



Material Safety Data Sheet

GPAVITRT Retain Revised 25-JAN-2010 Printed 25-JAN-2010

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Product Use

Herbicide

Tradenames and Synonyms

Retain is a Trademark of Viterra Inc.

Company Identification

MANUFACTURER/DISTRIBUTOR

E.I. du Pont Canada Company
P.O. Box 2200
Streetsville
Mississauga, Ontario L5M 2H3

PHONE NUMBERS

Product Information : 1-800-387-2122
Medical Emergency : 1-800-441-3637 (24 hours)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
THIFENSULFURON METHYL (Methyl 3-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]-sulfonyl]-2-thiophenecarboxylate)	79277-27-3	50 %
*TRIBENURON METHYL (Methyl 2-[[[N-(4-methoxy-5-methyl-1,3,5-triazin-2-yl)methylamino]carbonyl]amino]-sulfonyl]benzoate)	101200-48-0	25 %
INERT INGREDIENTS		25 %

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

CAUTION! Avoid contact with skin, eyes, and clothing.

Based on animal testing the following may occur:

Overexposure to thifensulfuron methyl by skin contact may initially include skin irritation with discomfort or rash. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization. Overexposure by eye contact may initially include eye irritation with discomfort, tearing, or blurring of vision. Overexposure by inhalation may initially include irritation of the upper respiratory passages, with coughing and discomfort.

Overexposure to tribenuron methyl by prolonged skin contact may cause skin irritation with discomfort or rash. Repeated skin contact may cause allergic skin rashes. Overexposure by eye contact may initially include eye irritation with discomfort, tearing or blurring of vision.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary.

SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

FIRE FIGHTING MEASURES

Flammable Properties

Flammable limits in Air, % by Volume
LEL : 0.173 g/l
Autodecomposition : 305 C (581 F)

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Runoff from fire control may be a pollution hazard.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Storage

Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal Protective Equipment

Always follow the label instructions when handling this product.

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.
Waterproof gloves.
Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE.
If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

Coveralls.
Waterproof gloves.
Shoes plus socks.

Exposure Guidelines

Applicable Exposure Limits

THIFENSULFURON METHYL

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 5 mg/m³, 8 & 12 Hr. TWA

TRIBENURON METHYL

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 1 mg/m³, 8 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Odor : Slightly pungent
Form : Dry flowable
Color : Slight beige
Bulk Density (Loose) : 0.59 g/mL

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Decomposition

Decomposes slowly in water.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Oral LD50: >5,000 mg/kg (rats)
Very low toxicity.

Dermal LD50: >2,000 mg/kg (rabbits)
Low order of toxicity.

SKIN IRRITATION AND SENSITIZATION

Animal tests on rabbits and guinea pigs indicate product is not a skin irritant nor a skin sensitizer.

EYE IRRITATION

(Rabbits) Tests indicate product is a moderate irritant.
Eyes were normal within 7 to 14 days.

CHRONIC STUDIES - THIFENSULFURON METHYL

FEEDING STUDIES - No oncogenic effects observed in the 18-month mouse, 2-year rat, or 1-year dog feeding studies.

Lower body weights and weight gains were observed for rats fed the highest dietary concentrations, 2,500 ppm. Slightly lower serum sodium concentrations, which were not biologically significant, were observed in rats fed the 500 and 2,500 ppm diets. The no-observable-effect levels (NOEL) were 500 ppm and 25 ppm for the body weight and serum sodium effects, respectively.

There were no compound-related effects in mice fed for 18 months with diets that contained the active ingredient. The NOEL was 7,500 ppm, the highest dose tested.

(TOXICOLOGICAL INFORMATION - Continued)

Slightly lower body weights and higher liver weights were observed for dogs fed for one year with diets that contained 7,500 ppm. There were no microscopic or functional changes associated with these effects. The NOEL was 750 ppm.

REPRODUCTION - No effect on rat reproduction or lactation at any dose tested (highest dose tested 2,500 ppm in the diet. There were no gross or microscopic compound-related effects on the offspring at any dose tested.

MUTAGENICITY - Not mutagenic in the Ames bacterial assay; the in vitro Chinese Hamster Ovary assay; the in vitro unscheduled DNA synthesis; the in vivo cytogenetic assay; or in the mouse micronucleus assay.

TERATOGENICITY - No teratogenic effects in rats at 800 mg/kg/day (highest dose tested), nor in rabbits at 650 mg/kg/day (highest dose tested). The no-observable-effect-level (NOEL), 200 ppm, was based on non-teratogenic effects at the higher doses.

