

## **SAFETY DATA SHEET**

## **DOW AGROSCIENCES LLC**

Product name: GRANITE™ GR Herbicide Issue Date: 08/19/2016

Print Date: 08/19/2016

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: GRANITE™ GR 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.

CASRN	Concentration
219714-96-2	0.2%
•	219714-96-2

Cellulose	9004-34-6	49.7%
Kaolin	1332-58-7	30.8%
Calcium carbonate	471-34-1	16.9%
Titanium dioxide	13463-67-7	0.9%
Balance	Not available	1.5%

## 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. May cause injury due to mechanical action.

**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. Skin contact may aggravate preexisting dermatitis.

## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media:** Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion

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products may include and are not limited to: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Fluorinated hydrocarbons. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate.

#### Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Move container from fire area if this is possible without hazard. Contain fire water runoff 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:** Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. 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. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: 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 contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. 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
Cellulose	ACGIH	TWA	10 mg/m3
	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable	5 mg/m3
		fraction	_
Kaolin	ACGIH	TWA Respirable	2 mg/m3
		fraction	_
	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable	5 mg/m3
		fraction	
Calcium carbonate	Dow IHG	TWA	1 mg/m3
	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable	5 mg/m3
		fraction	_
Titanium dioxide	Dow IHG	TWA	2.4 mg/m3
	OSHA Z-1	TWA total dust	15 mg/m3
	ACGIH	TWA	10 mg/m3 , Titanium
			dioxide
	CAL PEL	PEL Total dust	10 mg/m3 , Titanium
	CAL PEL	PEL respirable dust	5 mg/m3 , Titanium
		fraction	

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 engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

## Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. **Skin protection** 

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

**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, use an approved respirator. Selection of air-purifying or positive-

pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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 Granules.
Color Gray
Odor Musty

Odor Threshold

pH

8.8 pH Electrode

Melting point/range

No test data available

Freezing point Not applicable

Boiling point (760 mmHg) Not applicable

Flash point closed cup Not applicable

**Evaporation Rate (Butyl Acetate** 

= 1)

Not applicable

Flammability (solid, gas)

Lower explosion limit

Upper explosion limit

Vapor Pressure

Relative Vapor Density (air = 1)

Relative Density (water = 1)

No data available

Not applicable

Not applicable

Not applicable

Water solubility

Partition coefficient: n
No test data available

No data available

octanol/water

Auto-ignition temperatureNo test data availableDecomposition temperatureNo data availableDynamic ViscosityNot applicableKinematic ViscosityNot applicableExplosive propertiesNo data availableOxidizing propertiesNo data availableLiquid Density0.67 g/cm3 Calculated.

Bulk density 670 kg/m3 Loose Volumetric

Molecular weight No data available

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

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## 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:** Avoid temperatures above 200°C (392°F) Some components of this product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with oxidizing materials.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Gases are released during decomposition.

## 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: Single dose oral LD50 has not been determined. Based on information for component(s):

LD50, Rat, > 5,000 mg/kg Estimated.

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined. Based on information for component(s):

LD50, Rabbit, > 2,000 mg/kg Estimated.

#### Acute inhalation toxicity

Inhalation is unlikely due to physical state. Prolonged excessive exposure to dust may cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat). As product: The LC50 has not been determined.

#### Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

May cause drying and flaking of the skin.

#### Serious eve damage/eve irritation

Solid or dust may cause irritation or corneal injury due to mechanical action.

## Sensitization

For skin sensitization:

Product name: GRANITE™ GR Herbicide

No relevant data found.

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)

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

Liver.

For the major component(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

#### Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals. For the major component(s): Available data suggest that the material is unlikely to cause cancer. A risk assessment has been conducted for this product and has shown, that under normal handling, the minor components will not pose a hazard.

#### **Teratogenicity**

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother. For the major component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

#### Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction. For the major component(s): In animal studies, cellulose has been shown to interfere with fertility and reproduction as a result of nutritional deficiencies associated with extremely high dietary concentrations of cellulose.

#### Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

For the major component(s): In vitro genetic toxicity studies were negative.

## **Aspiration Hazard**

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

#### COMPONENTS INFLUENCING TOXICOLOGY:

#### **Penoxsulam**

## Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

Maximum attainable concentration. LC50, Rat, male and female, 4 Hour, dust/mist, > 3.50 mg/l No deaths occurred at this concentration.

## Cellulose

## Acute inhalation toxicity

The LC50 has not been determined.

#### Kaolin

#### Acute inhalation toxicity

The LC50 has not been determined.

#### Calcium carbonate

#### Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, dust/mist, > 3 mg/l The LC50 value is greater than the Maximum Attainable Concentration. No deaths occurred at this concentration.

#### **Titanium dioxide**

#### Acute inhalation toxicity

LC50. Rat. male, 4 Hour, dust/mist, > 6.82 mg/l No deaths occurred at this concentration.

#### **Balance**

#### Acute inhalation toxicity

The LC50 has not been determined.

#### Carcinogenicity

Component List Classification

Titanium dioxide IARC Group 2B: Possibly carcinogenic to

humans

#### 12. ECOLOGICAL INFORMATION

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

#### **Toxicity**

#### Penoxsulam

#### Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203

#### Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202

#### Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 0.126 mg/l, OECD Test Guideline 201

EbC50, Lemna minor (duckweed), 14 d, Biomass, 0.00329 mg/l, OECD 221.

## Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 1,000 mg/l

#### **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). oral LD50, Anas platyrhynchos (Mallard duck), mortality, > 2000mg/kg bodyweight.

dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, mortality, > 5063mg/kg diet. contact LD50, Apis mellifera (bees), 48 Hour, mortality, > 100μg/bee oral LD50, Apis mellifera (bees), 48 Hour, mortality, > 100μg/bee

#### Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 1,000 mg/kg NOEC, Eisenia fetida (earthworms), 56 d, 1,000 mg/kg

## **Cellulose**

## 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, Fish, 96 Hour, > 100 mg/l

#### Acute toxicity to algae/aquatic plants

EC50, Algae, 96 Hour, Growth rate inhibition, > 100 mg/l

#### Toxicity to bacteria

LC50, Bacteria, > 100 mg/l

## **Kaolin**

#### Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

#### Calcium carbonate

#### Acute toxicity to fish

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).

#### **Titanium dioxide**

#### 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). NOEC mortality, Leuciscus idus (Golden orfe), static test, 48 Hour, > 1,000 mg/l

### Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l

## **Balance**

## Acute toxicity to fish

No relevant data found.

## Persistence and degradability

#### Penoxsulam

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails

to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail **Biodegradation:** 14.7 % **Exposure time:** 28 d

Method: OECD Test Guideline 301B or Equivalent

Photodegradation Sensitizer: OH radicals

Atmospheric half-life: 2.1 Hour

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Method: Estimated.

Cellulose

Biodegradability: Biodegradation rate may increase in soil and/or water with acclimation.

Theoretical Oxygen Demand: 1.18 mg/mg

Kaolin

Biodegradability: Biodegradation is not applicable.

Calcium carbonate

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

**Balance** 

Biodegradability: No relevant data found.

Bioaccumulative potential

Penoxsulam

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -0.602 Measured

Cellulose

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular

weight (MW greater than 1000).

Kaolin

**Bioaccumulation:** Partitioning from water to n-octanol is not applicable.

**Calcium carbonate** 

**Bioaccumulation:** Partitioning from water to n-octanol is not applicable.

**Bioaccumulation:** Partitioning from water to n-octanol is not applicable.

**Balance** 

Bioaccumulation: No relevant data found.

Mobility in soil

Penoxsulam

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

Partition coefficient (Koc): 73 Measured

Cellulose

No data available.

Kaolin

No relevant data found.

**Calcium carbonate** 

No relevant data found.

#### Titanium dioxide

No data available.

#### **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):

**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S.(Penoxsulam)

UN number UN 3077 Class 9 Packing group III

Marine pollutant Penoxsulam

Transport in bulk Consult IMO regulations before transporting ocean bulk

according to Annex I or II of MARPOL 73/78 and the

**IBC or IGC Code** 

Classification for AIR transport (IATA/ICAO):

**Proper shipping name** Environmentally hazardous substance, solid,

n.o.s.(Penoxsulam)

UN number UN 3077

Class 9
Packing group III

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

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

# 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.

## 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
Titanium dioxide 13463-67-7

## California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

#### **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: 62719-501

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:

## 16. OTHER INFORMATION

Hazard Rating System NFPA

Health	Fire	Reactivity
1	0	0

#### Revision

Identification Number: 101197745 / A211 / Issue Date: 08/19/2016 / Version: 6.1

DAS Code: GF-947

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this

document.

Legend

- 3	
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article
	107)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air
	Contaminants
PEL	Permissible exposure limit
TWA	Time weighted average

#### 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.