form	3/8" ID to 6" IPS (10mm ID to 168mm) [1-1/2" Wall: 7/8" to 4" IPS (22mm to 114mm)]	—	
Length of sections, feet, tubular form	6 (1.8m) [1-1/2" Wall: 3 (0.9m)]	—	
Density, typical range ③	3.0 - 6.0 lbs./ft. ³	ASTM D 1622 or D 1667	

Armaflex Pipe Insulation Thickness Recommendations**For Controlling Outer Insulation Surface Condensation
(Based upon available manufactured thicknesses)**

Pipe Size	Line Temperatures			
	50°F (10°C)	35°F (2°C)	0°F (-18°C)	-20°F (-29°C)
BASED ON NORMAL DESIGN CONDITIONS* 3/8" ID through 1-1/8" ID (10mm–28mm) Over 1-1/8" ID through 2-1/8" ID (28mm–54mm) Over 2-1/8" ID through 2-5/8" ID (54mm–65mm) Over 2-5/8" ID through 6" IPS (65mm–168mm)	Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 3/4" (19mm)	Nom 3/4" (19mm) Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1-1/4" (32mm) Nom 1-1/4" (32mm)
BASED ON MILD DESIGN CONDITIONS** 3/8" ID through 2-5/8" ID (10mm–65mm) Over 2-5/8" ID through 6" IPS (65mm–168mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm)	Nom 3/4" (19mm) Nom 3/4" (19mm)
BASED ON SEVERE DESIGN CONDITIONS*** 3/8" ID through 1-5/8" ID (10mm–40mm) Over 1-5/8" ID through 3-5/8" ID (40mm–90mm) Over 3-5/8" ID through 6" IPS (90mm–168mm)	Nom 3/4" (19mm) Nom 3/4" (19mm) Nom 3/4" (19mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1-1/2" (38mm) Nom 1-1/2" (38mm) Nom 1-1/2" (38mm)	Nom 1-1/2" (38mm) Nom 1-3/4" (44mm) Nom 2" (50mm)

NOTE: Thicknesses greater than 1" (25mm) are multiple-layer applications, see technical bulletin #30.

*BASED ON **NORMAL** DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **normal** design conditions, a maximum severity of **85°F (29°C) and 70% RH**. Armacell research and field experience indicate that indoor conditions anywhere in the United States seldom exceed this degree of severity.

BASED ON **MILD DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **mild** design conditions, a maximum severity of **80°F (27°C) and 50% RH**. Typical of these conditions are most air-conditioned spaces and arid climates.

***BASED ON **SEVERE** DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under **severe** design conditions, a maximum severity of **90°F (32°C) and 80% RH**. Typical of these conditions are indoor areas in which excessive moisture is introduced or in poorly ventilated confined areas where the temperature may be depressed below ambient.

*1-1/2" thickness available with 25/50 rating.



ARMACELL LLC
7600 Oakwood Street Extension
P. O. Box 1038, Mebane, NC 27302

TEL. 919 304-3846 • FAX 919 304-3847
E-MAIL info.us@armacell.com
INTERNET www.armacell.com

For any updates on this document, please refer to our website.

Armacell provides this information as a technical service. To the extent the information is derived from sources other than Armacell, Armacell is substantially, if not wholly, relying upon the other source(s) to provide accurate information. Information provided as a result of Armacell's own technical analysis and testing is accurate to the extent of our knowledge and ability, as of date of printing, using effective standardized methods and procedures. Each user of these products, or information, should perform their own tests to determine the safety, fitness and suitability of the products, or combination of products, for any foreseeable purposes, applications and uses by the user and by any third party to which the user may convey the products. Since Armacell cannot control the end use of this product, Armacell does not guarantee that the user will obtain the same results as published in this document. The data and information are provided as a technical service and are subject to change without notice.

Material Safety Data Sheet

AP Armaflex

Prepared 01/08 – Replaces 04/04

I. PRODUCT IDENTIFICATION

Name: AP Armaflex Products: including AP Armaflex Tube, AP Armaflex SS Tube, AP Armaflex Sheet and Rolls, AP Armaflex SA Sheet and Rolls, AP Armaflex Tape, and AP Armaflex W.

Description: Expanded, closed-cell, cross-linked rubber type compound. Available in various sizes and in several forms; e.g., pipe insulation, sheet insulation and insulating tape.

II. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping name: Not classified. Hazard Class: N/A ID # N/A

III. HMIS (0 = minimal hazard; 4 = severe hazard)

Health = 0 Flammability = 1 Reactivity = 0

IV. PRODUCT CONTENT

This product is classified as an "article" according to Title 29 of the Code of Federal Regulations, OSHA Part 1910.1200. They are formed to a specific shape or design during manufacture, has end use functions dependent upon their shape and design, and does not release any hazardous chemical under normal conditions of use. This product does NOT contain asbestos or polychlorinated biphenyls.

V. HAZARDOUS INGREDIENTS

(Chemical Identity: Common Name)

C.A.S. No.

%

OSHA PEL

ACGIH TVL

None

VI. PHYSICAL DATA

APPEARANCE AND COLOR: Black, dark gray or white. BOILING POINT (°F): N/A. VAPOR PRESSURE (mm Hg @ 20°C): N/A. VAPOR DENSITY (Air = 1): N/A. SOLUBILITY IN WATER: N/A. SPECIFIC GRAVITY (H₂O=1): N/A. PERCENT VOLATILE BY WEIGHT (30 min. @ 275°F): N/A. EVAPORATION RATE (Butyl Acetate=1): N/A. pH: N/A VOC: N/A.

when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

N/A -not applicable or not available

N/K – none known or not known

VII. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A. RANGE: LEL = N/A. UEL = N/A. EXTINGUISHING MEDIA: Water. SPECIAL FIRE FIGHTING PROCEDURES: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

VIII. HEALTH HAZARD DATA

PRIMARY ROUTE (S) OF ENTRY: N/A. TARGET ORGANS: N/A. EFFECTS OF OVEREXPOSURE: SKIN AND EYES: N/A. INHALATION: N/A. CARCINOGENICITY: NTP: No IARC Monographs: No OSHA Regulated: No. MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE N/A. FIRST AID PROCEDURES: SKIN AND EYES: N/A. INHALATION N/A. INGESTION N/A.

IX. REACTIVITY DATA

STABILITY N/A. INCOMPATIBILITY: N/A. HAZARDOUS DECOMPOSITION PRODUCTS: N/A. HAZARDOUS POLYMERIZATION: N/A.

X. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED N/A. WASTE DISPOSAL METHOD: Dispose of container and any unused contents in accordance with Federal, State and Local Waste Disposal Regulations

XI. SPECIAL HANDLING AND USE INFORMATION

VENTILATION: N/A. RESPIRATORY PROTECTION N/A. SKIN AND EYE PROTECTION: N/A.

XII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE N/A. OTHER PRECAUTIONS: N/A. WORK SITE ENVIRONMENT: N/A.

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed

Geocel[®]

3300[®] POLYURETHANE ROOFING SEALANT

1. PRODUCT NAME:

3300[®] Polyurethane
Roofing Sealant

2. MANUFACTURER:

GEOCEL CORPORATION
P.O. Box 398
Elkhart, IN 46515 USA
Phone: (800) 348-7615
Fax: (800) 348-7009
www.GeocelUSA.com

3. PRODUCT DESCRIPTION:

3300[®] Polyurethane Roofing Sealant is a single component, high performance polyurethane sealant that withstands extreme weather conditions and cures to a flexible weatherproof seal.

3300 Sealant is approved for roof assemblies covered by the High Velocity Hurricane Zone of the Florida Building Code. Miami-Dade County Product Control Approval for TAS-132, NOA #07-1003.02.

- Miami-Dade County product approved for hurricane-tough adhesion
- Withstands extreme weather conditions
- Meets LEED and NAHB guidelines
- Moisture cure
- Permanently flexible
- Minimal shrinkage
- Non-sag formula
- Low odor, low VOC
- VOC & CARB compliant
- 30-year life expectancy
- Primerless adhesion
- Paintable, non-corrosive
- Contains no TDI (toluene diisocyanate)
- Meets TT-S-00230C Type II Class A, ASTM C920-98 Type S



TECHNICAL DATA

**MIAMI-DADE COUNTY
APPROVED**

Basic Uses: 3300 Sealant can be used in roofing applications such as concrete roofing tile, clay roofing tile, metal roofing, kynar coated metal and composition shingles. Other applications include building-lath paper repair, gutters, HVAC, flashing, skylights, roofing seams, roofing projections, termination points and vents. 3300 Sealant bonds to most common building substrates including stone, masonry, ceramics, wood, steel, aluminum, asphalt, building paper, BUR, concrete, fiberglass and vinyl.

Application Limitations:

- Do not apply over damp or contaminated surfaces
- Do not apply to absorptive surfaces such as marble, limestone, or granite without prior testing for discoloration or staining

Colors: White, gray, limestone, bronze, medium bronze, tan, aluminum gray, and black

Grade: Gun grade consistency

Packaging: 10.1 fl. oz. cartridges

Applicable Standards:

- ASTM C920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND M.
- US Federal Specification TT-S 00230C (COMB-NBS) for one-component sealants as Class A, non-sag.
- Canadian Specification CAN/CGSB 19.13-M87.
- CARB and SCAQMD Compliant. Meets VOC Requirements for OTC Regulation.

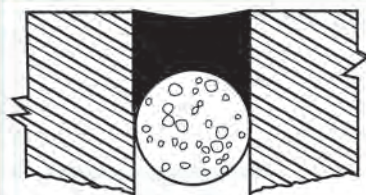


FIGURE 1

Proper Depth Control

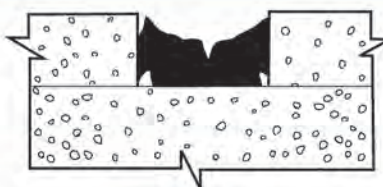


FIGURE 2

Joints without Bond Breaker

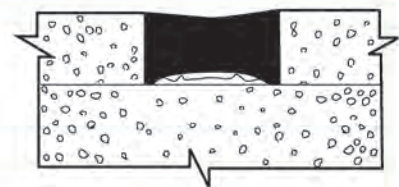


FIGURE 3

Joints with Bond Breaker

The effects on the sealant with and without bond breakers are illustrated in Figures Two and Three.

