UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 23 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

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Requestor: Griffin Corporation

EPA Registration No.: 1812-GEO, GGN, GET

EPA Accession Nos.: 408859-01, 02, 03

Pesticide Chemical Code: 128992

Company Code: GX-071

CAS Registry No.: 4151-50-2

Chemical Name: N-Ethyl Perfluorooctanesulfonamide

Common/Trade Name: GX-071

Use: Insecticide

Introduction

This submission is for GX-071 Technical and end-use products Raid Ant Controller II and Raid Roach Controller II, both of which contain the active ingredient N-ethyl perfluorooctanesulfonamide. All product chemistry data requirements

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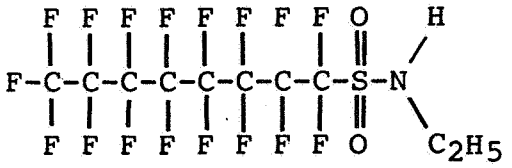
pertaining to the technical grade active ingredient (TGAI) and end-use product (EP) as described in 40 CFR 158.120 must be met to achieve full registration.

Product Identity and Composition

61-1 - Product Identity and Disclosure of Ingredients

N-ethyl perfluorooctanesulfonamide is the name of the active ingredient found in the technical and end-use product produced by S.C. Johnson and Son, Inc.



Other identifying names include: GX-071.

Empirical Formula: $C_{10}H_6F_{17}NO_2S$
Molecular Weight: 527
CAS Registry No.: 4151-50-2
Pesticide Chemical Code: 128992

Information regarding the identity of the impurities found in GX-071 Technical is given in the Confidential Statement of Formula (CSF). Information regarding the inert ingredients of both the end-use products is also given in the CSF. All inert ingredients are presently on file.

61-2 - Description of the Beginning Materials and Manufacturing Process

Refer to Confidential Appendix A for a description of the beginning materials and manufacturing process for both the technical and end-use product. A flow chart, taken directly from the submission, is given illustrating the chemical reactions involved during the synthesis of GX-071 Technical.

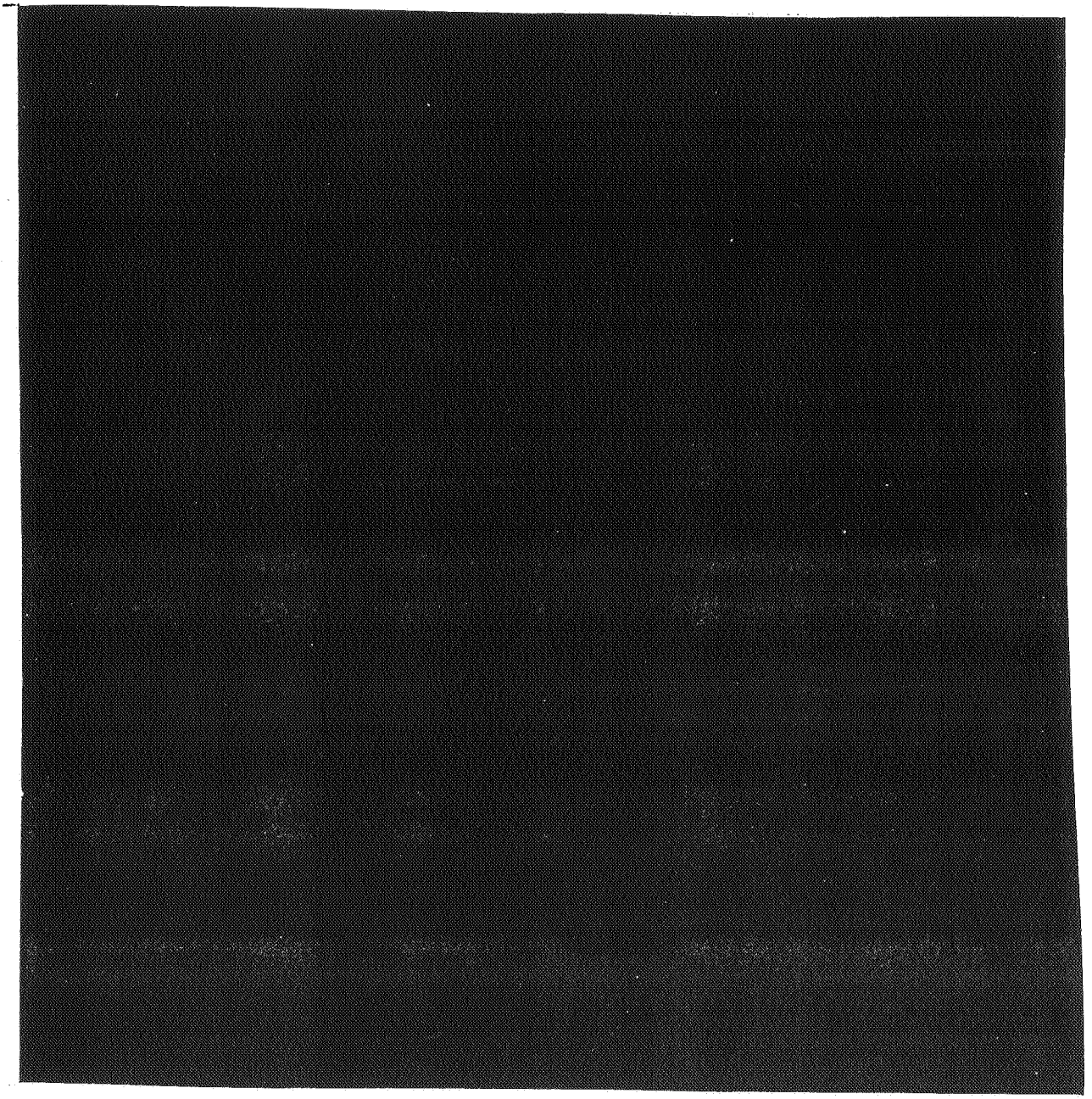
61-3 - Discussion of the Formation of Impurities

Refer to Confidential Appendix A for a discussion of the formation of impurities for GX-071 Technical and the two end-use products.

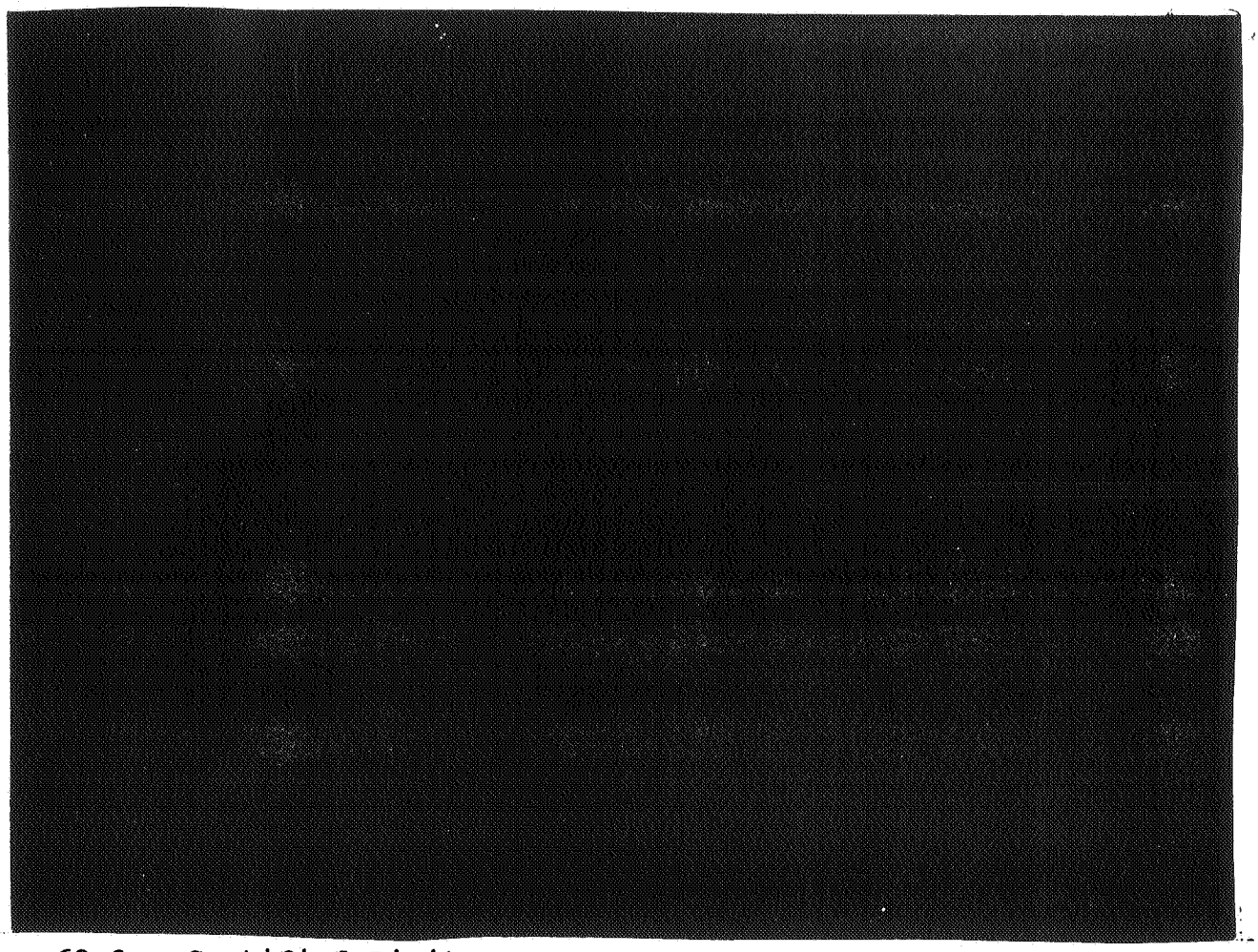
Analysis & Certification of Product Ingredients

