



**PROGRESS HERBICIDE**

MSDS Version 1.4

**SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION**

**Product Name** PROGRESS HERBICIDE  
**Chemical Name**  
**Synonym** NA 308/01  
**MSDS Number** 137  
**Chemical Family**  
**Chemical Formulation** Mixture  
**EPA Registration No.** 264-632  
**Canadian Registrat. No.**

Bayer CropScience  
 2 T.W. Alexander Drive  
 Research Triangle PK, NC 27709  
 USA

For Product Use Information: (866)-992-2937 Monday through Friday(CRLF) 8:00AM-4:30PM(CRLF) For Medical Emergency contact DART: (800) 334-7577 24 Hours/Day(CRLF) For Transportation Emergency CHEMTREC: (800) 424-9300 24 Hours/Day

**Product Use Description** PROGRESS is a Sugar Beet Herbicide.

**SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Component Name</u>	<u>CAS No.</u>	<u>Concentration % by Weight</u>	
		<u>Minimum</u>	<u>Maximum</u>
Phenmedipham	13684-63-4	7.0000	
Desmedipham	13684-56-5	7.0000	
Ethofumesate	26225-79-6	7.0000	
Inert ingredients,including:		79.0000	
Isophorone	78-59-1		

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

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### SECTION 3. HAZARDS IDENTIFICATION

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

<b>Emergency Overview</b>	Danger! Corrosive - causes irreversible eye damage. Harmful if inhaled or swallowed. A slight skin irritant. This product is a combustible liquid.
<b>Physical State</b>	liquid
<b>Odor</b>	pungent (ketone odor).
<b>Appearance</b>	yellow
<b>Immediate Effects</b>	
<b>Eye</b>	Corrosive - causes irreversible eye damage.
<b>Skin</b>	A slight skin irritant. Not known to cause skin sensitization.
<b>Ingestion</b>	Harmful if swallowed.
<b>Inhalation</b>	Harmful if inhaled. Avoid breathing vapors and spray mist.
<b>Chronic or Delayed Long-Term</b>	No component of this product is listed as a carcinogen by NTP, IARC, or OSHA.
<b>Signs and Symptoms</b>	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.

### SECTION 4. FIRST AID MEASURES

<b>Eye</b>	Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek medical attention.
<b>Skin</b>	Wash skin immediately with plenty of soap and water.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center. Drink promptly a large quantity of milk, egg whites or gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol. Do not give anything by mouth to an unconscious person.
<b>Inhalation</b>	Remove victim to fresh air. Support respiration if necessary. Seek medical attention.
<b>Note to Physician</b>	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

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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.

### SECTION 5. FIRE FIGHTING MEASURES

<b>Flash Point</b>	90 °C / 194 °F Method: Setaflash Closed Cup Flammability class: IIIA
<b>Fire and Explosion Hazards</b>	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 upon burning, this product will give off toxic fumes which include aldehyde, oxides of carbon, nitrogen, and sulfur.
<b>Suitable Extinguishing Media</b>	foam, sand, earth, dry powder, dry chemical, carbon dioxide (CO <sub>2</sub> ), water spray
<b>Fire Fighting Instructions</b>	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.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>General and Disposal</b>	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 13 for any applicable Reportable Quantity (RQ) and other federal regulatory information.
<b>Land Spill or Leaks</b>	Eliminate sources of ignition and shut off leak if possible. Take up with sand or other non-combustible material and place into a clean container for later disposal. Wear impervious gloves when removing spillages and cleaning up contaminated areas. Report immediately to authorities if liquid enters watercourse or sewer.

### SECTION 7. HANDLING AND STORAGE

<b>Handling Procedures</b>	Danger! Corrosive. Can cause irreversible eye damage. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. Harmful if inhaled. Avoid breathing vapors and spray mist.
<b>Storing Procedures</b>	Store in original container. Keep tightly closed. Keep in a dry, cool place. Do not use or store near heat or open flame.
<b>Work/Hygienic</b>	Wash hands before eating, drinking, chewing gum, using tobacco or using the

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### Procedures

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 products concentrate. Do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (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.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Controls

Control airborne concentrations below the exposure guidelines. Use with adequate ventilation. Local exhaust ventilation may be necessary, when used in a confined area.

### Eye/Face Protection

splash goggles

### Body Protection

PVC or rubber gloves

### Respiratory Protection

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

**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), 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, chemical resistant gloves,
- Shoes plus socks and protective eyewear.

### PERSONAL PROTECTIVE EQUIPMENT REQUIRED FOR EARLY ENTRY INTO TREATED AREAS:

Do not enter or allow worker entry into treated areas during the REI of 48 hours. 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, wear: coveralls, shoes, socks, protective eyewear, and chemical-resistant gloves such

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as barrier laminate or butyl rubber > 14 mils.