TECHNICAL DATA

Property	Results	Test Method
Tensile Strength	133 psi	ASTM D 412
Elongation	685%	ASTM D 412
Modulus of Elongation	65 psi	ASTM D 412
Adhesion Peel	>5 piw	ASTM C 794
Type A Hardness	42	ASTM D 2240
UV Resistance	Pass	ASTM C 793

4. TECHNICAL DATA: (See chart on back.)**5. INSTALLATION:**

Joint Design: The width of the joint should be a minimum of 4 times the anticipated movement. In joints up to 1/2" wide, the depth of the sealant should be equal to the width, but not less than 1/4". In joints wider than 1/2", the depth should be maintained at 5/8". Lap shear joints should have a width of at least twice the anticipated movement.

Surface Preparation: Joints to receive sealant must be sound, smooth, uniform in dimensions, and free from defects and foreign material. They must be clean, dry, free of frost and all contaminants, such as curing compounds, sealers (waterproofing), coatings, etc. Sealant adhesion should be tested on each different substrate prior to caulking. To test adhesion, apply a sealant bead and allow to cure thoroughly. Then pull one end of the bead to test adhesive strength.

Joint Backing: Joint depth should not exceed 5/8". An open cell backer rod should be used to control joint depth. In shallow joints, a bond breaker tape should be installed to prevent three-point contact.

Service Temperature:

-40° F to 150° F (-40° C to 66° C)

Application Temperature:

-40° F to 150° F (-40° C to 66° C)

Application and Tooling: Apply with conventional caulking equipment. Fill joints from the back to prevent voids and air pockets. If application temperature is below 40° F (5° C), precautions should be taken to ensure the substrates are completely dry and frost free. Immediately after application, tooling is recommended to ensure firm, full contact with the joint sides.

Cleaning: Remove 3300 sealant from gun and tools before it cures. This

may be done by scraping and use of solvents such as Xylol. Cured materials may be removed by cutting with sharp tools or sandpapering.

Storage and Shelf Life: Unopened containers should be protected from heat, moisture, and direct sun. Do not open containers until all preparatory work has been completed. Material in unopened containers is usable for up to 1 year when stored at 75° F (25° C).

6. AVAILABILITY AND COST:

Marketed throughout the U. S., Canada, and in select foreign markets. It is available from various lumber yards, hardware stores, home centers, construction material and industrial distributors. Cost and further technical data are available from your local Geocel representative or from Geocel's corporate offices.

Warning: Use only with adequate ventilation. Keep away from heat and flame. Do not take internally. Avoid eye and skin contact. **KEEP OUT OF REACH OF CHILDREN.** This product as supplied may be harmful or fatal if swallowed. If swallowed DO NOT induce vomiting. If contacted on eyes, flush thoroughly with clear water for at least 15 minutes. In either case, call a physician immediately. If contacted on skin, wash thoroughly with soap and water.

7. LIMITED WARRANTY:

Geocel Corporation warrants that the product is manufactured according to their published standards. The company guarantees for 5 years from date of manufacture

that 3300 Polyurethane Roofing Sealant will not crack due to normal expansion and contraction and that it will not lose its adhesion or cohesion. Geocel Corporation will, at its option, either refund the purchase price of, or provide replacement for, that portion of 3300 Sealant which fails to perform in accordance with this warranty. Such refund or replacement will constitute the limit of Geocel's liability and obligation for any such failure. Geocel Corporation will not be liable or obligated otherwise for any loss or damage arising directly or indirectly from this product, or the use or failure thereof, whether based on breach of warranty or negligence.

8. MAINTENANCE:

If sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the sealant, clean and prepare the joint in accordance with the instructions under "Surface Preparation," and recaulk.

9. TECHNICAL SERVICES:

Geocel representatives throughout the U.S. are available to provide technical assistance. Geocel's in-house technical staff and laboratory facilities are equipped to respond to specific requests for further information and/or applications testing.

THEORETICAL YIELD
Per 10.1 fl. oz. Cartridge

Joint Size	Linear Feet
1/4" x 1/4"	24.1
1/4" x 3/8"	16.0
1/4" x 1/2"	12.0
1/2" x 3/8"	8.4
1/2" x 1/2"	6.0
3/4" x 1/2"	4.0

THERE IS A DIFFERENCE

	NON-CORROSIVE	PAINTABLE	Adheres to: WOOD	BRICK (unprimed)	ASPHALT	METAL	VINYL	CONCRETE (unprimed)	BUILDING LATH PAPER
POLYURETHANE SILICONE	●	●	●	●	●	●	●	●	●

MATERIAL SAFETY DATA SHEET



Date Issued: 08/03/2007
MSDS No: 68101
Date Revised: 04/08/2010
Revision No: 4

3300 Colors

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3300 Colors

MANUFACTURER

Geocel, LLC
P.O. Box 398
Elkhart, IN 46515-0398
Product Stewardship: 574-264-0645

24 HR. EMERGENCY TELEPHONE NUMBERS

ChemTel - 800-255-3924

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: This product is irritating to the eyes and skin. Thermal decomposition/burning may produce toxic gases and fume. Closed containers may rupture when exposed to high temperatures, or when the product has been contaminated with water.

Avoid breathing hot mists and vapors. This product contains a respiratory and skin sensitizer. Causes respiratory tract irritation and may cause allergic respiratory reaction. May cause permanent respiratory damage. Product vapors are potentially irritating to skin. May cause allergic skin reaction and dermatitis.

POTENTIAL HEALTH EFFECTS

EYES: This product may cause irritation to the eyes. May cause temporary corneal injury.

SKIN: Skin contact may cause irritation. Isocyanates may react with skin protein and moisture to cause itching, reddening, swelling, scaling or blistering. Individuals previously sensitized to this material may experience these symptoms from exposure to very small amounts of liquid or vapor.

INGESTION: May cause irritation and corrosive action in the mouth, throat and digestive tract.

INHALATION: Single large doses, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Visual effects may include eye irritation, blurred vision, diplopia, changes in color perception, restriction of visual fields, and complete blindness.

SKIN: Irritation of the skin.

INGESTION: Diarrhea.

INHALATION: Irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, short throat.

TARGET ORGAN STATEMENT: The eyes, lungs and skin may be targeted and damaged by components of the product.

HEALTH HAZARDS: This product contains Methylene Diphenyl Isocyanate (MDI) which is a potential skin sensitizer and has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity. Risk to your health depends on duration and concentration of exposure.

COMMENTS: Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, dizziness, weakness, fatigue, eye irritation, skin irritation, diarrhea.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS	EINECS
Xylenes (o-,m-,p- Isomers)	1 - 5	1330-20-7	215-535-7
Ethyl Benzene	0.5 - 1.5	100-41-4	- -
Methylene Disphenyl Isocyanate	0.1 - 1	101-68-8	202-966-0

4. FIRST AID MEASURES

EYES: Immediately flush with plenty of water for at least 15 minutes. Get medical attention or advice.

SKIN: Remove contaminated clothing to prevent further skin exposure and dispose of properly. In situations involving considerable skin contact, place the contaminated person in a deluge shower for at least 15 minutes. For minor exposures, wash thoroughly with soap and clean water. Get medical attention if irritation persists.

INGESTION: If ingested, get immediate medical attention. Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

INHALATION: Remove to fresh air. Get medical attention immediately for a large dose exposure or if cough or other symptoms develop. Administer oxygen or artificial respiration as needed.

NOTES TO PHYSICIAN: Treat symptomatically and supportively.

Eyes: Stain for evidence of corneal injury. If cornea is burned, apply antibiotic/steroid preparation as needed.

Skin: This product contains a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestion: Treat symptomatically.

Inhalation: This material contains a known pulmonary sensitizer.

Any individual experiencing dermal or pulmonary sensitization should be removed from exposure to any diisocyanate. May aggravate existing heart conditions, particularly those with abnormal heart rhythms. If overexposure to the solvents in this product is suspected, testing should include nervous system and brain effects including recent memory, mood, concentration, headaches and altered sleep patterns. Liver and kidney function should be evaluated. This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 74.4°C (166°F)

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, or foam. Water spray (fog).

HAZARDOUS COMBUSTION PRODUCTS: Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

EXPLOSION HAZARDS: None known.

FIRE FIGHTING EQUIPMENT: Firefighters should wear full protective clothing including self contained breathing apparatus.

SENSITIVE TO STATIC DISCHARGE: Not known.

SENSITIVITY TO IMPACT: Not known.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations.

LARGE SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations. Ventilate well while cleanup is in process and until fumes dissipate.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from entering sewers or water streams. Scrape up polyurethane and deposit into appropriate containers.

LAND SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from contaminating soil. Scrape up polyurethane and deposit into appropriate containers.

7. HANDLING AND STORAGE

HANDLING: Wash hands thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles, face shields, and gloves. Professionally launder contaminated clothing before re-use. Do not breathe vapors, mists or dusts. Do not breathe fumes generated when the material is overheated or burned. Use adequate ventilation. Wear respiratory protection if the material is heated, sprayed, used in a confined space or if exposure limit is exceeded. This product can produce asthmatic sensitization. Individuals with lung or breathing problems or prior allergic reactions to isocyanate must avoid fumes from this product. Wear appropriate protective equipment to avoid contact with skin and eyes.

STORAGE: Store in a cool, dry, well-ventilated area away from heat, ignition sources and direct sunlight. Water contamination should be avoided. Cool location should be 60-80 degrees F or 15-30 degrees C.

COMMENTS: Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption, or where skin contact can occur.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		ppm	mg/m ³	ppm	mg/m ³
Xylenes (o-,m-,p- Isomers)	TWA	100	435	100	434
	STEL			150	651
Ethyl Benzene	TWA	100	435	100	434
	STEL			125	543
Methylene Disphenyl Isocyanate	TWA			0.005	0.051

ENGINEERING CONTROLS: Use local exhaust or general ventilation where the potential exists to exceed the PEL or TLV exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields or goggles when handling this material.

SKIN: Wear appropriate clothing to minimize skin contact with this product.

RESPIRATORY: Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.

OTHER USE PRECAUTIONS: Eyewash fountains and emergency showers should be readily available.

COMMENTS: Wash hands thoroughly after each use, especially before eating or smoking. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Paste

ODOR: Solvent

COLOR: Various

pH: Not Applicable

PERCENT VOLATILE: 4

FREEZING POINT: NA = Not Applicable

FLASHPOINT AND METHOD: 74.4°C (166°F)

DENSITY: 11.22

(VOC): 3.900 %

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: Yes

STABILITY: This product is stable under normal conditions but will react slightly with water to release some heat and carbon dioxide. The reaction is not violent. Carbon dioxide, carbon monoxide and in high temperature (800 °F) low oxygen atmospheres such as in fire situations, hydrogen cyanide may be released.

