Dow AgroSciences

# SAFETY DATA SHEET

**DOW AGROSCIENCES LLC**

**Product name: MILESTONE™ Herbicide**

**Issue Date:** 05/26/2015
**Print Date:** 05/26/2015

DOW AGROSCIENCES LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. IDENTIFICATION

**Product name:** MILESTONE™ Herbicide

**Recommended use of the chemical and restrictions on use**
**Identified uses:** End use herbicide product

**COMPANY IDENTIFICATION**
DOW AGROSCIENCES LLC
9330 ZIONSVILLE RD
INDIANAPOLIS IN 46268-1053
UNITED STATES

**Customer Information Number:** 800-992-5994
info@dow.com

**EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** 800-992-5994
**Local Emergency Contact:** 352-323-3500

## 2. HAZARDS IDENTIFICATION

**Hazard classification**
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

**Other hazards**
no data available

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

| Component | CASRN | Concentration |
|---|---|---|
| Aminopyralid Triisopropanolamine Salt | 566191-89-7 | 40.6% |

| | | |
|---|---|---|
| Triisopropanolamine | 122-20-3 | 1.5% |
| Balance | Not available | 57.9% |

## 4. FIRST AID MEASURES

**Description of first aid measures**
**General advice:** If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or 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.

**Skin contact:** 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.

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

**Ingestion:** No emergency medical treatment necessary.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**
**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

**Unsuitable extinguishing media:** no data available

**Special hazards arising from the substance or mixture**
**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

Exposure limits are listed below, if they exist.

| Component | Regulation | Type of listing | Value/Notation |
|---|---|---|---|
| Triisopropanolamine | Dow IHG | TWA | 10 mg/m3 |

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

**Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

**Skin protection**

**Hand protection:** Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

**Other protection:** No precautions other than clean body-covering clothing should be needed.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.
The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | |
| **Physical state** | Liquid. |
| **Color** | Brown |
| **Odor** | Mild |
| **Odor Threshold** | no data available |
| **pH** | 7.3 *pH Electrode* |
| **Melting point/range** | Not applicable |
| **Freezing point** | < -10 °C ( < 14 °F) |
| **Boiling point (760 mmHg)** | no data available |
| **Flash point** | **closed cup** > 100 °C ( > 212 °F) *Pensky-Martens Closed Cup ASTM D 93* |
| **Evaporation Rate (Butyl Acetate = 1)** | no data available |
| **Flammability (solid, gas)** | Not Applicable |
| **Lower explosion limit** | no data available |
| **Upper explosion limit** | no data available |
| **Vapor Pressure** | no data available |
| **Relative Vapor Density (air = 1)** | no data available |
| **Relative Density (water = 1)** | 1.14 at 20 °C (68 °F) |
| **Water solubility** | Soluble |
| **Partition coefficient: n-octanol/water** | no data available |
| **Auto-ignition temperature** | none below 400 degC |
| **Decomposition temperature** | No test data available |
| **Dynamic Viscosity** | 12.2 cP at 20 °C (68 °F) *EPA OPPTS 830.7100 (Viscosity)* |
| **Kinematic Viscosity** | no data available |
| **Explosive properties** | no data available |
| **Oxidizing properties** | no data available |

| | |
|---|---|
| **Liquid Density** | 1.140 g/cm3 at 20 °C (68 °F) *Digital density meter* |
| **Molecular weight** | no data available |
| **Surface tension** | 54.4 mN/m at20 °C (68 °F) |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY AND REACTIVITY

**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Some components of this product can decompose at elevated temperatures.

**Incompatible materials:** Avoid contact with: Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Nitrogen oxides.

## 11. TOXICOLOGICAL INFORMATION

*Toxicological information appears in this section when such data is available.*

**Acute toxicity**

**Acute oral toxicity**
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:
LD50, Rat, male and female, > 5,000 mg/kg

**Acute dermal toxicity**
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:
LD50, Rat, male and female, > 5,000 mg/kg

**Acute inhalation toxicity**
No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

As product:
LC50, Rat, male and female, 4 Hour, dust/mist, > 5.79 mg/l

**Skin corrosion/irritation**
Essentially nonirritating to skin.

**Serious eye damage/eye irritation**
Essentially nonirritating to eyes.
Corneal injury is unlikely.

**Sensitization**
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**
For similar active ingredient(s). Aminopyralid. Did not cause cancer in laboratory animals.

