

Product Name: PROGRESS™ HERBICIDE
Product Code: 15523
MSDS Number : C2970
Version Date: May 11 2000

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Material Safety Data Sheet

Print date -- August 7th, 2000 2:36 p.m. (E) PS PSA PSFHV -- 1.1 (1/13)

----- 1. CHEMICAL PRODUCT and COMPANY IDENTIFICATION -----

Product Name: PROGRESS™ HERBICIDE
Product Code: 15523
MSDS Number : C2970
Chemical Formula: Mixture
EPA Registry Number: 264-632

AVENTIS CROP SCIENCE USA LP
2 T.W. ALEXANDER DRIVE
RESEARCH TRIANGLE PK, NC 27709
UNITED STATES

PRODUCT USE:


END-USE PRODUCT DESCRIPTION: PROGRESS is a Sugar Beet
Herbicide.

----- 2. COMPOSITION / INFORMATION on INGREDIENTS -----

Component	Cas number	%
Phenmedipham	13684-63-4	7%
Desmedipham	13684-56-5	7%
Ethofumesate	26225-79-6	7%
Inert ingredients, including:		79%
Isophorone	78-59-1	

INERT INGREDIENTS (79%): Only the regulated ingredients are listed above. For additional information, refer to Section 15 (Regulatory Information).

SYNONYMS: NA 308/01

 For Product Use Information: (888) Aventis 24 Hours/Day
Medic./Trans. Emergency:
(DART) (800) 334-7577 24 Hours/Day
(CHEMTREC) (800) 424-9300 24 Hours/Day

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----- 3. HAZARDS IDENTIFICATION -----

NOTE: Please refer to Section 11 for detailed toxicological information.

EMERGENCY OVERVIEW:

DANGER. CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. HARMFUL IF SWALLOWED OR INHALED. A SLIGHT SKIN IRRITANT. PRODUCT IS A COMBUSTIBLE LIQUID.

POTENTIAL HEALTH EFFECTS

SIGNS AND SYMPTOMS OF EXPOSURE:

EFFECTS OF OVEREXPOSURE: Prolonged inhalation of concentrated vapor (> 5 ppm) may cause irritation of the eyes, nose and throat. Extremely high concentrations (> 200 ppm) may cause headache, dizziness, nausea, and faintness. Ingestion of unlikely high doses may cause abdominal discomfort, vomiting and diarrhea.

IMMEDIATE EFFECTS

SKIN:

A slight skin irritant on brief contact. Not known to cause skin sensitization.

EYES:

CORROSIVE. Causes irreversible eye damage.

INHALATION:

Harmful if inhaled. Avoid breathing vapor or spray mist.


INGESTION:

Harmful if swallowed.

DELAYED/LONG TERM EFFECTS

CARCINOGENIC:

None of the components of this product are listed as carcinogenic by NTP, IARC or OSHA.

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----- 4. FIRST AID MEASURES -----

After contact with skin:

Wash immediately with plenty of soap and water.

After contact with eyes:

Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical treatment.

After inhalation:

Remove to fresh air. Support respiration if necessary. Seek medical advice.

After ingestion:

Do not induce vomiting. Call a physician or Poison Control Center. If medical assistance cannot be given immediately, drink promptly a large amount of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. Do not attempt to give anything by mouth to an unconscious (or convulsing) person. See "Hints for the physician".

Hints for the physician:

This product contains aromatic and other organic solvents which, if aspirated into the lungs during induced vomiting, may cause chemical pneumonitis and pulmonary edema. Ingested material should be removed by gastric lavage with an endotracheal tube in place. However, please be aware that the solvents are corrosive to eyes and probable mucosal damage (by contact) contraindicate the use of gastric lavage.


----- 5. FIRE FIGHTING MEASURES -----

FLAMMABLE PROPERTIES

Flash point: 192°F Seta Flash Closed Tester
Flammability class: IIIA

Advice on protection against fire and explosion:

FIRE AND EXPLOSION HAZARDS: Combustible Liquid. This product can form combustible mixtures at temperatures at or above the flash point. It may produce a floating fire hazard in extreme fire conditions. When heated to decomposition or

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Advice on protection against fire and explosion: (Continued)

upon burning, this product will give off toxic fumes which include aldehyde, oxides of carbon, nitrogen, and sulfur.

FIRE FIGHTING INSTRUCTIONS: Wear self-contained breathing apparatus and protective clothing. Use water spray to cool fire exposed surfaces but avoid spraying water directly into storage containers due to danger of boilover.