POLYMERIZATION: Hazardous polymerization can occur with elevated temperatures or contact with water.

CONDITIONS TO AVOID: Avoid strong acids. Avoid amines, strong bases, alcohols and metallic hydrides.

HAZARDOUS DECOMPOSITION PRODUCTS: Unknown due to the complex nature of this material. Fumes from complete or incomplete combustion may include carbon dioxide, carbon monoxide, water vapor, oxides of nitrogen and a wide variety of innocuous or toxic fumes. Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Irritating to the eyes.

SKIN EFFECTS: Irritating to the skin.

CARCINOGENICITY

Chemical Name	IARC Status
Ethyl Benzene	2B

Notes: This product contains Methylene Diphenyl Isocyanate (MDI). MDI is not listed by the NTP, IARC or regulated by OSHA as a carcinogen. However, it has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity.

REPEATED DOSE EFFECTS: Single large doses, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases. Chronic exposure may cause lung damage, including fibrosis and decreased lung function, which may be permanent.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

OTHER SHIPPING INFORMATION: Generators must consult DOT laws and regulations to ensure the product is being transported appropriately.

AIR (ICAO/IATA): Not regulated as dangerous goods.

VESSEL (IMO/IMDG): Not regulated as dangerous goods.

COMMENTS: Not regulated as dangerous goods.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: This product poses the following physical and health hazard(s) as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

FIRE: Yes **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** Yes

313 REPORTABLE INGREDIENTS: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372. CAS #: 101-68-8 MDI, CAS #: 1330-20-7 Xylene and CAS #100-41-4 Ethyl Benzene.

EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	Wt. %	CAS
Xylenes (o-,m-,p- Isomers)	1 - 5	1330-20-7
Ethyl Benzene	0.5 - 1.5	100-41-4

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

Chemical Name	Wt. %	CERCLA RQ
Xylenes (o-,m-,p- Isomers)	1 - 5	100
Ethyl Benzene	0.5 - 1.5	1,000
Methylene Disphenyl Isocyanate	0.1 - 1	5,000

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
Xylenes (o-,m-,p- Isomers)	1330-20-7
Ethyl Benzene	100-41-4
Methylene Disphenyl Isocyanate	101-68-8

CALIFORNIA PROPOSITION 65: This product contains the following product on California's Proposition 65 List: CAS# 100-41-4 Ethyl Benzene.

Chemical Name	Wt. %	Listed
Ethyl Benzene	0.5 - 1.5	Cancer

16. OTHER INFORMATION

PREPARED BY: Technical Staff

REVISION SUMMARY: Revision #: 4. This MSDS replaces the January 28, 2010 MSDS. Any changes in information are as follows: In Section 14: International (IMO /IMDG) - Note, Air (IATA /ICAO) - Note, TREMCARD - Additional Information

NFPA STORAGE CLASSIFICATION: Health 2, Flammability 2, Physical Hazard 0

HMIS RATINGS NOTES: Health 2, Flammability 2, Physical Hazard 0, PPE X



HMIS	FLAMMABILITY
HEALTH HAZARD	0
1	0
REACTIVITY	0
	SPECIFIC HAZARD

PHYSICAL PERFORMANCE PROPERTIES

AMES® BLOCK & WALL™ LIQUID RUBBER



Ames' Block & Wall Liquid Rubber is a waterproofing sealant for below grade walls and interior applications. Block & Wall Liquid Rubber is heavy duty, yet easily applied by brush, roller or sprayer. This product is formulated to resist fungus, mold and mildew. Our subterranean applications system will withstand up to 100 P.S.I. water pressures. It is potable water compliant. Block & Wall Liquid Rubber cleans up easily with water.

Appearance (cured).....	Liquid Rubber
Appearance (liquid).....	Thick, white liquid
Color.....	Tintable white (Ames Block & Wall Liquid Rubber may be tinted to pastel colors using universal latex colorants)
Solar Reflectance.....	Up to 98%
Mildew resistance.....	Excellent
Weight.....	Approx. 8.8 lbs/1gallon
Solvent.....	Water
Odor.....	Mild
Permeability.....	.016 perm rating with 10 mils/min. of coating
Elongation.....	Up to 700%
Strength.....	250 PSI
Viscosity.....	160 krebs approximate
PH as shipped.....	9.5 - 10
Specific Gravity.....	1.10
Freeze/Thaw Stability Test of dried material.....	At -35 degrees F, Ames Block & Wall Liquid Rubber passes 180 degree bend test. If frozen while in liquid form, the product may be rendered unusable.
Setting time.....	30 min. - 1 hour at 50° -100° F. at less than 30% humidity
Cure time.....	Approximately 2 to 8 hours at 50° to 100° F. at less than 30% humidity
Material composition.....	Waterbase elastomeric rubberized plastic
Toxicity.....	Non-toxic when dry
Flash point.....	1800° C
Fire rating.....	Class "A" ASTM E-108. over AC. ASTM E-84 zero smoke
Coverage rate.....	Approx. 100 square feet per gallon
Voc Content.....	Less than 1 gram per liter
Formulas have been tested in accordance with ASTM E 108 E-108 Class "A" over AC.ASTM E-84 zero smoke, zero ignition. Important: Apply a small amount to ensure the product performs satisfactorily.	

Ames Research Laboratories, Inc., PO Box 1350 Jefferson, OR USA 97352

Toll-Free: 1-888-345-0809 • Phone: 503-588-3330 • Fax: 503-364-2380 • www.amesresearch.com • amesstaff@amesresearch.com

040209

Ames' Block & Wall Liquid Rubber™



Material Safety Data Sheets (MSDS)

HMIS-NPCA-MFPA	Health	1
	Flammability	1
	Reactivity	0
	Personal Protection	

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Ames' Block & Wall Liquid Rubber™	
IDENTIFICATION		
DATE PRINTED		
PRODUCT USE/CLASS	Latex Paints & Coatings, water born dispersion	
MANUFACTURER	Ames Research Laboratories, Inc. Jefferson, Oregon 97352	Corporate Office: PO Box 1350 Jefferson, Oregon 97352-1350
EMERGENCY TELEPHONE	1-888-345-0809	
PREPARER (optional)		
PHONE	(503) 588-3330	
PREPARE DATE	12-11-08	

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	% BY WT
01	Carboxylated Acryl Styrene Butadiene rubber (proprietary trade secret claims)	Proprietary	45-55
02	Water	7732-18-5	45-55
03			
04			
05			

Material is not known to contain Toxic Chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Product alkaline to PH-10. May cause stomach distress if ingested. Do not ingest.

SECTION 3 – HAZARDOUS IDENTIFICATION

EMERGENCY OVERVIEW: No significant immediate hazards for emergency response are known. Milky white liquid emulsion. Slight odor. Dike and contain spill. Avoid dilution of spills.	
EYE CONTACT	May cause slight transient (temporary) eye irritation. Corneal injury unlikely.
SKIN CONTACT	Short single exposure not likely to cause significant skin irritation. Prolonged and repeated exposure may cause slight skin irritation. Material may stick to skin causing irritation upon removal. A single, prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
INHALATION	With good ventilation, a single exposure to vapors is not expected to cause adverse effects.
INGESTION	Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.
SYSTEMIC EFFECTS (Other target organs)	No relevant information found.

SECTION 4 – FIRST AID MEASURES

FIRST AID	
EYE CONTACT	Immediately flush eyes with large quantities of clean water for at least 15 minutes. Consult a physician.
SKIN CONTACT	Wash skin with soap and water. Remove contaminated clothing. Seek medical attention if irritation develops. Wash contaminated clothing before reuse.
INHALATION	Remove affected individual(s) to fresh air. Seek medical attention if breathing difficulty develops.
INGESTION	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
NOTES TO PHYSICIAN	No specific antidote. Supportive care. Treatment based on judgement of the physician in response to reactions of the patient.

SECTION 5 - FIRE FIGHTING MEASURES	
FLASH POINT	Not applicable
METHOD USED	Not applicable
AUTOIGNITION TEMPERATURE	Not applicable
FLAMMABLE LIMITS IN AIR (LOWER)	Not applicable
FLAMMABLE LIMITS IN AIR (UPPER)	Not applicable
FIRE FIGHTING EXTINGUISHING MEDIA	To extinguish combustible residues of this product, use water fog, carbon dioxide, dry chemical or foam.
FIRE FIGHTING EQUIPMENT	Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. If protective equipment is not available or not used, fight fire from a protected location or safe distance.
FIRE FIGHTING INSTRUCTIONS	Keep people away. Isolate fire area and deny unnecessary entry. Containers of this material may build up pressure if exposed to heat (fire). Use a water spray to cool fire-exposed containers.
FIRE/EXPLOSION HAZARDS	This material will not burn unless it is evaporated to dryness.
HAZARDOUS COMBUSTION PRODUCTS	Under fire conditions, some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to hydrocarbons, carbon monoxide and dense smoke.

SECTION 6 – ACCIDENTAL RELEASE MEASURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:	
PERSONAL PRECAUTIONS	Avoid unnecessary exposure and contact. Barricade the area to restrict access. Persons not wearing protective equipment (see section 8) should be excluded from the area of the spill until clean-up has been completed.
ENVIRONMENTAL PRECAUTIONS	Stop leak at source when it is safe to do so. Dike and contain spill. Prevent spilled material from contaminating soil or entering drains, sewers, streams or other bodies of water.
CLEANUP PROCEDURES	Avoid dilution with water to minimize the extent of the spill. Recover and recycle spilled latex if possible, otherwise, collect with absorbent material and transfer to appropriate containers for disposal. Water may be used for final cleaning of affected area.

SECTION 7 – HANDLING AND STORAGE	
HANDLING:	Practice reasonable care to avoid repeated, prolonged skin contact. An eye wash station and a safety shower should be readily accessible to workers wherever this material is stored or used.
STORAGE:	Keep from freezing. Store at temperatures between 40° F and 110° F. Material may develop bacteria odor on long-term storage. No safety problems known.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION	
EXPOSURE LIMITS GUIDELINES	There are no exposure limits assigned to the polymer in this product by the Occupational Safety and Health Administration (OSHA) or American Conference of Governmental Industrial Hygienists (ACGIH).
ENGINEERING CONTROLS	Good general ventilation should be sufficient for most conditions.
PERSONAL PROTECTIVE EQUIPMENT	<p>EYES: Wear safety glasses with side shields or goggles.</p> <p>SKIN: Wear clean, long-sleeved, body-covering, clothing. Nitrile, neoprene®, or rubber gloves should provide protection against skin contact.</p> <p>INHALATION: For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, or areas are poorly ventilated, use an approved air-purifying respirator.</p>

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES			
BOILING RANGE:	212°F (100° C)	VAPOR DENSITY:	0.624 @ 80° F (26.7° C)
ODOR:	Slight odor	PHYSICAL STATE	Liquid
APPEARANCE:	Thick, white liquid.	SPECIFIC GRAVITY:	0.98 - 1.04
pH	9.0 – 10.0	VAPOR PRESSURE	17.5 mm Hg @ 68° F (20° C)
FREEZING POINT	32° F (0° C)		
SOLUBILITY	Product is sold as dilutable. Polymer component is insoluble		
ADDITIONAL INFORMATION	The physical data listed are for a series of latexes. For specific properties on any given latex, see the product bulletin.		

(See Section 16 for abbreviation legend)

SECTION 10 –STABILITY AND REACTIVITY	
STABILITY	This material is stable during storage and during its extended use.
INCOMPATIBLE MATERIALS/SUBSTANCES	Addition of chemicals, such as acids or multivalent metal salts, may cause coagulation.
CONDITIONS TO AVOID	Avoid freezing temperatures (less than 32° F or 0° C). Products decompose at elevated temperatures.
HAZARDOUS DECOMPOSITION PRODUCTS	Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Thermal decomposition may produce various hydrocarbons and irritating, acrid vapors.
HAZARDOUS POLYMERIZATION	Hazardous polymerization will not occur.

SECTION 11 – TOXICOLOGICAL PROPERTIES	
ACUTE TOXICITY (HUMANS)	Refer to section 3 for available information on potential health effects. For detailed toxicological data, write or call the address or non-emergency number shown in section 1.
SKIN:	Based on properties of similar polymers, the polymer is not hazardous.
INGESTION:	Based on properties of similar polymers, the polymer is not hazardous.
INHALATION:	Based on properties of similar polymers, the polymer is not hazardous.

SECTION 12 – ECOLOGICAL INFORMATION	
MOVEMENT & PARTITIONING	Latex dispersions will color water a milky white. No bioconcentration of the polymeric component is expected because of its high molecular weight.
DEGRADATION & PERSISTENCE	The polymeric component is not expected to biodegrade.
ECOTOXICITY	Based largely or completely on information for similar material(s): Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 > 100 mg/L in the most sensitive species tested).

SECTION 13 – DISPOSAL CONSIDERATIONS	
DISPOSAL METHOD:	Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

SECTION 14 – TRANSPORTATION INFORMATION	
DEPT. OF TRANSPORTATION (DOT) – US	This product is not regulated by D. O. T. when shipped domestically by land.
TRANSPORTATION OF DANGEROUS GOODS (TDG) - CANADA	This product is not regulated by TDG when shipped domestically by land.



SECTION 15 – REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: Occupational Safety and Health Act (OSHA): This material is not classified as hazardous under the criteria of the US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 8(b) – Inventory Status: All components of this material are listed on or are exempt from the US toxic Substances Control Act (TSCA) inventory.

SARA Title III Section 313 Toxic Chemical List (TCL): To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA Hazard Category: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: - Not to have met any hazard category.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) – CANADA: Workplace Hazardous Materials Information System (WHMIS) – Canada: This material is not classified as a controlled product under the Canadian workplace Hazardous Material Information System.

Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL).

ADDITIONAL INFORMATION: California Proposition 65: This material contains a chemical known to the State of California to cause cancer.
- 4-Vinylcyclohexene

SECTION 16 – OTHER INFORMATION

HMIS RATINGS:	HEALTH 1	FLAMMABILITY 1	REACTIVITY 0	PERSONAL PROTECTION
PREVIOUS REVISION DATE				
REASON FOR REVISION	typo			
LEGEND:	N.A. not applicable, N.E. Not established, N.D. Not determined			
VOLATILE ORGANIC COMPOUNDS	VOC compliant			
ABBREVIATIONS USED:	N/A (information or data not available); NTP (National Toxicology Program); IARC (International Agency for Research on Cancer); NIOSH (National Institute of occupational Safety and Health administration); PEL (Permissible Exposure Limit) [8 hr. TWA][OSHA]; TLV (Threshold Limit Value)[8 hr. TWA][ACGIH]; STEL (Short term exposure limit)[15 min. TWA][OSHA]; C (ceiling value).			
DISCLAIMER:	<p>Ames Research Laboratories, Inc. believes that the information provided is accurate and reliable as of the date of this material safety data sheet and is given in good faith. No warranty expressed or implied is made as to the accuracy, reliability or completeness of the information. Any use of this data and information must be determined by the user to be in accordance with applicable Federal, State and Local laws and regulations. Ames Research Laboratories, Inc. urges persons receiving this information to make their own determination as to the information's suitability and applicability for an intended use.</p> <p>Note: This information must be included in all MSDS that are copied and distributed for this material.</p>			



AMES' BLUE MAX™ Sprayable-Grade Liquid Rubber

Basement, ICF, Below-Grade Block & Concrete Waterproofing

Ames' Blue Max™ is a special blend of adhesive, high strength elastomeric liquid rubber, available in a sprayable-grade and a trowel-grade. It is the best technology today for waterproofing in extreme wet situations such as flat roofs, below grade foundations, basement walls, cisterns and many other applications. It is high in solids and dries to a tough 800% elastic membrane that resists cracking and peeling. Blue Max™ is impervious to water when applied in a uniform and seamless fashion with adequate millage. Blue Max sprayable-grade flows into cracks and crevices as a liquid and sets up as a durable rubber to seal leaks wherever they occur. It dries to a translucent blue color.

Blue Max is also an excellent coating for ICF (insulated concrete forms). The adhesive qualities in Blue Max actually glue surfaces together and strengthen wall construction. Blue Max out performs isocyanate urethanes, and works well as a primer and waterproofing membrane for Ames' products such as Safe-T-Deck, Maximum-Stretch, Block & Wall and many other coatings. Blue Max must be top coated for UV protection in exterior applications.

This coating contains no petroleum, is non-toxic, low odor, and environmentally friendly. It can be used as a potable water coating. Blue Max is easy to apply ~ simply roll, brush or spray. Clean up with soap and water.

Nothing else like it in the world!

WATERPROOFS & REPAIRS:

Old Flat Tar Roofs

Metal Roofs

Rusty Metal

Wood

Concrete

EPDM

Rubber Roofs

Roof Valleys

Gutters

Concrete Pipes

Masonry

Roof Decks

Basement Walls

Below-Grade Walls

Plywood Sub-Roofs

Insulated Concrete Forms

Cisterns

Water Troughs

Catch Basins

Ponds & Fountains

Water Troughs

Catch Basins

Ponds

Fountains



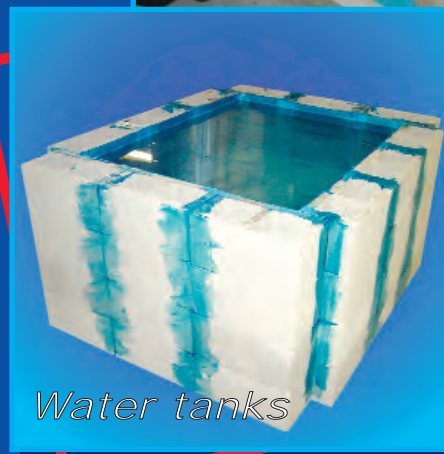
*Thick
Fills & Seals*



Sprayable grade



Easy to Apply



Water tanks

This water tank was built using concrete blocks sealed only with Ames' Blue Max. This is simply a demonstration of its waterproofing and adhesive power.



AMES' BLUE MAX™ Trowel-Grade Liquid Rubber Waterproofs Roofs, Walls, Decks & Concrete

Ames' Blue Max trowel-grade is a thick, velvety rich, version of our sprayable-grade Blue Max coating that can be used as a caulk or filler. Blue Max trowel-grade is thick and adhesive to bridge gaps and cracks in concrete, concrete blocks, foundations and many other applications. Blue Max trowel-grade is easy to apply with a brush or trowel. It can be used with other Ames' coatings where a filler is needed for an optimal waterproof system.

As with our sprayable-grade, Blue Max trowel-grade is highly resistant to standing water situations such as flat roofs or water containment. Blue Max is an excellent coating for ICF (insulated concrete forms), as well as metal, wood, concrete, and many other applications. Exterior applications must be topcoated for UV protection.



Trowel-grade



So strong you may not need mortar!



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HMIS		FLAMMABILITY	
HEALTH HAZARD	0	0	REACTIVITY
		SPECIFIC HAZARD	

PHYSICAL PERFORMANCE PROPERTIES



AMES'® BLUE MAX™

Ames' Blue Max is a special blend of adhesive, high strength elastomeric liquid rubber. It is the best technology today for waterproofing in extreme wet situations such as flat roofs, below grade foundations, basement walls, cisterns, water troughs, catch basins, ponds and fountains. It is high in solids and dries to a tough 800% elastic membrane that resists cracking and peeling. Blue Max is impervious to water when applied in a uniform and seamless fashion with adequate millage. Blue Max is available in a trowel-grade and a sprayable-grade. It dries to a translucent blue color. Water clean up.

Appearance (cured).....	Liquid Rubber
Appearance (liquid).....	Thick & creamy
Color.....	Blue
Mildew Resistance.....	Excellent
Weight.....	8.0 lbs / 1 gallon
Solvent.....	Water
Odor.....	Mild
Permeability.....	.016 E-96
Elongation.....	Up to 800%
Strength.....	Tensile ASTM D-638 14 days 625%
Humidity.....	Best applied at when humidity level is below 50%
Freeze/Thaw Stability Test.....	If frozen while in liquid form, may be damaged or solidify. Protect from freezing.
Setting time.....	Begins to dry in 30 minutes to 2 hours depending on application thickness and weather.
Cure time.....	Continues to cure for up to 2 weeks.
Toxicity.....	Non-toxic after curing.
Flash Point.....	1500° F. (estimated)
Coverage rate.....	Approximately 100 sq. ft. per gallon per coat
Voc Content.....	Less than 1 gram per liter.