62-1 - Preliminary Analysis

The applicant has submitted the results of two batch samples which were produced in the laboratory. These samples were analyzed for the active ingredient and each impurity. Refer to Confidential Appendix B for the results of the analyses.



INFORMATION WHICH MAY REVEAL A QUALITY CONTROL PROCEDURE IS NOT INCLUDED



62-2 - Certified Limits

The applicant has submitted a CSF (EPA Form 8570-4), which includes the certified limits for GX-071 Technical, and the two end-use products. Two CSFs, one of which was not on the required form, were submitted for each end use product in which there were slight differences in the amount of the active ingredient contained in both products. A brief statement should be submitted indicating which CSF is correct.

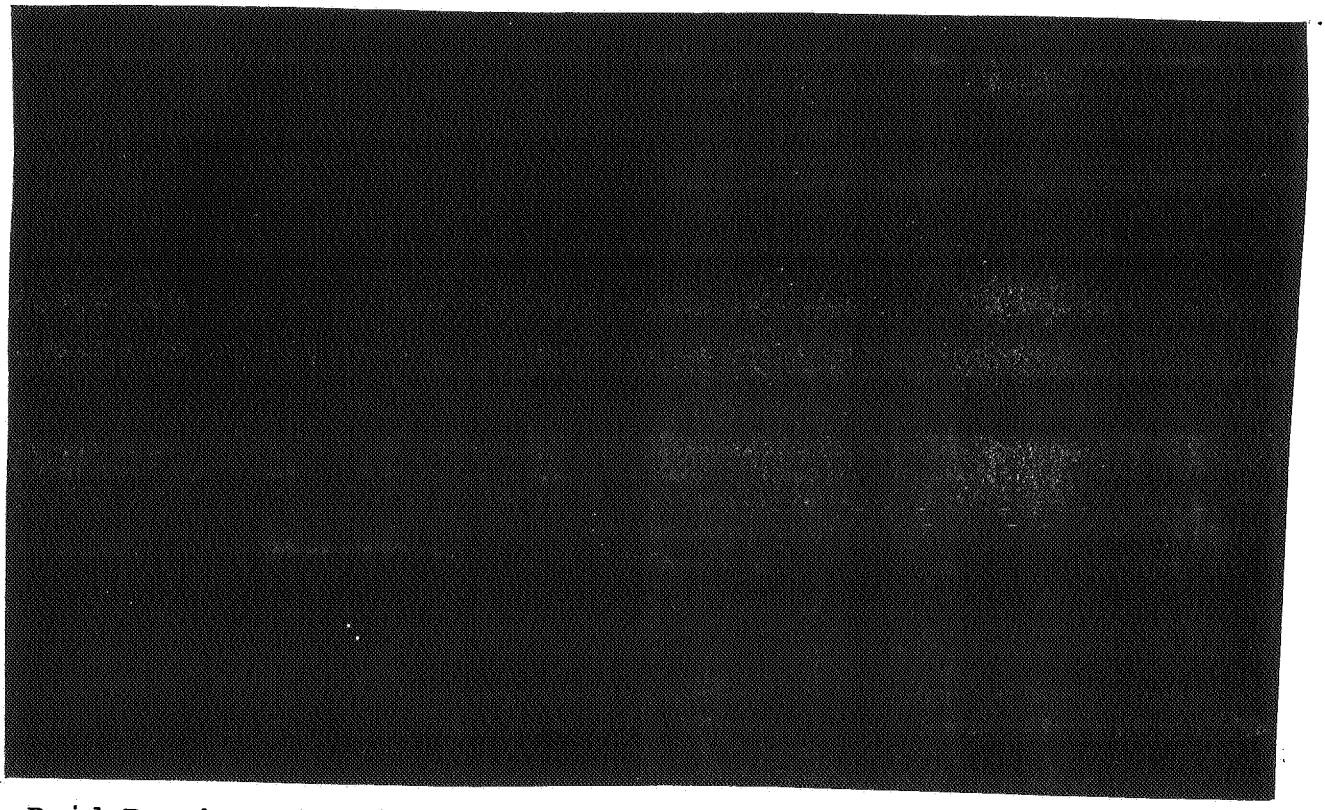
Refer to Confidential Appendix B for the disclosure of the ingredients found in GX-071 and its two end-use products.