Suitable extinguishing media:

Foam, sand, earth, dry powder, dry chemical, carbon dioxide, water spray.

----- 6. ACCIDENTAL RELEASE MEASURES -----

GENERAL AND DISPOSAL: Use proper protective equipment to minimize personal exposure (see Section 8). Take all necessary action to prevent and to remedy the effects of the spill. Ensure that the disposal is in compliance with Federal or local disposal regulations. Notify the appropriate authorities immediately. (See Section 15 for applicable Reportable Quantity (RQ) and other Federal Regulatory Information).

LAND SPILL OR LEAK: Eliminate sources of ignition and shut off leak if possible. Absorb spillage with sand, or other non-combustible absorbent material and place into suitable containers for disposal. Wear chemical resistant gloves when cleaning contaminated areas. Dispose of "empty" containers and spillage according to local, state, and federal regulations. Inform proper authorities at once if material enters sewer or watercourse.


----- 7. HANDLING and STORAGE -----

Handling:

DANGER. CORROSIVE. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist.

USERS SHOULD:

- Wash hands before eating, drinking, chewing gum,

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Handling: (Continued)

- using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
 - Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.
 - 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.
 - Do not apply this product in a way that will contact workers or other persons, either directly or through drift.
 - Only protected handlers may be in the area during application.
 - For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Storage:

Store in original container and keep closed. Store in a cool dry place. Do not use or store near heat or open flame.

----- 8. EXPOSURE CONTROLS / PERSONAL PROTECTION -----


Additional advice on system design:

ENGINEERING CONTROLS: Control airborne concentrations below the exposure guideline (see below for any OSHA/ACGIH exposure limits). Use with adequate ventilation. Local exhaust ventilation may be necessary, especially when used in a confined area.

Personal protective equipment

FOR APPLICATORS AND HANDLERS (AGRICULTURAL USES): The personal protective equipment (PPE) for agricultural uses are specified under the Subtitle: "Note to Applicators and Handlers of Agricultural Products."

NOTE TO APPLICATORS AND HANDLERS OF AGRICULTURAL PRODUCTS:
For agricultural products which are within the scope of the EPA Worker Protection Standards (WPS) (40 CFR PART 170), all users must refer to the statement below or the Product Label for WPS-specified Personal Protective Equipment (PPE),

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Personal protective equipment (Continued)

Restricted Entry Interval (REI), and other Precautionary Statements.

PERSONAL PROTECTIVE EQUIPMENT FOR APPLICATORS AND HANDLERS:

Applicators and handlers must wear:

- Long-sleeved shirts and long pants
- Shoes plus socks
- Protective eyewear

PERSONAL PROTECTIVE EQUIPMENT REQUIRED FOR EARLY ENTRY INTO TREATED AREAS:

For entry into treated area during the restricted entry interval (REI) of 24 hours that involves contact with anything that has been treated such as plants, soil, or water, the PPE required is:

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

FOR MANUFACTURING AND PACKAGING EMPLOYEES: The personal protective equipment (PPE) in accordance with OSHA standards are recommended immediately below.

Body protection:

PVC or rubber impervious gloves.

Eye protection:

Splash goggles.


Respiratory protection:

Use only in well ventilated areas. Use NIOSH/MSHA approved vapor respirators if ventilation is inadequate.

EXPOSURE GUIDELINES:

Isophorone (78-59-1)

OSHA PEL	ACGIH TLV	HCC WEL
140 mg/m ³ (PEL)	28 mg/m ³ (CEIL)	None
25 ml/m ³ (PEL)	5 ml/m ³ (CEIL)	None

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EXPOSURE GUIDELINES: (Continued)

Phenmedipham (13684-63-4)
Manufacturer's Recommended Limit (TWA): 5 mg/m³

Desmedipham (13684-56-5)
Manufacturer's Recommended Limit (TWA): 2 mg/m³

Although general guidance has been provided, the degree of protection required in a particular situation depends on factors such as concentration and duration. More detailed advice on protective devices is available from Aventis.

----- 9. PHYSICAL and CHEMICAL PROPERTIES -----

APPEARANCE: Yellow liquid.

ODOR: Pungent odor (ketone odor).

BASIC PHYSICAL PROPERTIES

PHYSICAL STATE: Liquid

BOILING POINT: Est. about 419°F Est. about 215°C

VAPOR PRESSURE: < 1.0 mmHg (Estimate)

SPECIFIC GRAVITY: 1.0152 (20°C)

SOLUBILITY (H₂O): miscible in water; not in oil*

PH: 4.2

VISCOSITY: 35.68 mPa.s.

