

Safety Data Sheet

Issue Date: 04-May-2015

Revision Date: 02-May-2016

Version 2

1. IDENTIFICATION

Product Identifier

Product Name Take Off Sulfone

Other means of identification

SDS # FFN: 01120

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizer.

Details of the supplier of the safety data sheet

Supplier Address

Verdesian Life Sciences, U.S., LLC.
1001 Winstead Drive, Suite 480
Cary, NC 27513

Emergency Telephone Number

Company Phone Number Business Phone: (800) 868-6446
Fax Phone: (919) 535-3652

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Yellow crystalline

Physical State Solid

Odor Faint

Classification

Hazards Not Otherwise Classified (HNOC)

May be harmful if swallowed

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No | Weight-% |
|---------------------------------|-------------|----------|
| Ferrous Sulfate | 7782-63-0 | < 5 |
| Manganese Sulfate | 10034-96-5 | < 5 |
| Zinc Sulfate | 7733-02-0 | < 5 |
| Urea | 57-13-6 | >10 |
| Dimethyl Sulfone | 67-71-0 | >10 |
| Proprietary Potassium Compounds | Proprietary | >10 |
| Proprietary Ammonium Compounds | Proprietary | >10 |
| Organic Acid Salt | Proprietary | >1 |
| Other components* | Proprietary | <44 |

*None of the other components contribute significant, additional hazards at the concentrations present in this product.

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

First Aid Measures

| | |
|-----------------------|--|
| General Advice | Provide this SDS to medical personnel for treatment. |
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists: Get medical advice/attention. |
| Skin Contact | Wash off immediately with plenty of water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation persists, call a physician. |
| Inhalation | Remove exposed individual(s) to fresh air for 20 minutes. Consult a physician / poison center if individual's condition declines or if symptoms persist. |
| Ingestion | Do not induce vomiting. Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician immediately. |

Most important symptoms and effects

| | |
|-----------------|---|
| Symptoms | May cause eye, skin and respiratory tract irritation. Will cause gastrointestinal tract irritation. |
|-----------------|---|

Indication of any immediate medical attention and special treatment needed

| | |
|---------------------------|------------------------|
| Notes to Physician | Treat symptomatically. |
|---------------------------|------------------------|

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Product is not flammable.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

| | |
|----------------------------------|--|
| Personal Precautions | Wear protective clothing as described in Section 8 of this safety data sheet. Ventilate area of leak or spill. |
| Environmental Precautions | See Section 12 for additional Ecological Information. |

Methods and material for containment and cleaning up

| | |
|--------------------------------|--|
| Methods for Containment | Prevent further leakage or spillage if safe to do so. |
| Methods for Clean-Up | Avoid creating dust. Sweep up and shovel into suitable containers for disposal. Discard any product, residue, disposable container or liner in full compliance with federal, state, and local regulations. |

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash thoroughly after handling. Use personal protection recommended in Section 8. Avoid generation of dust. Do not breathe dust. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Materials Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---------------|---|--|--|
| Proprietary | TWA: 1 mg/m ³ Fe | (vacated) TWA: 1 mg/m ³ Fe | TWA: 1 mg/m ³ Fe |
| Proprietary | TWA: 10 mg/m ³ particulate matter containing no asbestos and <1% crystalline silica synthetic nonfibrous | TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction | TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust |

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear eye/face protection.

Skin and Body Protection Wear suitable protective clothing.

Respiratory Protection Ensure adequate ventilation, especially in confined areas.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|-------------------------------------|--------------------|-------------------------|----------------|
| Physical State | Solid | Odor | Faint |
| Appearance | Yellow crystalline | Odor Threshold | Not determined |
| Color | Yellow | | |
| Property | Values | Remarks • Method | |
| pH | 6.0 (10% solution) | | |
| Melting Point/Freezing Point | > 110 °C / 230 °F | | |
| Boiling Point/Boiling Range | Not determined | | |
| Flash Point | Not determined | | |
| Evaporation Rate | < 1.0 | (butyl acetate = 1) | |
| Flammability (Solid, Gas) | n/a-liquid | | |
| Upper Flammability Limits | Not determined | | |
| Lower Flammability Limit | Not determined | | |
| Vapor Pressure | Not determined | | |

| | |
|-------------------------------------|----------------|
| Vapor Density | Not determined |
| Specific Gravity | Not determined |
| Water Solubility | Not determined |
| Solubility in other solvents | Not determined |
| Partition Coefficient | Not determined |
| Auto-ignition Temperature | Not determined |
| Decomposition Temperature | Not determined |
| Kinematic Viscosity | Not determined |
| Dynamic Viscosity | Not determined |
| Explosive Properties | Not determined |
| Oxidizing Properties | Not determined |

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Avoid generation of dust.

Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

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|---------------------|--|
| Eye Contact | Direct contact with eyes may cause temporary irritation. |
| Skin Contact | May cause temporary irritation on skin contact. |
| Inhalation | Dusts of this product may cause irritation of the nose, throat, and respiratory tract. |
| Ingestion | May cause discomfort if swallowed. |

Component Information

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|----------------------|----------------------|-------------------------------------|
| Proprietary | > 5 g/kg (Rat) | > 5 g/kg (Rabbit) | - |
| Proprietary | >5,000 mg/kg Rat | - | - |
| Proprietary | = 6600 mg/kg (Rat) | - | - |
| Proprietary | = 8471 mg/kg (Rat) | - | - |
| Proprietary | > 5000 mg/kg (Rat) | > 5000 mg/kg (Rat) | > 2.05 g/m ³ (Rat) 4 h |
| Proprietary | > 1 g/kg (Rat) | - | - |

| | | | |
|-------------|----------------------|---|---|
| Proprietary | = 3400 mg/kg (Rat) | - | - |
|-------------|----------------------|---|---|

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Component Information

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|---------------|---|---|----------------------------|---|
| Proprietary | 2900: 72 h <i>Desmodesmus subspicatus</i> mg/L EC50 | 653: 96 h <i>Lepomis macrochirus</i> mg/L LC50 3550: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static 510 - 880: 96 h <i>Pimephales promelas</i> mg/L LC50 static | | 890: 48 h <i>Daphnia magna</i> mg/L EC50 |
| Proprietary | | 16200 - 18300: 96 h <i>Poecilia reticulata</i> mg/L LC50 | | 3910: 48 h <i>Daphnia magna</i> mg/L EC50 Static 10000: 24 h <i>Daphnia magna</i> Straus mg/L EC50 |

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

| Chemical Name | Partition Coefficient |
|---------------|-----------------------|
| Proprietary | -1.59 |

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

| | |
|-------------------------------|---|
| Disposal of Wastes | Disposal should be in accordance with applicable regional, national and local laws and regulations. |
| Contaminated Packaging | Disposal should be in accordance with applicable regional, national and local laws and regulations. |

14. TRANSPORT INFORMATION

| | |
|--------------------|--|
| <u>Note</u> | The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation. |
| <u>DOT</u> | Not regulated |
| <u>IATA</u> | Not regulated |
| <u>IMDG</u> | Not regulated |

15. REGULATORY INFORMATION

International Inventories

| Chemical Name | TSCA | DSL | NDSL | EINECS | ELINCS | ENCS | IECSC | KECL | PICCS | AICS |
|---------------|---------|-----|------|---------|--------|---------|-------|---------|-------|------|
| Proprietary | Present | X | | Present | | Present | X | | X | X |
| Proprietary | Present | | X | | | Present | | | | X |
| Proprietary | Present | X | | Present | | Present | X | Present | X | X |
| Proprietary | Present | X | | Present | | Present | X | Present | X | X |
| Proprietary | Present | X | | Present | | | X | Present | X | X |
| Proprietary | | | | | | | X | | | X |
| Proprietary | Present | X | | Present | | Present | X | Present | X | X |
| Proprietary | Present | X | | Present | | Present | X | Present | X | X |
| Proprietary | | X | | Present | | Present | X | | X | X |

Legend:

- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|---------------|------------|---------------|--------------|
| Proprietary | X | X | X |

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|------------------------------|
| 16. OTHER INFORMATION |
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| | | | | |
|--------------------|-----------------------|---------------------|-------------------------|----------------------------|
| <u>NFPA</u> | Health Hazards | Flammability | Instability | Special Hazards |
| | 1 | 0 | 0 | Not determined |
| <u>HMIS</u> | Health Hazards | Flammability | Physical Hazards | Personal Protection |
| | 1 | 0 | 0 | C |

Issue Date: 04-May-2015
Revision Date: 02-May-2016
Revision Note: Address Change

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet