

US EPA ARCHIVE DOCUMENT

**PREVENTION OF SIGNIFICANT DETERIORATION PERMIT
FOR GREENHOUSE GAS EMISSIONS
ISSUED PURSUANT TO THE REQUIREMENTS AT 40 CFR § 52.21**

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6

PSD PERMIT NUMBER: PSD-TX-1320-GHG

PERMITTEE: Rohm and Haas Texas Incorporated, Deer Park
1900 Tidal Road
Deer Park, TX 77536-2416

FACILITY NAME: Rohm and Haas Texas Incorporated, Deer Park

FACILITY LOCATION: 1900 Tidal Road
Deer Park, TX 77536-2416

Pursuant to the provisions of the Clean Air Act (CAA), Subchapter I, Part C (42 U.S.C. Section 7470, *et. Seq.*), and the Code of Federal Regulations (CFR) Title 40, Section 52.21, and the Federal Implementation Plan at 40 CFR § 52.2305 (effective May 1, 2011 and published at 76 FR 25178), the U.S. Environmental Protection Agency, Region 6 is issuing a *Prevention of Significant Deterioration* (PSD) permit to Rohm and Haas Texas Incorporated—Deer Park for Greenhouse Gas (GHG) emissions. The Permit applies to the addition of two (2) new gas-fired steam boilers at the Boiler House Unit in their chemical manufacturing facility at Deer Park, Texas.

Rohm and Haas Texas is authorized to construct the two (2) new gas-fired steam boilers as described herein, in accordance with the permit application (and plans submitted with the permit application), the federal PSD regulations at 40 CFR § 52.21, and other terms and conditions set forth in this PSD permit in conjunction with the corresponding Texas Commission on Environmental Quality (TCEQ) NSR permit No. 2165 and PSD-TX-1320. Failure to comply with any condition or term set forth in this PSD Permit may result in enforcement action pursuant to Section 113 of the Clean Air Act (CAA). This PSD Permit does not relieve Rohm and Haas Texas of the responsibility to comply with any other applicable provisions of the CAA (including applicable implementing regulations in 40 CFR Parts 51, 52, 60, 61, 72 through 75, and 98) or other federal and state requirements (including the state PSD program that remains under approval at 40 CFR § 52.2303).

In accordance with 40 CFR §124.15(b), this PSD Permit becomes effective 30 days after the service of notice of this final decision unless review is requested on the permit pursuant to 40 CFR §124.19.

Wren Stenger, Director
Multimedia Planning and Permitting Division

Date

Rohm and Haas Texas Incorporated (PSD-TX-1320-GHG)
Prevention of Significant Deterioration Permit
For Greenhouse Gas Emissions
Draft Permit Conditions

PROJECT DESCRIPTION

Rohm and Haas Texas Incorporated (Rohm and Haas) is an existing chemical manufacturing facility located in Deer Park, Texas. The proposed GHG PSD permit, if finalized, will allow Rohm and Haas Texas to install two (2) new 515 MMBtu/hr gas-fired steam boilers (each). During normal operations, these boilers will burn either natural gas or a combination of natural gas and absorber off-gas from the N-Area Unit. During boiler startup and shutdown and when N-Area Unit is down for maintenance, the boilers will only burn natural gas. Each new boiler will contain an economizer, an ammonia injection grid and Selective Catalytic Reduction (SCR) system for nitrogen oxide (NOx) control, a forced draft fan and an emissions stack. For the purposes of this proposed permitting action GHG emissions are permitted from the two (2) new Gas-fired Steam Boilers and fugitive emissions associated with piping components.

EQUIPMENT LIST

The following devices are subject to this GHG PSD permit.

FIN	EPN	Description
BH-2-5	BH-2-5	Gas-fired Steam Boiler (not to exceed 515 MMBtu/hr) equipped with Selective Catalytic Reduction (SCR) system.
BH-2-6	BH-2-6	Gas-fired Steam Boiler (not to exceed 515 MMBtu/hr) equipped with Selective Catalytic Reduction (SCR) system.
BLR-FUG2	BLR-FUG2	Piping Fugitive Emissions

I. GENERAL PERMIT CONDITIONS

A. PERMIT EXPIRATION

As provided in 40 CFR §52.21(r), this PSD Permit shall become invalid if construction:

1. is not commenced (as defined in 40 CFR §52.21(b)(9)) within 18 months after the approval takes effect; or
2. is discontinued for a period of 18 months or more; or

3. is not completed within a reasonable time.

Pursuant to 40 CFR §52.21(r), EPA may extend the 18-month period upon a written satisfactory showing that an extension is justified.

B. PERMIT NOTIFICATION REQUIREMENTS

Permittee shall notify EPA Region 6 in writing or by electronic mail of the:

1. date construction is commenced, postmarked within 30 days of such date;
2. actual date of initial startup, as defined in 40 CFR §60.2, postmarked within 15 days of such date; and
3. date upon which initial performance tests will commence, in accordance with the provisions of Section V, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Condition V.B.

C. FACILITY OPERATION

At all times, including periods of startup, shutdown, and maintenance, Permittee shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.

D. MALFUNCTION REPORTING

1. Permittee shall notify EPA by mail, or other means identified by EPA, within 48 hours following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in GHG emissions above the allowable emission limits stated in Section II and III of this permit.
2. Within 10 days of the discovery of any GHG emissions above the allowable emission limits resulting from malfunctions as described in I.D.1., Permittee shall provide a written supplement to the initial notification that includes a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time

over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section II and III, and the methods utilized to mitigate emissions and restore normal operations.

3. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

E. RIGHT OF ENTRY

EPA authorized representatives, upon the presentation of credentials, shall be permitted:

1. to enter the premises where the facility is located or where any records are required to be kept under the terms and conditions of this PSD Permit;
2. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit;
3. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and,
4. to sample materials and emissions from the source(s).

F. TRANSFER OF OWNERSHIP

In the event of any changes in control or ownership of the facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and operator of the existence of the PSD Permit and its conditions by letter; a copy of the letter shall be forwarded to EPA Region 6 within thirty days of the letter signature.

G. SEVERABILITY

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

H. ADHERENCE TO APPLICATION AND COMPLIANCE WITH OTHER ENVIRONMENTAL LAWS

Permittee shall construct this project in compliance with this PSD Permit, the application on which this permit is based; the TCEQ NSR Permit No. PSD-TX-1320 (when issued); and all other applicable federal, state, and local air quality regulations. This PSD permit does not release

the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

I. ACRONYMS AND ABBREVIATIONS

AVO	Auditory, Visual, and Olfactory
BACT	Best Available Control Technology
CAA	Clean Air Act
CCS	Carbon Capture and Sequestration
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
EPN	Emission Point Number
FIN	Facility Identification Number
FR	Federal Register
GHG	Greenhouse Gas
GWP	Global Warming Potential
HHV	High Heating Value
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
MMBtu	Million British Thermal Units
MW	Molecular Weight
N ₂ O	Nitrous Oxides
PSD	Prevention of Significant Deterioration
SCR	Selective Catalytic Reduction
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPY	Tons per Year
USC	United States Code
VOC	Volatile Organic Compound

II. Annual Emission Limits

Annual emissions, in tons per year (TPY) on a 12-month total, rolling monthly, shall not exceed the following:

Table 1. Annual Emission Limits

EPN	Description	GHG Mass Basis		TPY CO ₂ e ^{1,2}	BACT Requirements
			TPY ¹		
BH-2-5	Gas-Fired Steam Boiler	CO ₂	263,916.90	264,120.75	<ul style="list-style-type: none">117 lb CO₂/MMBtu on a 12-month rolling basis. See permit conditions III.A.2 and 4.
		CH ₄	3.95		
		N ₂ O	0.39		
BH-2-6	Gas-Fired Steam Boiler	CO ₂	263,916.90	264,120.75	<ul style="list-style-type: none">117 lb CO₂/MMBtu on a 12-month rolling basis. See permit conditions III.A.2 and 4.
		CH ₄	3.95		
		N ₂ O	0.39		
BLR-FUG2	Gas Piping Fugitive Emissions	CO ₂	No Numerical Limit Established ²	No Numerical Limit Established	Implementation of AVO program. See permit condition III.B.
		CH ₄	No Numerical Limit Established ²		
Totals ³		CO ₂	527,833.95	528,301.29	
		CH ₄	10.74 ⁴		
		N ₂ O	0.78		

