1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Grasp* SC Herbicide

COMPANY IDENTIFICATION: Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Penoxsulam: 2-((2,2-difluoro-ethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c]pyrimidin-2-yl)-6-(trifluoromethyl)benzenesulfonamide
Balance, Total, Including Propylene Glycol
CAS # 219714-96-2 21.7% CAS # 000057-55-6
CAS # 000057-55-6 78.3%

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW
Cream to light tan liquid with a mild paint odor. May cause eye irritation.

EMERGENCY PHONE NUMBER: 800-992-5994

4. FIRST AID:

EYE: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >212°F (>100°C)

METHOD USED: SCC

FLAMMABLE LIMITS
LFL: Not applicable
UFL: Not applicable

EXTINGUISHING MEDIA: Foam, CO₂, or Dry chemical

FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Soak up small spills with an absorbent material. Sweep up wastes and place in a container suitable for disposal. Report large spills to Dow AgroSciences on 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where a potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES: Propylene glycol: AIHA WEEL is 50 ppm total, 10 mg/M³ aerosol only.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Cream to light tan liquid

ODOR: Mild paint

DENSITY: 1.104 g/mL

pH: 4.7 (1% solution)

The following properties are based on penoxsulam.

SPECIFIC GRAVITY: 1.61 g/cm³ @ 20°C

MELTING POINT: 212°C

BOILING POINT: Not applicable

VAPOR PRESSURE:

7.16 x 10⁻¹⁶ mm Hg or 9.55 x 10⁻¹⁴ Pa @ 25°C

1.87 x 10⁻¹⁶ mm Hg or 2.49 x 10⁻¹⁴ Pa @ 20°C

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Reactivity but no significant rise in temperature for potassium permanganate. Non-reactive toward monoammonium phosphate, zinc and water.

HAZARDOUS DECOMPOSITION PRODUCTS: Material is not impact sensitive. Exothermic decomposition initiating at 602°F (317°C)

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause slight temporary eye irritation. Corneal injury is unlikely.

SKIN: Brief contact is essentially non-irritating to skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rats is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Harmful effects not anticipated from swallowing small amounts. The oral LD₅₀ for rats is >5000 mg/kg.

INHALATION: No adverse effects are anticipated from single exposure to mist. This was the highest attainable concentration. The aerosol LC₅₀ for rats is >0.74 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

CANCER INFORMATION: Penoxsulam did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Penoxsulam did not cause birth defects in laboratory animals.

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**REPRODUCTIVE EFFECTS:** In animal studies, penoxsulam has been shown not to interfere with reproduction.

**MUTAGENICITY:** In-vitro and animal genetic toxicity studies were negative.

**12. ECOLOGICAL INFORMATION:**

**ENVIRONMENTAL FATE:**

**MOVEMENT & PARTITIONING:**
Based largely or completely on information for penoxsulam. Bioconcentration potential is low (BCF is <100 or Log Pow <3).

Log octanol/water partition coefficient (Log Pow) is estimated using a structural fragment method to be 2.95.

Henry’s Law Constant (H) is estimated to be $1.657 \times 10^{-16}$ atm-M$^3$/mole.

Potential for mobility in soil is high (Koc between 50 and 150).

Soil organic carbon/water partition coefficient (Koc) is $140+/-260$ L/Kg.

**DEGRADATION & PERSISTENCE:**
Based largely or completely on information for penoxsulam. The rate constant for vapor phase reaction with photochemically produced hydroxyl radicals at 25°C is estimated to be $6.03 \times 10^{-11}$ cm$^3$/molecule-sec.

In the atmospheric environment, material is estimated to have a tropospheric half-life of 2.130 hrs.

**ECOTOXICOLOGY:**
Based largely or completely on information for penoxsulam. Material is highly toxic to aquatic organisms on an acute basis ($LC_{50}$ or $EC_{50}$ is between 0.1 and 1 mg/L in most sensitive species).

Material is practically non-toxic to birds on an acute basis ($LD_{50}$ is >2000 mg/kg).

Material is slightly toxic to birds on a dietary basis ($LC_{50}$ is between 1001 and 5000 ppm).

The $LC_{50}$ in earthworm (*Eisenia fetida*) is >1000 mg/kg.

Growth inhibition $EC_{50}$ in green alga (*Selenastrum capricornutum*) is 0.0864 mg/L.

Acute contact $LD_{50}$ for honeybee (*Apis mellifera*) is >100 µg/bee.

Acute oral $LD_{50}$ in honeybee (*Apis mellifera*) is >110 µg/bee.

Growth inhibition $EC_{50}$ in duckweed (*Lemna sp.*) is 0.00329 mg/L.

Growth inhibition $EC_{50}$ in diatom (*Navicula sp.*) is >49.6 mg/L.

Growth inhibition $EC_{50}$ in marine diatom (*Skeletonema costatum*) is >44.0 mg/L.

Growth inhibition $EC_{50}$ in blue-green alga (*Anabaena flos-aquae*) is 0.47 mg/L.

**13. DISPOSAL CONSIDERATIONS:**

**DISPOSAL METHOD:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

**14. TRANSPORT INFORMATION:**

**U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:**

For all package sizes and modes of transportation: This material is not regulated for transport.
15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer’s responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA “Hazard Categories” promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a “Hazardous chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 5, 9, 10, 12 & 15
Reference: DR-0367-3265
Replaces RSSDS Dated: 4/1/04
Document Code: D03-194-001

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS NUMBER</th>
<th>LIST</th>
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<tbody>
<tr>
<td>Propylene Glycol</td>
<td>000057-55-6</td>
<td>PA1</td>
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</table>

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.