Material Safety Data Sheets (MSDS)

HMIS-NPCA-MFPA	Health	1
	Flammability	1
	Reactivity	0
	Personal Protection	

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Ames' Blue Max™ Regular-grade		
IDENTIFICATION			
DATE PRINTED			
PRODUCT USE/CLASS	Latex Paints & Coatings, water born dispersion		
MANUFACTURER	Ames Research Laboratories, Inc. Jefferson, Oregon 97352	Corporate Office: PO Box 1350 Jefferson, Oregon 97352-1350	
EMERGENCY TELEPHONE	1-888-345-0809		
PREPARER (optional)			
PHONE	(503) 588-3330		
PREPARE DATE	05-05-09		

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	% BY WT
01	A specialty formulated waterbase man-made rubber technology. Further information provided upon qualified request to our customers. Fax your request to 503-364-2380. Include: address, phone number, and company name for further information.	Proprietary	45-55
02	Water	7732-18-5	45-55
03			

Material is not known to contain Toxic Chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Product alkaline to PH-10. May cause stomach distress if ingested. Do not ingest.

SECTION 3 – HAZARDOUS IDENTIFICATION

EMERGENCY OVERVIEW: No significant immediate hazards for emergency response are known. Milky white liquid emulsion. Slight odor. Dike and contain spill. Avoid dilution of spills.	
EYE CONTACT	May cause slight transient (temporary) eye irritation. Corneal injury unlikely.
SKIN CONTACT	Short single exposure not likely to cause significant skin irritation. Prolonged and repeated exposure may cause slight skin irritation. Material may stick to skin causing irritation upon removal. A single, prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.
INHALATION	With good ventilation, a single exposure to vapors is not expected to cause adverse effects.
INGESTION	Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.
SYSTEMIC EFFECTS (Other target organs)	No relevant information found.

SECTION 4 – FIRST AID MEASURES

FIRST AID	
EYE CONTACT	Immediately flush eyes with large quantities of clean water for at least 15 minutes. Consult a physician.
SKIN CONTACT	Wash skin with soap and water. Remove contaminated clothing. Seek medical attention if irritation develops. Wash contaminated clothing before reuse.
INHALATION	Remove affected individual(s) to fresh air. Seek medical attention if breathing difficulty develops.
INGESTION	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
NOTES TO PHYSICIAN	No specific antidote. Supportive care. Treatment based on judgement of the physician in response to reactions of the patient.



Material Safety Data Sheets (MSDS)

SECTION 5 - FIRE FIGHTING MEASURES	
FLASH POINT	Not applicable
METHOD USED	Not applicable
AUTOIGNITION TEMPERATURE	Not applicable
FLAMMABLE LIMITS IN AIR (LOWER)	Not applicable
FLAMMABLE LIMITS IN AIR (UPPER)	Not applicable
FIRE FIGHTING EXTINGUISHING MEDIA	To extinguish combustible residues of this product, use water fog, carbon dioxide, dry chemical or foam.
FIRE FIGHTING EQUIPMENT	Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. If protective equipment is not available or not used, fight fire from a protected location or safe distance.
FIRE FIGHTING INSTRUCTIONS	Keep people away. Isolate fire area and deny unnecessary entry. Containers of this material may build up pressure if exposed to heat (fire). Use a water spray to cool fire-exposed containers.
FIRE/EXPLOSION HAZARDS	This material will not burn unless it is evaporated to dryness.
HAZARDOUS COMBUSTION PRODUCTS	Under fire conditions, some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to hydrocarbons, carbon monoxide and dense smoke.

SECTION 6 – ACCIDENTAL RELEASE MEASURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:	
PERSONAL PRECAUTIONS	Avoid unnecessary exposure and contact. Barricade the area to restrict access. Persons not wearing protective equipment (see section 8) should be excluded from the area of the spill until clean-up has been completed.
ENVIRONMENTAL PRECAUTIONS	Stop leak at source when it is safe to do so. Dike and contain spill. Prevent spilled material from contaminating soil or entering drains, sewers, streams or other bodies of water.
CLEANUP PROCEDURES	Avoid dilution with water to minimize the extent of the spill. Recover and recycle spilled latex if possible, otherwise, collect with absorbent material and transfer to appropriate containers for disposal. Water may be used for final cleaning of affected area.

SECTION 7 – HANDLING AND STORAGE	
HANDLING:	Practice reasonable care to avoid repeated, prolonged skin contact. An eye wash station and a safety shower should be readily accessible to workers wherever this material is stored or used.
STORAGE:	Keep from freezing. Store at temperatures between 40° F and 110° F. Material may develop bacteria odor on long-term storage. No safety problems known.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION	
EXPOSURE LIMITS GUIDELINES	There are no exposure limits assigned to the polymer in this product by the Occupational Safety and Health Administration (OSHA) or American Conference of Governmental Industrial Hygienists (ACGIH).
ENGINEERING CONTROLS	Good general ventilation should be sufficient for most conditions.
PERSONAL PROTECTIVE EQUIPMENT	<p>EYES: Wear safety glasses with side shields or goggles.</p> <p>SKIN: Wear clean, long-sleeved, body-covering, clothing. Nitrile, neoprene®, or rubber gloves should provide protection against skin contact.</p> <p>INHALATION: For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, or areas are poorly ventilated, use an approved air-purifying respirator.</p>



Material Safety Data Sheets (MSDS)

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

BOILING RANGE:	212°F (100° C)	VAPOR DENSITY:	0.624 @ 80° F (26.7° C)
ODOR:	Slight odor	PHYSICAL STATE	Liquid
APPEARANCE:	Thick, blue liquid.	SPECIFIC GRAVITY:	0.98 - 1.04
pH	9.0 – 10.0	VAPOR PRESSURE	17.5 mm Hg @ 68° F (20° C)
FREEZING POINT	32° F (0° C)		
SOLUBILITY	Product is sold as dilutable. Polymer component is insoluble		
ADDITIONAL INFORMATION	The physical data listed are for a series of latexes. For specific properties on any given latex, see the product bulletin.		

(See Section 16 for abbreviation legend)

SECTION 10 –STABILITY AND REACTIVITY

STABILITY	This material is stable during storage and during its extended use.
INCOMPATIBLE MATERIALS/SUBSTANCES	Addition of chemicals, such as acids or multivalent metal salts, may cause coagulation.
CONDITIONS TO AVOID	Avoid freezing temperatures (less than 32° F or 0° C). Products decompose at elevated temperatures.
HAZARDOUS DECOMPOSITION PRODUCTS	Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Thermal decomposition may produce various hydrocarbons and irritating, acrid vapors.
HAZARDOUS POLYMERIZATION	Hazardous polymerization will not occur.

SECTION 11 – TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY (HUMANS)	Refer to section 3 for available information on potential health effects. For detailed toxicological data, write or call the address or non-emergency number shown in section 1.
SKIN:	Based on properties of similar polymers, the polymer is not hazardous.
INGESTION:	Based on properties of similar polymers, the polymer is not hazardous.
INHALATION:	Based on properties of similar polymers, the polymer is not hazardous.

SECTION 12 – ECOLOGICAL INFORMATION

MOVEMENT & PARTITIONING	Latex dispersions will color water a milky white. No bioconcentration of the polymeric component is expected because of its high molecular weight.
DEGRADATION & PERSISTENCE	The polymeric component is not expected to biodegrade.
ECOTOXICITY	Based largely or completely on information for similar material(s): Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 > 100 mg/L in the most sensitive species tested).

SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:	Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.
------------------	--

SECTION 14 – TRANSPORTATION INFORMATION

DEPT. OF TRANSPORTATION (DOT) – US	This product is not regulated by D. O. T. when shipped domestically by land.
TRANSPORTATION OF DANGEROUS GOODS (TDG) - CANADA	This product is not regulated by TDG when shipped domestically by land.



Material Safety Data Sheets (MSDS)

SECTION 15 – REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: Occupational Safety and Health Act (OSHA): This material is not classified as hazardous under the criteria of the US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 8(b) – Inventory Status: All components of this material are listed on or are exempt from the US toxic Substances Control Act (TSCA) inventory.

TSCA Section 12(b)-Export Notification: 4-Vinylcyclohexene (CAS# 100-40-3) is subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Reporting requirements.

SARA Title III Section 304 – CERCLA: Components of this product are not subject to reporting under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act. (CERCLA)

SARA Title III Section 313 Toxic Chemical List (TCL): To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA Hazard Category: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: - Not to have met any hazard category.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) – CANADA: Workplace Hazardous Materials Information System (WHMIS) – Canada: This material is not classified as a controlled product under the Canadian workplace Hazardous Material Information System.

Canadian Inventory Status: All components of this material are listed on the Canadian Domestic Substances List (DSL).

Additional Canadian Regulatory Information: This product does not contain a substance present on the WHMIS Ingredient Disclosure List. (IDL) which is at or above the specified concentration limit.

ADDITIONAL INFORMATION: California Proposition 65: This material contains a chemical known to the State of California to cause cancer. The California Safe Drinking Water and Toxic Enforcement Act of 1986 requires that clear and reasonable warning be given prior to exposing any person to this chemical.
- 4-Vinylcyclohexene

SECTION 16 – OTHER INFORMATION

HMIS RATINGS:	HEALTH 1	FLAMMABILITY 1	REACTIVITY 0	PERSONAL PROTECTION
PREVIOUS REVISION DATE	12-11-08			
REASON FOR REVISION	Added information for Canada			
LEGEND:	N.A. not applicable, N.E. Not established, N.D. Not determined			
VOLATILE ORGANIC COMPOUNDS	VOC compliant			
ABBREVIATIONS USED:	N/A (information or data not available); NTP (National Toxicology Program); IARC (International Agency for Research on Cancer); NIOSH (National Institute of occupational Safety and Health administration); PEL (Permissible Exposure Limit) [8 hr. TWA][OSHA]; TLV (Threshold Limit Value)[8 hr. TWA][ACGIH]; STEL (Short term exposure limit)[15 min. TWA][OSHA]; C (ceiling value).			
DISCLAIMER:	<p>Ames Research Laboratories, Inc. believes that the information provided is accurate and reliable as of the date of this material safety data sheet and is given in good faith. No warranty expressed or implied is made as to the accuracy, reliability or completeness of the information. Any use of this data and information must be determined by the user to be in accordance with applicable Federal, State and Local laws and regulations. Ames Research Laboratories, Inc. urges persons receiving this information to make their own determination as to the information's suitability and applicability for an intended use.</p> <p>Note: This information must be included in all MSDS that are copied and distributed for this material.</p>			



HMIS		FLAMMABILITY	
HEALTH HAZARD	0	0	REACTIVITY
1		0	
SPECIFIC HAZARD			

PHYSICAL PERFORMANCE PROPERTIES

AMES'® SAFE-T-DECK™



Ames Research Laboratories' Safe-T-Deck, granulated is a pure, water based, environmentally friendly, adhesive acrylic latex safety paint that is skid resistant. It preserves and protects by substantially increasing the strength of the surface through adhesion. It also seals out moisture and renews the old surface, while providing an excellent skid-resistant finish that is ideal for pedestrian traffic. Safe-T-Deck is easy to apply. Cleans up easily with water.