**Teratogenicity**
Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**
For similar active ingredient(s). Aminopyralid. In animal studies, did not interfere with reproduction.

**Mutagenicity**
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**
Based on physical properties, not likely to be an aspiration hazard.

## 12. ECOLOGICAL INFORMATION

*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Acute toxicity to fish**
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 360 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Cyprinodon variegatus (sheepshead minnow), static test, 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 460 mg/l

LC50, saltwater mysid Mysidopsis bahia, static test, 96 Hour, > 104 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to Above Ground Organisms**
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

dietary LC50, Colinus virginianus (Bobwhite quail), > 21422mg/kg diet.

oral LD50, Colinus virginianus (Bobwhite quail), > 10,000 ppm

oral LD50, Apis mellifera (bees), > 460micrograms/bee

contact LD50, Apis mellifera (bees), > 460micrograms/bee

**Toxicity to soil-dwelling organisms**
LC50, Eisenia fetida (earthworms), 14 d, survival, > 10,000 mg/kg

**Persistence and degradability**

**Aminopyralid Triisopropanolamine Salt**
**Biodegradability:** For similar material(s): Aminopyralid. Material is not readily biodegradable according to OECD/EEC guidelines.

**Triisopropanolamine**
**Biodegradability:** Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation. Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
**Biodegradation:** 0 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301F or Equivalent

**Theoretical Oxygen Demand:** 2.35 mg/mg

**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 3 Hour
**Method:** Estimated.

**Balance**
**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Aminopyralid Triisopropanolamine Salt**
**Bioaccumulation:** For similar active ingredient(s). Aminopyralid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Triisopropanolamine**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** -0.015 at 23 °C Measured
**Bioconcentration factor (BCF):** < 0.57 Fish. 42 d Measured

Balance
**Bioaccumulation:** No relevant data found.

Mobility in soil

Aminopyralid Triisopropanolamine Salt
For similar active ingredient(s).
Aminopyralid.
Potential for mobility in soil is very high (Koc between 0 and 50).

Triisopropanolamine
Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient(Koc):** 10 Estimated.

Balance
No relevant data found.

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** 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.

## 14. TRANSPORT INFORMATION

**DOT**
Not regulated for transport

**Classification for SEA transport (IMO-IMDG):**
Not regulated for transport

| | |
|---|---|
| **Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code** | Consult IMO regulations before transporting ocean bulk |

**Classification for AIR transport (IATA/ICAO):**
Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## 15. REGULATORY INFORMATION

**OSHA Hazard Communication Standard**
This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**
No SARA Hazards

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

**Pennsylvania (Worker and Community Right-To-KnowAct): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:**
The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

| Components | CASRN |
|---|---|
| Triisopropanolamine | 122-20-3 |

**Pennsylvania (Worker and Community Right-To-KnowAct): Pennsylvania Special Hazardous Substances List:**
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**United States TSCA Inventory (TSCA)**
This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

**Federal Insecticide, Fungicide and Rodenticide Act**
EPA Registration Number: 62719-519
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

Causes moderate eye irritation

## 16. OTHER INFORMATION

**Hazard Rating System**
**NFPA**

| Health | Fire | Reactivity |
|---|---|---|
| 1 | 1 | 0 |

**Revision**
Identification Number: 101209315 / A211 / Issue Date: 05/26/2015 / Version: 9.0
DAS Code: GF-871
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

| | |
|---|---|
| Dow IHG | Dow Industrial Hygiene Guideline |
| TWA | Time Weighted Average (TWA): |

**Information Source and References**
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided 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 between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.