1. The TPY emission limits specified in this table are not to be exceeded for this facility and include emissions from the facility during all operations and include MSS activities.
2. Global Warming Potentials (GWP): CH₄ = 21, N₂O = 310. On January 1, 2014, EPA anticipates the GWP for CH₄ will change from 21 to 25. This change will impact the CO₂e calculations and the currently proposed emission limits will be revised to reflect the new CH₄ GWP in the final permit.
3. Fugitive process emissions from EPN BLR-FUG2 are estimated to be 0.15 TPY of CO₂ and 2.84 TPY of CH₄. In lieu of an emission limit, the emissions will be limited by implementing a design/work practice standard as specified in the permit.
4. Total emissions include the PTE for fugitive emissions. Totals are given for informational purposes only and do not constitute emission limits.

III. SPECIAL PERMIT CONDITIONS

A. Gas-Fired Steam Boilers (EPNs: BH-2-5 and BH-2-6)

1. **Fuel Specifications:** The fuel for each Gas-Fired Steam Boiler shall be pipeline quality natural gas or a mixture of pipeline quality natural gas and N-Area absorber off-gas.
2. **Gas-Fired Steam Boiler BACT Requirements:**
 - a. The BACT limit of 117 lb CO₂/MMBtu is based on each boilers daily average of CO₂ emissions measured using a Continuous Emissions Monitoring System (CEMS) and divided by the weighted maximum heat capacity (HHV) of each boilers measured combustion fuel. The daily average of the CO₂ emissions shall be added to the 12-month rolling basis for each boiler, calculated monthly.
 - b. The Permittee shall calculate, on a daily basis, the amount of CO₂e emitted from each boiler in tons per year based on the measurement of the CO₂ CEMS and the procedures and Global Warming Potentials (GWP) contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, as published on October 30, 2009 (74 FR 56395) for CH₄ and N₂O. Compliance shall be based on a 12-month rolling basis.
 - c. The boilers shall not exceed a one hour firing rate of 515 MMBtu/hr (HHV) per boiler.
3. **Gas-Fired Steam Boiler Work Practice and Operational Requirements:**
 - a. CO₂ CEMS will be installed to determine the quantity of CO₂ emitted from the boilers. The CO₂ CEMS will be installed and operated in accordance with 40 CFR Part 60, Appendix B Performance Specification 3 as applicable. The CO₂ CEMS will meet the appropriate quality assurance requirements specified in 40 CFR Part 60, Appendix F.
 - b. Permittee shall ensure that all required CO₂ monitoring system/equipment is installed and all certification tests are completed on or before the earlier of 90 unit operating days or 180 calendar days after the date the unit commences operation or after CO₂ CEMS are installed.
 - c. Emission units BH-2-5 and BH-2-6, shall each have fuel metering to measure the amount of fuel fired in the boilers. The Permittee shall measure and record the fuel flow rate using a flow meter that meets an accuracy of 5.0% and calibrated according to 40 CFR §98.3(i). The measurements for the fuel fired shall be in accordance with the monitoring and quality assurance requirements of 40 CFR 98.34(b).
 - d. The maximum heat capacity (HHV) of the pipeline natural gas shall be determined twice in a calendar year pursuant to 40 CFR 98.34(a)(2)(i). The HHV of the N-Area absorber off gas shall be determined pursuant to 40 CFR 98.34(a)(iii). The weighted HHV shall be determined in accordance with 40 CFR 98.34(a)(3).
 - e. Permittee shall calibrate and perform a preventative maintenance check of the fuel gas flow meters and document annually.