Appearance (cured).....	Granulated rubberized plastic coating
Appearance (liquid).....	Thick, Granulated
Color.....	Gray, tint. white, tan, clear, Burger King red, Burgundy Red, Fire engine Red, McDonald Red
UV Resistance.....	Excellent
Mildew Resistance.....	Excellent
Weight.....	Approx. 9.5-10 lbs/gallon
Solvent.....	Water
Odor.....	Mild
Permeability.....	Less than one perm with a five-coat system
Elongation.....	Up to 300%
Strength.....	200 psi
Viscosity.....	9,000 cps spdl. #7/100 rpm
Ph as shipped.....	9.4-10
Specific Gravity.....	1.25
Freeze/Thaw Stability Test of dried material.....	Exhibits elastomeric qualities when cured product freezes. If frozen while in liquid form, the product may be rendered unusable.
Setting time.....	1-2 hours at 50°-100° F at less than 30% humidity
Cure time.....	Approx. 2-8 hours at 50° - 100° F at less than 30% humidity. Slight tack. Cures in one week.
Material composition.....	Waterbase rubberized plastic
Toxicity.....	Non-toxic when dry
Tukon Hardness (KHN).....	Approx. 1 - 1.5
Coverage rate.....	Approx. 100 square feet per gallon.
Voc Content.....	Less than 1 gram per liter.

Formulas have been tested in accordance with ASTM E 108 E-108 Class "A" over AC.ASTM E-84 zero smoke, zero ignition.

SPECIAL COMMENTS: A dry surface is an absolute necessity before applying Safe-T-Deck. Sun contact is best for drying during winter months. Concrete surfaces should be thoroughly cleaned before applying Safe-T-Deck. Roof decks: Use lightweight Seam Tape with Super Elasto-Barrier over all joints before applying Safe-T-Deck with Roofing Fabric at a rate of three gallons per square minimum for reinforcement. Follow with two coats of Safe-T-Deck. Refer to container instructions for complete information.

IMPORTANT: Always run a test patch first in an inconspicuous area to ensure that proper adhesion and drying occur and the performance is to your satisfaction.

Ames Research Laboratories, Inc., PO Box 1350 Jefferson, OR USA 97352

Toll-Free: 1-888-345-0809 • Phone: 503-588-3330 • Fax: 503-364-2380 • www.amesresearch.com • amesstaff@amesresearch.com

071008



Material Safety Data Sheets (MSDS)

HMIS-NPCA-MFPA	Health	1
	Flammability	0
	Reactivity	0
	Personal Protection	B

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Paint & Prime 25 Year	
IDENTIFICATION	PP25	
DATE PRINTED		
PRODUCT USE/CLASS	Latex Paints & Coatings, water born dispersion	
MANUFACTURER	Ames Research Laboratories, Inc. Jefferson, Oregon 97352	Corporate Office: PO Box 1350 Jefferson, Oregon 97352-1350
EMERGENCY TELEPHONE	1-888-345-0809	
PREPARER (optional)		
PHONE	(503) 588-3330	
PREPARE DATE	07-01-08	

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

ITEM	CHEMICAL NAME	CAS NUMBER	WT/WT % LESS THAN
01	Titanium dioxide	13463-67-7	5.0%
02	Calcium carbonate	471-34-1	15.0%
03			
04	Acrylic-Styrene Polymer	Not Regulated	
05	Water	7732-18-5	> 37

Material is not known to contain Toxic Chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Product alkaline to PH-10. May causes stomach distress if ingested. Do not ingest.

--EXPOSURE LIMITS--						
ITEM	ACGIH TLV-TWA	TLV-STEL	OSHA PEL-TWA	PEL-CEILING	COMPANY TLV-TWA	SKIN
01	10 mg / m ³	N.E.	15 mg / m ³	N.E.	N.E.	NO
02	10 mg / m ³	N.E.	15 mg / m ³	N.E.	N.E.	NO

(See Section 16 for abbreviation legend)

SECTION 3 – HAZARDOUS IDENTIFICATION

EFFECTS OF OVEREXPOSURE	
EYE CONTACT	May cause slight irritation
SKIN CONTACT	May cause irritation
INHALATION	May cause respiratory tract irritation
INGESTION	Irritating to mouth, throat and stomach.
CHRONIC HAZARDS	No anticipated effects. This product does not contain regulated levels of NTP,IARC or OSHA listed carcinogens.
PRIMARY ROUTE(S) OF ENTRY	Skin contact, Inhalation, Ingestion, Eye Contact

SECTION 4 – FIRST AID MEASURES

FIRST AID	
EYE CONTACT	Flush eye with water for at least 15 minutes. Call a physician. PH is roughly 8.5-9.0. Alkaline.
SKIN CONTACT	Remove contaminated clothing and shoes. Wash affected area(s) thoroughly with soap and water. Flush skin after contact. May cause mild skin irritation. Protect with gloves.
INHALATION	Slight ammonia odor. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.
INGESTION	No data shown on latex. Not probable route of exposure.



Material Safety Data Sheets (MSDS)

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT	These Formulations tested in accordance with ASTM E 108-80a Class A with a Zero ignitions with a flame spread test. With Weyerhaeuser Company, Fire Technology Unit. Product was also tested in accordance with ASTM E-84-81a. "Smoke attained was Zero. Product contains dispersed Latex and water solvent. The flames spread index determined meets the criteria for Class A material over A/C/ Substrate.
LOWER EXPLOSIVE LIMIT	N.A.
UPPER EXPLOSIVE LIMIT	N.A.
AUTOIGNITION TEMPERATURE	Zero ignition.
EXTINGUISHING MEDIA	FOAM CO2, DRY CHEMICAL, WATER, FOG foam.
UNUSUAL FIRE AND EXPLOSIVE HAZARDS	None Known. Some Gases, Hydrogen Chloride, carbon monoxide,
SPECIAL FIREFIGHTING PROCEDURES	Containers exposed to fire should be kept cool with water spray. Containers can build up pressure if exposed to heat (fire). As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:	
Flush small spills with water. Soak up large spills with sand or earth and remove. Repeat sorbent/sweep cycle until the spill has dried up. Collect and dispose according to local regulations. Avoid runoff into storm sewers and ditches that lead to waterways. This product does not meet the definition of hazardous waste under the U.S. EPA Hazardous Waste Regulations 40 CFR 261. Consult your state or local authorities for proper disposal in the event more restrictive requirements apply.	

SECTION 7 – HANDLING AND STORAGE

HANDLING:	Use in a well ventilated area. Keep out of reach of children. If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Uses goggles and gloves. Similar to most latex paints.
STORAGE:	Keep container closed when not in use. Dries Rapidly.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:	Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Contains low levels of Ammonia for PH control Less than 9 ph.
RESPIRATORY PROTECTION:	Wear NIOSH/MSHA approved respiratory protection when the product is mixed or applied in a poorly ventilated area or if workplace levels of ingredients if they exceed the TLV. Follow applicable federal, state, and local regulations.
OTHER PROTECTIVE EQUIPMENT:	Where contact is likely, wear chemical resistant gloves, chemical safety goggles with a face shield, and clean protective clothing to cover arms and legs to keep exposure to a minimum.
HYGIENE PRACTICES:	Do not take internally. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid breathing vapors from heated material.



Material Safety Data Sheets (MSDS)

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES			
BOILING RANGE:	212°F	VAPOR DENSITY:	Is heavier than air
ODOR:	Slight Ammonia Ph 8.0 –9.5 Mild	ODOR THRESHOLD:	N.D.
APPEARANCE:	Thick, white, liquid.	EVAPORATON RATE:	Similar to Latex paint, water based Latex polymers.
SOLUBILITY IN H2O	Dilutable, Miscible.	SPECIFIC GRAVITY:	1.05 to 1.15
% VOLATILES	Volatile is water.		Level is 39-55%
pH @	8.0- 9.5 Ph	FREEZE POINT: 32 degrees F	Near Water at 25 deg C. Do not freeze. Freezing will solidify and destroy the product.
VISCOSITY:	130-160 Krebs	VAPOR PRESSURE:	1.75 mm Hg
PHYSICAL STATE:	White Thick Latex Liquid, Contains acrylic latex	COEFFICIENT OF WATER/OIL DISTRIBUTION:	Water VOC solvents negligible.

(See Section 16 for abbreviation legend)

SECTION 10 –STABILITY AND REACTIVITY	
CONDITIONS TO AVOID:	Long term exposure to elevated temperatures
INCOMPATIBILITY:	Avoid contact with oxidizing material
HAZARDOUS DECOMPOSITION PRODUCTS:	Acrid fumes. Oxides of carbon.
HAZARDOUS POLYMERIZATION:	Will not occur under normal conditions
STABILITY:	This product is stable under normal storage conditions.

SECTION 11 – TOXICOLOGICAL PROPERTIES	
PRODUCT DERMAL LS50:	No Information
PRODUCT LC50:	No Information
PRODUCT ORAL LD50:	No Information

COMPONENT TOXICOLOGICAL INFORMATION:

--CHEMICAL NAME--	DERMAL LD50	ORAL LD50	LC50
This product does not contain regulated levels of NTP, IARC or OSHA			
Existing Health Conditions Affected by Exposure – No known effects on other illnesses			

SECTION 12 – ECOLOGICAL INFORMATION	
ECOLOGICAL INFORMATION:	Contains water based acrylic. Relatively non-toxic to environment.

SECTION 13 – DISPOSAL CONSIDERATIONS	
DISPOSAL METHOD:	Review all local, state, and federal regulations concerning health and pollution for appropriate disposal procedures.