### Exposure Limits

Isophorone	78-59-1	ACGIH	Ceiling		5 ppm
		NIOSH	REL	4 ppm	23 mg/m3
		OSHA Z1	PEL	25 ppm	140 mg/m3
		OSHA Z1A	TWA	4 ppm	23 mg/m3
		US CA OEL	TWA PEL	4 ppm	23 mg/m3

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	yellow
<b>Physical State</b>	liquid
<b>Odor</b>	pungent (ketone odor).
<b>pH</b>	4.2
<b>Vapor Pressure</b>	< 1.0 mmHg (Estimate)
<b>Specific Gravity</b>	1.015 at 20 °C
<b>Density</b>	1.0152 mg/ml
<b>Bulk Density</b>	8.5 lbs/gallon
<b>Boiling Point</b>	215 °C
<b>Solubility (in water)</b>	Miscible in water Not miscible in Spray Oil Concentrate
<b>Viscosity</b>	35.68 mPa.s

### SECTION 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	Stable
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**Incompatibility** strong oxidizing agents

**Hazardous Polymerization (Conditions to avoid)** Will not occur.

### SECTION 11. TOXICOLOGICAL INFORMATION

**Acute Oral Toxicity** Male Rat: LD50: 4,665 mg/kg  
Low toxicity.

Female Rat: LD50: 6,156 mg/kg  
Low toxicity.

**Acute Dermal Toxicity** Rabbit: LD50: > 5,000 mg/kg  
Low toxicity.

**Acute Inhalation Toxicity** Rat: LC50: > 4.18 mg/l 4 h  
Moderately toxic.  
The highest attainable concentration.

**Skin Irritation** Rabbit: A slight skin irritant.

**Eye Irritation** Corrosive - causes irreversible eye damage.

**Chronic Toxicity** Phenmedipham: 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: 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: In two-year feeding studies with animals, adverse effects were only observed at very high doses. These include: a reduced weight gain in 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: 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

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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.

### Assessment Carcinogenicity

**ACGIH**

Isophorone

78-59-1

Group A3

**NTP**

None

**IARC**

None

**OSHA**

None

### Reproductive & Developmental Toxicity

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

### Teratogenicity

Phenmedipham: demonstrated no embryotoxic or teratogenic effects in a rabbit or rat teratology study at dose levels up to 500 and 1,250 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 embryo-lethal effects were noted at 300 mg/kg/day; severe maternal toxicity and moderate embryo-lethal effects were observed at the highest dose.

### Mutagenicity

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).

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

### SECTION 12. ECOLOGICAL INFORMATION

#### Environmental Precautions

This product is extremely toxic to fish and other aquatic organisms. For terrestrial uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below mean high water mark. Drift and runoff from treated sites may be hazardous to fish in adjacent waters. Do not contaminate water when disposing of equipment washwaters.

### SECTION 13. DISPOSAL CONSIDERATIONS

#### General Disposal Guidance

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.

#### Container Disposal

Do not reuse this container. Destroy when empty.

SVR CONTAINER SYSTEM: This ECHO SYSTEM™ container is the sole property of Bayer.

#### RCRA Classification

Not Regulated under this Statute

### SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME(WHEN SHIPPED IN BULK CONTAINERS): Combustible liquid, n.o.s., (Isophorone), NA1993, PG III, \*  
DOT SHIPPING LABEL: None

\* Inert 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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### SECTION 15. REGULATORY INFORMATION

#### US Federal

**EPA Registration No.** 264-632

**TSCA list**  
Isophorone 78-59-1

**TSCA 12b export notification**  
None

**SARA Title III - section 302 - notification and information**  
None

**SARA Title III - section 313 - toxic chemical release reporting**  
Desmedipham 13684-56-5 1.0%

#### US States Regulatory

##### CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

#### US State right-to-know ingredients

Desmedipham	13684-56-5	NJ
Isophorone	78-59-1	CA, CT, IL, MN, NJ, PA, RI

#### Canadian Regulations

**Canadian Registrat. No.**  
**Canadian Domestic Substance List**  
Isophorone 78-59-1

#### Environmental

**CERCLA**  
Isophorone 78-59-1 5,000 lbs

**Clean Water Section 307 Priority Pollutants**  
Isophorone 78-59-1

**Safe Drinking Water Act Maximum Contaminant Levels**  
None

#### International Regulations

**EU Classification**  
Ethofumesate 26225-79-6 Dangerous for the environment  
R Phrases Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S Phrases Avoid release to the environment. Refer to special instructions/safety data sheets.

#### European Inventory of Existing Commercial Substances (EINECS)

Phenmedipham	13684-63-4
Desmedipham	13684-56-5

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Ethofumesate

26225-79-6

Isophorone

78-59-1

### SECTION 16. OTHER INFORMATION

	Health	Flammability	Reactivity	Others
HMIS	3	2	0	G,H
NFPA	3	2	0	none

#### REVISED SECTIONS:

MSDS REVISION INDICATOR: Company name change.

Print Date: 12/18/2002

Supersedes MSDS, which is older than: 12/16/2002

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