62-3 - Analytical Methods to Verify Certified Limits

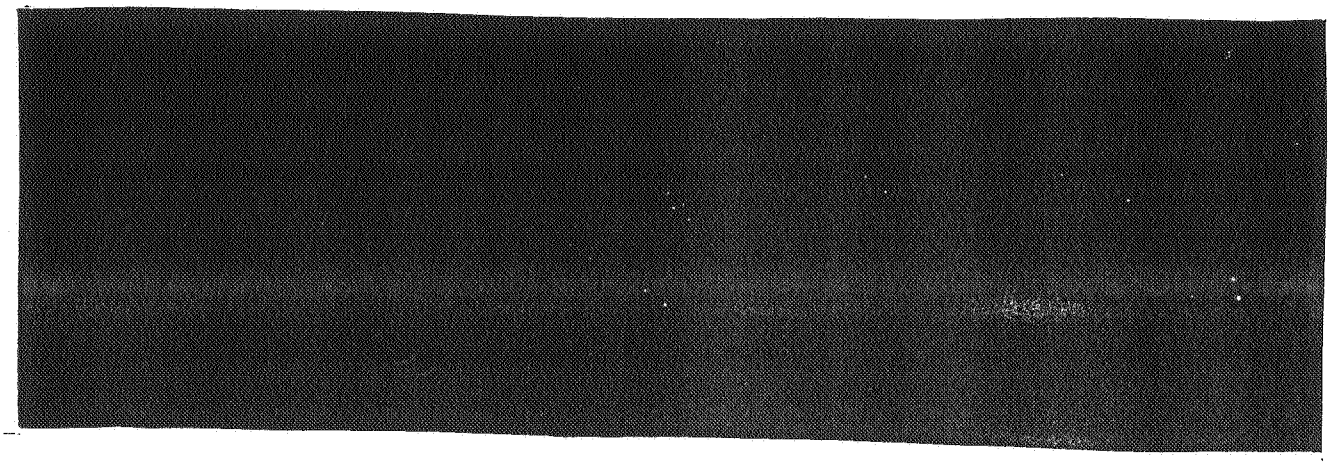
GX-071 Technical

Analytical methods and test results were submitted for two laboratory-produced batches of GX-071 Technical which were analyzed for the active ingredient and each impurity. Refer to 62-1 Preliminary Analysis for a discussion of the methods used.

Raid Ant Controller II (End-Use Product)



Raid Roach Controller II (End-Use Product)



[redacted]

63 - Physical and Chemical Characteristics

Summarized below are several physico-chemical properties of the technical grade active ingredient and end-use products as furnished by the applicant.

Guidelines Reference No. (40 CFR 158.120) and Name of Property	Description
63-2 - Color	TGAI - White EP (Ant) - Tan to light brown EP (Roach) - Tan to yellow
63-3 - Physical State	TGAI - Solid crystals EP (Ant) - Amorphous solid EP (Roach) - Solid pellet
63-4 - Odor	TGAI - None EP (Ant) - Odorless to [redacted] EP (Roach) - Slight [redacted]
63-5 - Melting Point	TGAI - 96 °C; [1]Sublimes (TGAI) at elevated temperatures in non-enclosed containers. EP (Ant & Roach) - A statement was submitted stating that no sublimation occurs from bait stations stored openly at room temperature for 90 days or elevated temperatures (100 °F) for 30 days.

[1]Letters dated 11/28/88 and 12/9/88 from Griffin Corp. to Phil Hutton/Mike Mendelsohn