- f. Pursuant to 40 CFR 63.7575, the permittee shall perform and maintain records to demonstrate the completion of boiler tune-ups at a minimum of every 5 years and documentation of any repairs that were completed as a result of the maintenance check. Inspection of the boilers shall include, at a minimum:
 - i. Checking of integrity of burner components (tips, tiles, surrounds);
 - ii. Inspecting burner spuds for potential fouling;
 - iii. Inspecting burner air doors and lubrication;
 - iv. Inspecting all burners before closing main door to check for potential debris;
 - v. Inspecting combustion air ducting and dampers; and
 - vi. Checking burner spud/orifices sizes.

2. Startup and Shutdown Requirements for the Gas-Fired Steam Boilers:

- a. Fuel Specifications: The fuel for each Gas-Fired Steam Boiler during startup and shutdown shall be limited to only pipeline quality natural gas.
- b. The BACT limit of 117 lb CO₂/MMBtu is based on each boilers daily average of CO₂ emissions measured using a Continuous Emissions Monitoring System (CEMS) and divided by the HHV of the natural gas combusted. The daily average of the CO₂ emissions shall be added to the 12-month rolling basis for each boiler, calculated monthly.
- c. The Permittee shall calculate, on a daily basis, the amount of CO₂e emitted from each boiler in tons per year based on the measurement of the CO₂ CEMS and the procedures and Global Warming Potentials (GWP) contained in the Greenhouse Gas Regulations, 40 CFR Part 98, Subpart A, Table A-1, as published on October 30, 2009 (74 FR 56395) for CH₄ and N₂O. Compliance shall be based on a 12-month rolling basis.
- d. The boilers shall not exceed a one hour firing rate of 515 MMBtu/hr (HHV) per boiler.
- e. Permittee shall minimize emissions during startup and shutdown activities by operating and maintaining the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility.
 - i. A startup of each boiler is defined as the period that begins when there is measureable fuel flow to the boiler and ends when the boiler load reaches 30 percent. A startup time is limited to 24 hours per event per boiler.
 - ii. A shutdown of each boiler is defined as the period that begins when the boiler load falls below 20 percent and ends when there is no longer measureable fuel flow to the boiler. A shutdown is limited to 3 hours per event per boiler.
 - iii. Combined, the boilers are limited to 270 hours of startup and shutdown operation per year.
 - iv. Emissions during each startup and shutdown activity as well as startup and shutdown activities shall be minimized by limiting the duration of operation in startup and shutdown mode. No more than one of two boilers, emission units BH-2-5 and BH-2-6, shall be shutdown and startup within the same hour.
- f. During startup and shutdown, emission units BH-2-5 and BH-2-6 shall be limited to 0.51 MMscf/hr of natural gas usage.

B. Requirements for the Gas Piping Fugitive Emissions (EPN: BLR-FUG2)

Gas Piping Fugitive Emissions Work Practice Standards, Operational Requirements, and Monitoring:

1. The Permittee shall implement an auditory, visual and olfactory (AVO) method for detecting leaks in natural gas piping components and fugitive emission of methane from process lines not in VOC service but containing methane.
2. AVO monitoring shall be performed daily.
3. Any component found to be leaking during AVO monitoring shall be repaired within 15 days from identification of leak.
4. Records of the daily AVO monitoring results must be maintained on site.

IV. Recordkeeping and Reporting

A. Records

1. In order to demonstrate compliance with the GHG emission limits in Table 1, the Permittee shall maintain records of the flow rate and HHV of the fuel combusted shall be maintained for a minimum period of five years. Upon request, Permittee shall provide a sample and/or analysis of the fuel that is fired in any unit covered by this permit at the time of the request, or shall allow a sample to be taken by EPA for analysis.
2. For the emission units listed in Table 1 and as required by this permit, the Permittee shall maintain records of the following for GHG emissions from the Equipment List (excluding fugitives): records of all GHG calculations required in Section III; all records or reports pertaining to significant maintenance performed; number and duration of each startup and shutdown event; the initial startup period for the emission units; malfunctions; all records relating to performance tests, calibrations, checks, and monitoring of combustion equipment; duration of an inoperative monitoring device and emission units with the required corresponding emission data; and all other information required by this permit recorded in a permanent form suitable for inspection. These records may be maintained in electronic databases. The records must be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.
3. Permittee shall maintain records and submit a written report of all excess emissions to EPA semi-annually, except when: more frequent reporting is specifically required by an applicable subpart; or the Administrator or authorized representative, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. The report is due on the 30th day following the end of each semi-annual period and shall include the following:

- a. Time intervals, data and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
 - b. Applicable time and date of each period during which the monitoring equipment was inoperative (monitoring down-time) while equipment was operating;
 - c. A statement in the report of a negative declaration; that is; a statement when no excess emissions occurred or when the monitoring equipment has not been inoperative, repaired or adjusted;
 - d. Any failure to conduct any required source testing, monitoring, or other compliance activities; and
 - e. Any violation of limitations on operation.
4. Excess emissions shall be defined as any period in which the facility emissions exceed a maximum emission limit set forth in this permit, a malfunction occurs of an emission unit listed in the Equipment List that results in excess GHG emissions, or any other unauthorized GHG emissions occur.
 5. Excess emissions indicated by GHG emission source certification testing or compliance monitoring shall be considered violations of the applicable emission limit for the purpose of this permit.
 6. Instruments and monitoring systems required by this PSD permit shall have a 95% on-stream time on a 12-month rolling basis.
 7. All records required by this PSD Permit shall be retained for not less than 5 years following the date of such measurements, maintenance, and reporting.

V. Initial Performance Testing Requirements:

- A. The Permittee shall perform stack sampling and other testing to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from the boilers (BH-2-5 and BH-2-6), to determine the initial compliance with the CO₂ emission limits established in this permit. Sampling shall be conducted in accordance with 40 CFR § 60.8 and EPA Method 3a or 3b for the concentration of CO₂.
 1. Multiply the CO₂ hourly average emission rate determined under maximum operating test conditions by 8,760 hours.
 2. If the above calculated CO₂ emission total does not exceed the tons per year (TPY) specified on Table 1, no compliance strategy needs to be developed.
 3. If the above calculated CO₂ emission total exceeds the tons per year (TPY) specified in Table 1, the facility shall:
 - a. Document the exceedance in the test report; and
 - b. Explain within the report how the facility will assure compliance with the CO₂ emission limit listed in Table 1.
- B. Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility, performance

tests(s) must be conducted and a written report of the performance testing results furnished to the EPA. Additional sampling may be required by TCEQ or EPA.

- C. Permittee shall submit a performance test protocol to EPA no later than 30 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
- D. Performance tests must be conducted under such conditions to ensure representative performance of the affected facility. The owner or operator must make available to the EPA such records as may be necessary to determine the conditions of the performance tests.
- E. The owner or operator must provide the EPA at least 30 days prior notice of any performance test required by this permit, except as specified under other subparts, to afford the EPA the opportunity to have an observer present and/or to attend a pre-test meeting. If there is a delay in the original test date, the facility must provide at least 7 days prior notice of the rescheduled date of the performance test unless EPA approves an earlier rescheduled date.
- F. The owner or operator shall provide, or cause to be provided, performance testing facilities as follows:
 - 1. Sampling ports adequate for test methods applicable to this facility,
 - 2. Safe sampling platform(s),
 - 3. Safe access to sampling platform(s), and
 - 4. Utilities for sampling and testing equipment.
- G. Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For purposes of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. Emissions testing, as outlined above, shall be performed every five years, plus or minus 6 months, of when the previous performance test was performed, or within 180 days after the issuance of a permit renewal, whichever comes later to verify continued performance at permitted emission limits.

VI. Agency Notifications

Permittee shall submit GHG permit applications, permit amendments, and other applicable permit information to:

Multimedia Planning and Permitting Division
EPA Region 6
1445 Ross Avenue (6 PD-R)
Dallas, TX 75202
Email: Group R6AirPermits@EPA.gov

Permittee shall submit a copy of all compliance and enforcement correspondence as required by

this Approval to Construct to:

Compliance Assurance and Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN)
Dallas, TX 75202

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