DENSITY: 1.0152 mg/ml

BULK DENSITY: 8.5 lbs/gallon

*MISCIBILITY: not miscible in Spray Oil Concentrate


----- 10. STABILITY and REACTIVITY -----

CHEMICAL STABILITY:

Stable

INCOMPATIBILITY:

Avoid contact with strong oxidizing.

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----- **10. STABILITY and REACTIVITY (Continued)** -----

HAZARDOUS POLYMERIZATION:

Will not occur

----- **11. TOXICOLOGICAL INFORMATION** -----

EYE EFFECTS

Corrosive. Causes irreversible eye damage.

SKIN EFFECTS

A slight skin irritant when tested on the rabbit skin.

LD50 (rabbit): > 5,000 mg/kg (low toxicity)

ACUTE ORAL EFFECTS

Oral LD50 (rat): 4,665 and 6,156 mg/kg (male and female rats, respectively) (low toxicity)

ACUTE INHALATION EFFECTS


Inhalation LC50 (rat-4hrs): Greater than 4.18 mg/l of air (the highest attainable concentration) (Moderate Toxicity)

CHRONIC (CANCER INFORMATION)

Phenmedipham - Target Organ Effects: In two-year feeding studies with rats, mice and dogs, no organotoxic effects were observed; the only effects noted at the high experimental doses (500 - 1000 ppm) were reduced weight gain (rats) and increased kidney weight (mice).

Desmedipham - Target Organ Effects: In two-year feeding studies with mice and rats, adverse effects were observed only in animals receiving high doses (750-1500 ppm). These include increased spleen weight, toxic hemolytic anemia (both species) and elevated methemoglobin levels (rats only, 300-1500 ppm). However, there were no significant increases in mortality rate in both species even at high dose levels. In a similar one-year study with dogs (up to 5,000 ppm), toxic hemolytic anemia associated with compensatory erythropoiesis was the main effect noted, with a threshold level of 300 ppm.

Ethofumesate - Target Organ Effects: In two-year feeding studies with animals, adverse effects were only observed at very high doses. These include: a reduced weight gain in

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----- **11. TOXICOLOGICAL INFORMATION (Continued)** -----

males and increased liver weight in females (rats, 5000 ppm); an increase of liver weight in females (hamsters, 2000 ppm); an increased liver weight in both males and females (dogs, 20,000 ppm).

Isophorone - Target Organ Effects: When administered by stomach tube in corn oil at dosage levels of 250 or 500 mg/kg of body weight, isophorone was found to associate with a slightly increased incidence of renal and preputial tumors in male rats and of liver tumors in male mice. However, isophorone did not exhibit similar potential in either female rats or female mice. Thus, under the conditions of this bioassay, isophorone appeared to exhibit weak carcinogenic activity. The significance of this data with regard to potential human hazard under realistic exposure conditions (inhalation or dermal) is uncertain.

CARCINOGENICITY: NTP: No IARC: No OSHA: No

TERATOGENICITY (BIRTH DEFECTS)


Phenmedipham: demonstrated no embryotoxic or teratogenic effects in a rabbit or rat teratology study at dose levels up to 500 and 1250 mg/kg/day, respectively.

Desmedipham: No teratogenic effects were observed in fetuses of rabbits given up to 450 mg/kg/day during gestation. In rats, ingredient 2 induced methemoglobin formation in dams at all doses tested (10-1000 ppm). However, no teratogenic or embryotoxic effects were observed in the offspring from dams administered at the higher doses (100-1000 mg/kg/day), the dose dependent, elevated methemoglobin levels were found to be maternally toxic, leading to an increased frequency of malformation.

Ethofumesate: No teratogenic effects were seen in rats at dose levels up to 80 mg/kg/day. In rabbits, no adverse effects of biological significance were observed at the low dose (30 mg/kg/day); slight embryolethal effects were noted at 300 mg/kg/day; severe maternal toxicity and moderate embryolethal effects were observed at the highest dose.

REPRODUCTIVE EFFECTS

Phenmedipham: showed no adverse effects on fertility or reproduction in a three-generation rat reproduction study at

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----- **11. TOXICOLOGICAL INFORMATION (Continued)** -----

dose levels up to 1,250 mg/kg/day.

Desmedipham: showed no adverse effects on fertility or reproduction in a two-generation rat reproduction study at dose levels up to 1,250 mg/kg/day.

Ethofumesate: demonstrated no adverse effects on reproduction in a three-generation rat reproduction study.

MUTAGENICITY (GENETIC EFFECTS)


Phenmedipham: was not mutagenic or genotoxic when tested in Ames gene mutation assay and in seven other mutagenesis systems.