OTHER STUDIES - TRIBENURON METHYL

FEEDING STUDIES - 1-Year Feeding Study in Dogs - Dietary dose levels were 0, 25, 250, and 1,500 ppm A.I. There were no neoplastic or other histopathological effects associated with compound administration. The no-observable-effect-level (NOEL), 250 ppm (or 8.2 mg/kg body wt./day) was based on slightly lower body weights and increased serum creatinine concentrations for dogs in the high-dose group.

18-Month Feeding Study in Mice - Dietary dose levels were 0, 20, 200, and 1,500 ppm (A.I.). There were no neoplastic or other histopathological effects associated with compound administration. The NOEL, 200 ppm (or 30 mg/kg body wt./day), was based on lower body weights for mice in the high-dose group.

2-Year Feeding Study in Rats - Dietary dose levels were 0, 25, and 1,250 ppm (A.I.). Significantly lower body weights, which paralleled lower food consumption and organ weight effects, were observed in the 250 and 1,250 ppm groups. There were no clinical or histopathological abnormalities associated with these organ weight effects. The incidence of mammary adenocarcinomas was significantly greater for female rats in the 1,250 ppm group than for the controls. This effect was only observed in this high-dose group and under conditions of severe physiological stress (body weights for female rats were 42% lower than the controls).

Human exposures to this product resulting from the manufacture, agricultural use, or exposures via consumption of treated crops are expected to be tens of thousands times

(TOXICOLOGICAL INFORMATION - Continued)

lower than that which produced tumors in female rats. Because of this and the following, this product is not expected to produce cancer in humans: the tumors were not reproducible in other laboratory studies; were produced only in a strain of rat predisposed to this tumor; occurred in animals under significant physiological stress; were produced at high lifetime exposures of 76 mg A.I./kg body wt./day or the equivalent of 18 grams "Refine" Extra Herbicide/day for a 130 pound female; and this compound was not genotoxic or mutagenic.

TERATOGENICITY STUDIES - (Rat, Rabbit) - The active ingredient did not produce birth defects after administering via oral intubation to pregnant rats (0, 20, 125, or 500 mg A.I./kg/day) and rabbits (0, 5, 20, or 80 mg A.I./kg/day). Maternal and fetal toxicity were observed at 125 and 500 mg/kg for the rat and at 80 mg/kg for the rabbit. The NOEL for both of these studies was 20 mg/kg/day based on lower food consumption, lower body weights for dams and fetuses, increased fetal mortality and other fetotoxic effects at the higher doses.

REPRODUCTION (Rats) - There were no effects on fertility observed in a 2-generation reproduction study, in rats fed for at least 90 days with diets that contained 0, 25, 250, or 1,000 ppm A.I. The NOEL was 25 ppm based on lower body weights for the dams and offspring.

MUTAGENICITY AND GENOTOXICITY - The active ingredient was neither genotoxic nor mutagenic in five tests designed to assess these effects. Negative results were obtained in the following: Ames mutagenicity tests; in vitro cytogenetics test using Chinese Hamster Ovary cells; in vivo cytogenetics test using bone marrow cells from rats treated at 0, 50, 500 or 5,000 mg/kg body wt.; in vivo mouse micronucleus test; and a test to detect DNA damage in rat hepatocytes.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity

Thifensulfuron methyl and tribenuron methyl have low to slight toxicity.

96 hour LC50, rainbow trout: >100 mg/L for both
technical.

96 hour LC50, bluegill sunfish: >100 mg/L for both
technical.

Environmental Toxicity

(ECOLOGICAL INFORMATION - Continued)

LC50, mallard duck: >5620 mg/kg for both technicals.
LC50, bobwhite quail: >5620 mg/kg for both technicals.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

Do not contaminate water, food or feed by storage or disposal. Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

TRANSPORTATION INFORMATION

Shipping Information -- Canada

This material is Not Regulated.

This material is Not Regulated.
Please contact Dupont Canada Inc. for details.

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : No

Canadian Regulations

Regulated under the Pest Control Products Act--WHMIS Exempt

Registration No. 29570 Pest Control Products Act

This is not a WHMIS Controlled Product.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

NPCA-HMIS Rating
Health : 2
Flammability : 1
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS

Crop Protection
E.I. du Pont Canada Company
Box 2200, Streetsville
Mississauga, Ontario L5M 2H3
(905) 821-3300.

End of MSDS