Guidelines Reference No. (40 CFR 158.120) and Name of Property	Description
63-3 - Boiling Point	TGAI - Solid at room temperature EP (Ant) - NR EP (Roach) - NR
63-7 - Density, Bulk Density, or Specific Gravity	TGAI - Bulk density = 0.1485 g/mL (25 °C) EP (Ant) - Density = 0.904 g/mL or 7.545 lb/gal EP (Roach) - Specific gravity = 1.04 g/cc when formed as a pellet
63-8 - Solubility	TGAI (25 °C) - 1.172 g/100 mL Acetone; 0.14 g/100 mL Hexane; 1.86 g/100 mL Methylene chloride; 7.09 g/100 mL 1-Octanol; 83.3 g/100 mL Methanol; < 3 ppb Water. EP (Ant) - NR EP (Roach) - NR
63-9 - Vapor Pressure	TGAI - 4.3×10^{-7} mm Hg (25 °C) EP (Ant) - NR EP (Roach) - NR
63-10 - Dissociation Constant	TGAI - $K_A = 3.16 \times 10^{-10}$ EP (Ant) - NR EP (Roach) - NR
63-11 - Octanol/Water Partition Coefficient	TGAI - P_{ow} = 3.10 EP (Ant) - NR EP (Roach) - NR
63-12 - pH	TGAI - Does not dissolve or disperse in water EP (Ant) - N/A EP (Roach) - N/A
63-13 - Stability	TGAI - Stable for a minimum of 90 days EP (Ant) - Product showed no change in active ingredient content outside of test method range limits

Guidelines Reference No. (40 CFR 158.120) and Name of Property	Description
	EP (Roach) - Product showed no change in active ingredient content outside of test method range limits
63-14 - Oxidizing/Reducing Action	TGAI - NR EP (Ant) - Product does not contain any oxidizing or reducing agents EP (Roach) - Product does not contain any oxidizing or reducing agents
63-15 - Flammability	TGAI - NR EP (Ant) - Product is nonflammable EP (Roach) - Flashpoint not established
63-16 - Explodability	TGAI - NR EP (Ant) - Product does not contain any explosive materials EP (Roach) - N/A; Product is a solid [redacted] and does not comprise any explosive hazard.
63-17 - Storage Stability	TGAI - Stable for a minimum of 1 year when stored in a polyethylene bag under ambient conditions EP (Ant) - Product showed no change in active ingredient content outside of test method range limits EP (Roach) - Product showed no change in active ingredient content outside of test method range limits

Guidelines Reference No. (40 CFR 158.120) and Name of Property	Description
63-18 - Viscosity	TGAI - NR EP (Ant) - N/A; Solid EP (Roach) - N/A; Solid
63-19 - Miscibility	TGAI - NR EP (Ant) - N/A; Product is not dilutable EP (Roach) - N/A
63-20 - Corrosion Characteristics	TGAI - N/R EP (Ant) - Product is noncorrosive EP (Roach) - N/A
63-21 - Dielectric Breakdown Voltage	TGAI - N/R EP (Ant) - N/A EP (Roach) - N/A

Recommendations:

The product chemistry data requirements for GX-071 Technical and the two end-use products Raid Ant Controller II and Raid Roach Controller II have not been completely satisfied. The following additional data are required before receiving full registration:

61-3 - Beginning Materials and Manufacturing Process (GX-071 Technical)

- Material safety data sheets for [redacted]

61-3 - Beginning Materials and Manufacturing Process (Raid Ant and Roach Controller II)

- Manufacturing process for alternate formulations due to varying inert ingredients.

62-1 - Preliminary Analysis (GX-071 Technical)

- Analytical methods and test results from three additional batches. If a new manufacturing process takes place, the analytical methods and test results of five samples representative of five different batches of the new manufacturing process is required.

62-2 - Certified Limits (Raid Ant Controller II; Raid Roach Controller II)

- A brief statement indicating which CSF is correct.

62-2 - Certified Limits (Raid Ant Controller II, Alternate Formulation)

- Correction in upper limit or nominal concentration for the active ingredient.

63 - Physical & Chemical Characteristics (Raid Ant Controller II; Raid Roach Controller II)

- The following information is required before a conclusion can be made concerning the sublimation of the active ingredient from the end use products:

1. Supporting information including copies of the experimental protocol and any additional raw data for the thermogravimetric analyses.

2. Protocols, analytical methods, and raw data, supporting the letters dated 11/28/88 and 12/9/88, to Phil Hutton/Mike Mendelsohn and from S.C. Johnson to Griffin.

3. Details of the bait station construction and quantity of bait in each station sent to the Registration Support Branch for consideration.

4. Stability test methods and range limits.

*Note to Product Manager: Due to the child-resistant claim on the label, a certification is needed stating that the product is in child-resistant packaging and test protocols and data should be submitted to support this claim.

As required for a pesticide registration, samples of the technical grade active ingredient (200 g) and pure active ingredient (5 g) should be submitted to the following address:

Active Ingredients Program
Attention: Head, Analytical Chemistry Section
Analytical Chemistry Branch
Biological and Economic Analysis Division Office of Pesticide Programs
Environmental Protection Agency
Building 306 - BARC East
Beltsville, MD 20705

Attachments: Confidential Appendix A
Confidential Appendix B
Product Chemistry Information Form A
Product Chemistry Information Form B