SECTION 14 – TRANSPORTATION INFORMATION	
DOT PROPER SHIPPING NAME:	Not regulated
DOT TECHNICAL NAME:	N.A.
DOT HAZARD CLASS:	N.A.
HAZARD SUBCLASS:	N.A.
DOT UN/NA NUMBER:	N.A.
PACKING GROUP:	N.A.
RESP. GUIDE PAGE:	N.A.
DOT PLACARD AT:	N.A.
DOT CLASS NUMBER:	N.A.
UN PROPER SHIPPING NAME:	Not registered
UN CLASS NUMBER:	N.A. AIR: N.A. MARINE: N.A.
HAZARD SUBCLASS:	N.A. AIR: N.A. MARINE: N.A.
UN UN/NA NUMBER:	N.A. UN PACKING GROUP: N.A. AIR: N.A. MARINE: N.A.
UN PLACARD AT:	N.A.



Material Safety Data Sheets (MSDS)

SECTION 15 – REGULATORY INFORMATION

U.S. Federal Regulation: AS FOLLOWS – OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR1910.1200)	
CERCLA – SARA Hazard Category: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: None	
SARA Section 313: This product does not contain toxic chemical(s) at or above the de minimus concentrations subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR part 372	
Toxic Substances Control Act: This product meets the compositional requirements of the Toxic Substances Control Act and contains only chemical ingredients that are listed on the TOSCA inventory	
California Prop. 65: This product contains no trace amount of a chemical(s) known to California to cause cancer and/or birth defects or other reproductive harm.	
Canadian EPA: This Product contains only chemical ingredients that are listed on the Domestic Substance List of the Canadian Environmental Agency.	
INTERNATIONAL REGULATIONS: AS FOLLOWS--	
CANADIAN WHMIS:	This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the sixteen headings.
CANADIAN WHMIS CLASS	No Information available.

SECTION 16 – OTHER INFORMATION

HMIS RATINGS:	HEALTH 1	FLAMMABILITY 0	REACTIVITY 0	PERSONAL PROTECTION B
PREVIOUS MSDS REVISION DATE:	06-12-07			
REASON FOR REVISION:				
VOLATILE ORGANIC COMPOUNDS (VOC's):	0.50 lbs/gal, 60 grams/ltr			
LEGEND:	N.A. not applicable, N.E. Not established, N.D. Not determined			
ABBREVIATIONS USED:	N/A (information or data not available); NTP (National Toxicology Program); IARC (International Agency for Research on Cancer); NIOSH (National Institute of Occupational Safety and Health administration); PEL (Permissible Exposure Limit) [8 hr. TWA][OSHA]; TLV (Threshold Limit Value)[8 hr. TWA][ACGIH]; STEL (Short term exposure limit)[15 min. TWA][OSHA]; C (ceiling value).			
DISCLAIMER:	Ames Research Laboratories, Inc. believes that the information provided is accurate and reliable as of the date of this material safety data sheet and is given in good faith. No warranty expressed or implied is made as to the accuracy, reliability or completeness of the information. Any use of this data and information must be determined by the user to be in accordance with applicable Federal, State and Local laws and regulations. Ames Research Laboratories, Inc. urges persons receiving this information to make their own determination as to the information's suitability and applicability for an intended use. Note: This information must be included in all MSDS that are copied and distributed for this material.			



INSTALLATION & OPERATING INSTRUCTIONS
Instruction P/N IN015 Rev E
FOR CHECKPOINT IIa™ P/N 28001-2 & 28001-3
RADON SYSTEM ALARM

INSTALLATION INSTRUCTIONS
(WALL MOUNTING)

Select a suitable wall location near a vertical section of the suction pipe. The unit should be mounted about four or five feet above the floor and as close to the suction pipe as possible. Keep in mind that with the plug-in transformer provided, the unit must also be within six feet of a 120V receptacle. **NOTE: The Checkpoint IIa is calibrated for vertical mounting, horizontal mounting will affect switchpoint calibration.**

Drill two 1/4" holes 4" apart horizontally where the unit is to be mounted.

Install the two 1/4" wall anchors provided.

Hang the CHECKPOINT IIa from the two mounting holes located on the mounting bracket. Tighten the mounting screws so the unit fits snugly and securely against the wall.

Drill a 5/16" hole into the side of the vent pipe about 6" higher than the top of the unit.

Insert the vinyl tubing provided about 1" inside the suction pipe.

Cut a suitable length of vinyl tubing and attach it to the pressure switch connector on the CHECKPOINT IIa.

CALIBRATION AND OPERATION.

The CHECKPOINT IIa units are calibrated and sealed at the factory to alarm when the vacuum pressure falls below the factory setting and should not normally require field calibration. Factory Settings are:

28001-2 -.25" WC Vacuum

28001-3 -.10" WC Vacuum

To Verify Operation:

With the exhaust fan off or the pressure tubing disconnected and the CHECKPOINT IIa plugged in, both the red indicator light and the audible alarm should be on.

Turn the fan system on or connect the pressure tubing to the fan piping. The red light and the audible alarm should go off. The green light should come on.

Now turn the fan off. The red light and audible alarm should come on in about two or three seconds and the green light should go out.

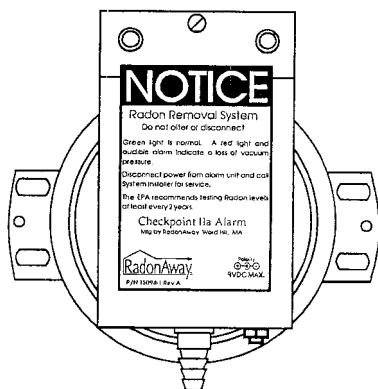
WARRANTY INFORMATION

Subject to applicable consumer protection legislation, RadonAway warrants that the CHECKPOINT IIa will be free from defective material and workmanship for a period of (1) year from the date of purchase. Warranty is contingent on installation in accordance with the instructions provided. This warranty does not apply where repairs or alterations have been made or attempted by others; or the unit has been abused or misused. Warranty does not include damage in shipment unless the damage is due to the negligence of RadonAway. All other warranties, expressed or written, are not valid. To make a claim under these limited warranties, you must return the defective item to RadonAway with a copy of the purchase receipt. RadonAway is not responsible for installation or removal cost associated with this warranty. In no case is RadonAway liable beyond the repair or replacement of the defective product FOB RadonAway.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO WARRANTY OF MERCHANTABILITY. ALL OTHER WARRANTIES, EXPRESSED OR WRITTEN, ARE NOT VALID.

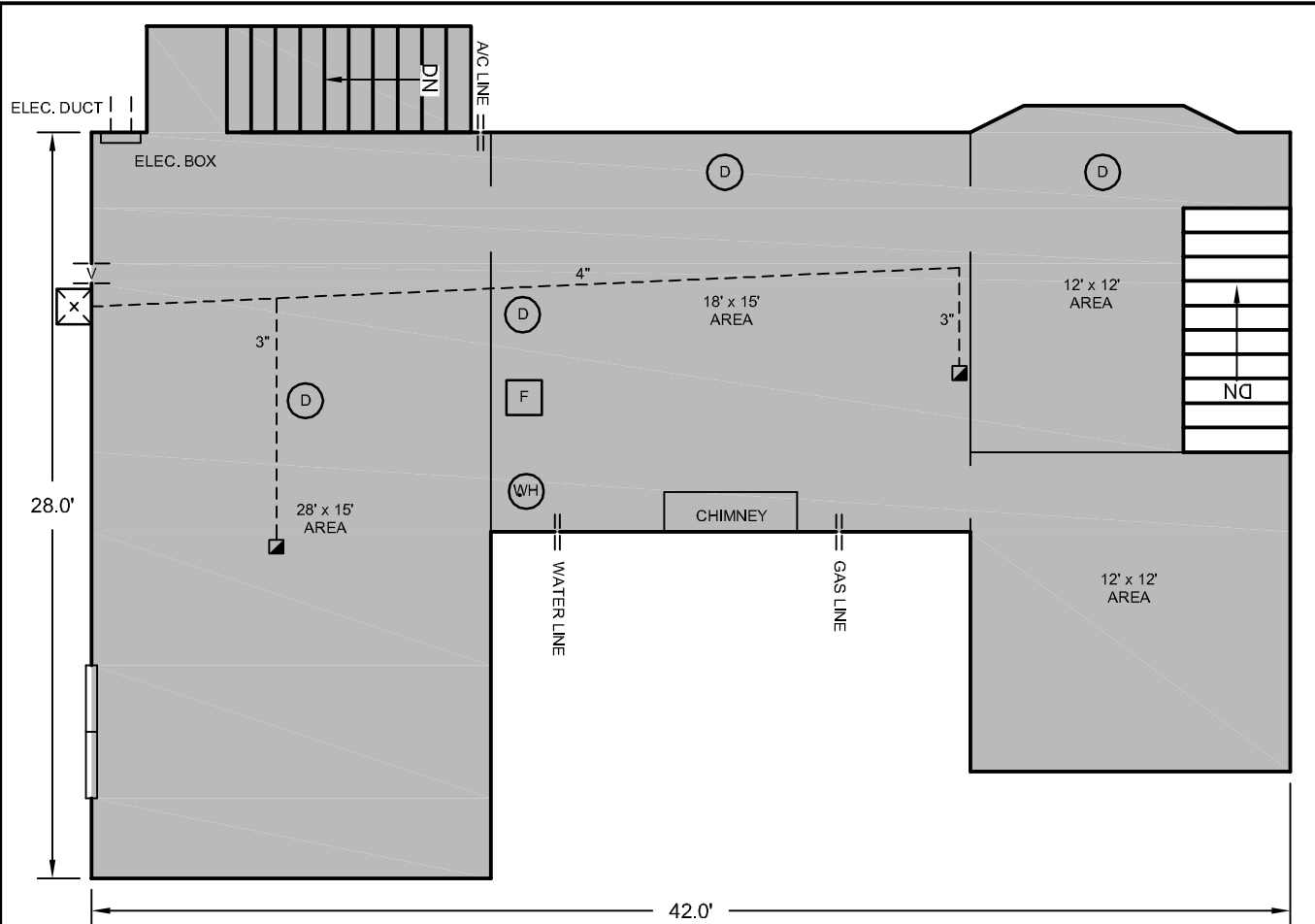
For service under these warranties, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. **No returns can be accepted without an RMA.** If factory return is required, the customer assumes all shipping costs to and from factory.