Desmedipham: was not mutagenic or genotoxic when tested in Ames assay and chromosomal aberration tests using human lymphocytes or mouse micronucleus. It was mutagenic only in mouse lymphoma cells when tested at high doses which extended into the toxic range (50-100 mg/ml).

Ethofumesate: was not mutagenic or genotoxic when tested in Ames gene mutation assay and in four other mutagenesis systems.

----- **12. ECOLOGICAL INFORMATION** -----

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish and aquatic organisms. For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Do not contaminate water through disposal of equipment washwaters.

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----- 13. DISPOSAL CONSIDERATIONS -----

FOR CONTAINERS other than the SVR System: DO NOT REUSE THIS CONTAINER. DESTROY WHEN EMPTY.

[or when packaged in SVR containers]

SVR CONTAINER SYSTEM

This ECHO SYSTEM (TM) container is the sole property of Aventis.

Handling and disposal of pesticide wastes must be in accordance with Federal requirements under the resource conservation and recovery act (RCRA) and applicable State and local procedures. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

RCRA CLASSIFICATION:

RCRA STATUS: None of the product ingredients are listed as hazardous waste.

----- 14. TRANSPORT INFORMATION -----


PROPER SHIPPING NAME: WHEN SHIPPED IN BULK CONTAINERS -
PROPER SHIPPING NAME IS: Combustible liquid, n.o.s.,
(Isophorone), NA1993, PG III, *

DOT SHIPPING LABEL: None

* Insert net volume

EXCEPTED FROM DOT REGULATIONS WHEN SHIPPED IN NON-BULK PACKAGED PRODUCT VIA DOMESTIC GROUND TRANSPORT ONLY.
(NON-BULK = EACH CONTAINER CONTAINING EQUAL OR LESS THAN 119 GALLONS. PLACARD REQUIRED: NONE

NOTE: For transportation purposes (49 CFR Part 173.132), the calculated LC50 (rat-1 hr) is: > 16.72 mg/l

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----- 15. REGULATORY INFORMATION -----

STATE REGULATIONS

The following chemicals associated with the product are subject to the right-to-know regulations in these states:

DESMEDIPHAM (13684-56-5): NJ

Isophorone (78-59-1): CT, FL, IL, MA, NJ, NY, PA, RI

U.S. FEDERAL REGULATIONS

SARA TITLE III NOTIFICATION AND INFORMATION:

Section 302 (EHS) Ingredient: Not listed

Reportable Quantity for this formulated product is:
≥ 9,090 lbs.

SARA TITLE III - HAZARD CLASSES

Acute Health Hazard - Yes

Chronic Health Hazard - No

Fire Hazard - Yes

Sudden Release of Pressure Hazard - No

Reactivity Hazard - No

TSCA inventory status

These components are not listed:

DESMEDIPHAM 7% (13684-56-5)

Ethofumesate 7% (26225-79-6)

1-Phenmedipham

(3-methylcarbonylamino-phenyl-3-methyl-carban 7%

(13684-63-4)

Inert ingredients, including: 79%

SARA 313 :

DESMEDIPHAM 7% (13684-56-5)

ENVIRONMENTAL:

CERCLA HAZARDOUS SUBSTANCE :


Isophorone 55% (78-59-1)

CLEAN WATER ACT SECTION 307 PRIORITY POLLUTANTS :

Isophorone 55% (78-59-1)

SARA EHS 304 REPORTABLE QUANTITY :

Isophorone 55% (78-59-1)

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----- **15. REGULATORY INFORMATION (Continued)** -----

INTERNATIONAL REGULATIONS

Die folgende(n) Chemikalie(n), die mit dem Produkt verbunden sind, sind auch auf folgenden internationalen Listen aufgeföhrt:

DESMEDIPHAM (13684-56-5): EINECS

Ethofumesate (26225-79-6): EINECS

1-Phenmedipham (3-methylcarbonylamino-phenyl-3-methyl-carban (13684-63-4): EINECS

Isophorone (78-59-1): CANADIAN DSL, EINECS

----- **16. OTHER INFORMATION** -----

HAZARD RATINGS

	HEALTH	FLAMM	REACT	OTHER
NFPA	3	2	0	None
HMIS	3	2	0	G,H

REVISED SECTIONS:

MSDS REVISION INDICATOR: New Format, Company Name and EPA Number.


PREPARED BY: Dept. of Regulatory Affairs

PHONE: 800-438-5837

SUPERCEDES MSDS DATED: 08/22/97

DISCLAIMER:

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