Manufactured by:
RadonAway
Ward Hill, MA
(978)-521-3703






ATTACHMENT F

AS-BUILT DRAWING






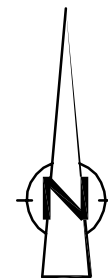
PARK STREET

LEGEND (EXISTING)

-  EXISTING FURNACE
-  EXISTING WATER HEATER
-  EXISTING FLOOR DRAIN

LEGEND (NEW)

-  EXTERIOR MOUNTED RADON FAN
-  SUB SLAB EXTRACTION POINT
-  VAPOR TIGHT COATING ON FLOOR AND WALLS (BLUE MAX OR EQUIVALENT)



NOTES

- EXISTING DRAINS WERE REPLACED WITH TRAPPED DRAINS.
- WOOD BURNING STOVE WAS REMOVED BY RESIDENT PRIOR TO SYSTEM INSTALL.

VAPOR INTRUSION MITIGATION SYSTEM AS-BUILT
808 PARK STREET
Attica, Indiana



ATTACHMENT G

SITE PHOTOGRAPHS AFTER SYSTEM CONSTRUCTION



Photo 1 – West wall of basement, looking north, showing wall sealant, breaker box, doorway to former outside entrance and VM system header pipe exiting residence



Photo 2 – Southeast corner of west basement room, looking southeast, showing wall and floor sealant

SITE PHOTOGRAPHS



Photo 3 – VM extraction point and trapped drain in center of west basement room



Photo 4 – VM header piping in west basement room

SITE PHOTOGRAPHS

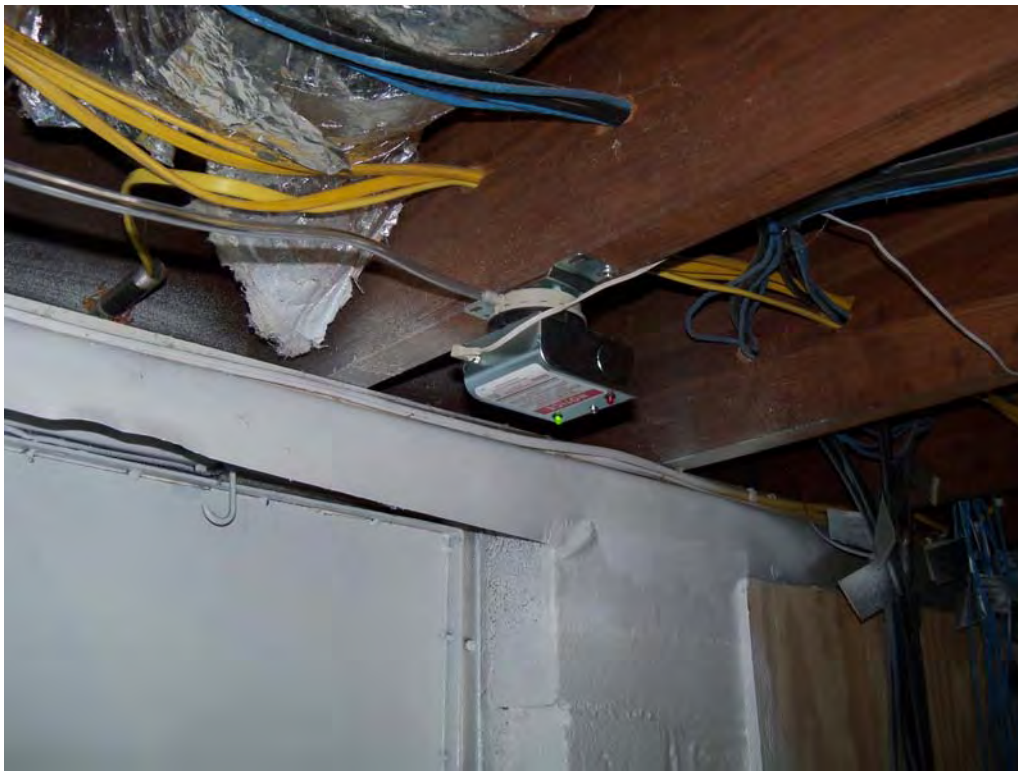


Photo 5 – VM system alarm mounted on joist along west wall of basement, note clear plastic tube connecting to VM system header pipe



Photo 6 – VM system manometer mounted on vertical extraction pipe in west room of basement

SITE PHOTOGRAPHS



Photo 7 – Former exterior entrance stairs in northwest corner of basement



Photo 8 – South wall of center basement room, looking southeast, showing wall and floor sealant

SITE PHOTOGRAPHS

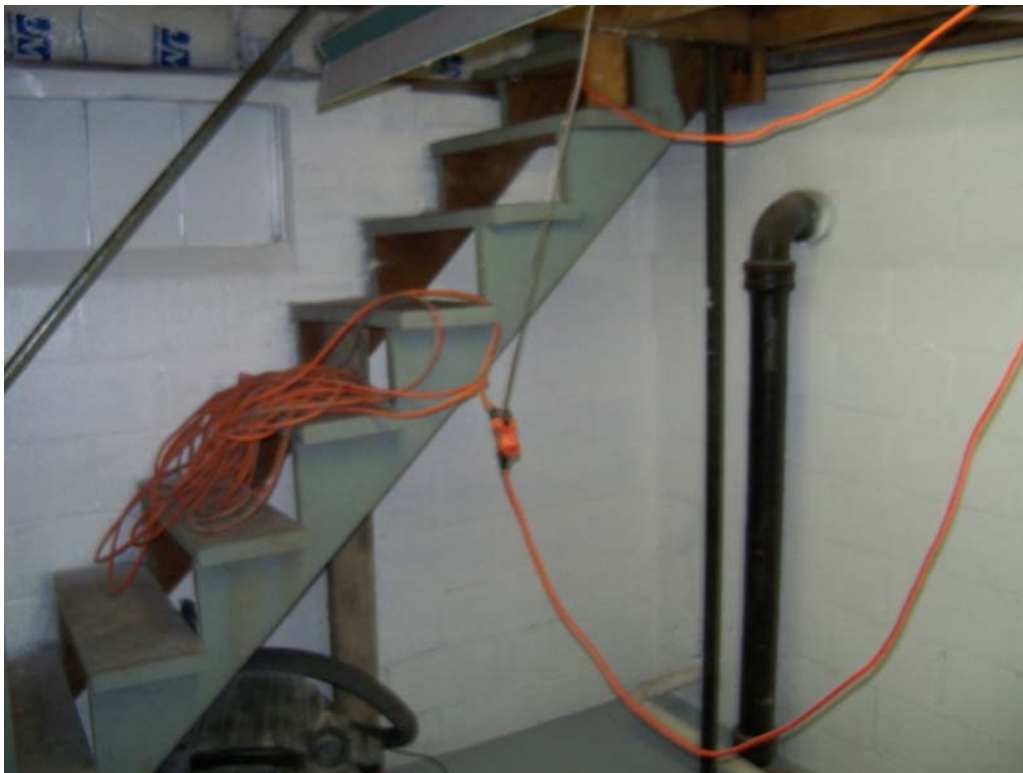


Photo 9 – Southeast corner of northwest basement room, looking southeast, showing wall and floor sealant, interior stairway, and sealed utility penetration



Photo 10 – Southwest corner of center basement room, looking southwest, showing chimney base, furnace and water heater

SITE PHOTOGRAPHS



Photo 11 – Close-up of trapped drain in west basement room



Photo 12 – West wall of residence, looking east, showing VM system fan housing and discharge piping

SITE PHOTOGRAPHS

ATTACHMENT H

VAPOR INTRUSION MITIGATION COMPLETION FORM



**CONESTOGA-ROVERS
& ASSOCIATES**

6520 Corporate Drive
Indianapolis, Indiana 46278
Telephone: (317) 291-7007 Fax: (317) 328-2666
www.CRAworld.com

Vapor Intrusion Mitigation Completion Form Attica, Indiana

Start Date 10 / 5 / 10 Completion Date 10 / 14 / 10
Inspection Date: 10 / 14 / 10
Inspection Time: 2:30 AM / PM

RESIDENCE INFORMATION

Name: Jason Haddock
Address: 808 Park Ave.
Phone: 765-585-0245

Basement: (Y) N
Wall Construction: Brick (Block) Stone Concrete Other: _____
Floor Construction: (Concrete) Unfinished Finished
Furnace: (Y) N
Water Heater: (Y) N
Other: _____
Crawl Space(s): Y (N)

VAPOR INTRUSION MITIGATION MEASURES

Meets Specification

	Y	N	NA
1.0 PIPING			
Suction Point Pipe Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manifold Pipe Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vent Pipe Size	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sloping of Horizontal Runs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vent Pipe Discharge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports and Fastening	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.0 VAPOR INTRUSION FAN			
Fan Model Brand/Model No.: <u>HP 220</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fan Housing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0 GENERAL SEALING			
Basement Walls:			
Sealant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Seal Paint	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concrete Block Top Voids	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vapor Barrier Mil: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		<u>Meets Specification</u>		
		Y	N	NA
<u>Basement Floor:</u>				
New Concrete		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vapor Seal Paint		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Barrier	Mil: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Floating Floor		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sump Pit/Pump		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Drains Sealed	Type: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floor Joist Vapor Barrier		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.0 SUB-SLAB DEPRESSURIZATION				
Extraction Points	No.: <u>2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locations		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Backdrafting Test on Non-Electric Appliances		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List appliances tested and observations:	<u>with F passed</u>			
5.0 SUBMEMBRANE DEPRESSURIZATION				
Seams and Tape		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Crawl Space:</u>				
Vapor Barrier	Mil: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Vapor Barrier Installation:</u>				
Extraction Points	No.: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Extraction Pipe Installation		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.0 ELECTRICAL				
Component Installation		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.0 MATERIALS				
Electrical		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membranes		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Caulks and Sealants		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood/Header Boards		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.0 MONITORING AND LABELING				
Manometer	Reading: <u>2.5" H₂O</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Fan Alarm		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
System Labels		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Circuit Breaker Labeling		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9.0 OTHER REQUIREMENTS (List from Final Design)Meets Specification

Y N NA

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTES:

Completion Photos Taken (10 Minimum):

(Y)

N

Project Completed by:

Cain Contracting

Inspector:

St E Da

Signature

Steven E. Davis

Print Name