Material Safety Data Sheet
TALSTAR® INSECTICIDE

SDS # : 6691
Revision Date: 2011-02-18
Version 1

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada’s Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name TALSTAR® INSECTICIDE

Active Ingredient(s) Bifenthrin

Synonyms FMC 54800; (2-methyl[1,1’-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate; IUPAC: 2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate.

Chemical Family Pyrethroid Pesticide

Recommended use Insecticide

Manufacturer FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103
General Information:
Phone: (215) 299-6000
E-Mail: msdsinfo@fmc.com

Emergency telephone number
For leak, fire, spill or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A.)
(703) 527-3887 (CHEMTREC - Collect - All Other Countries)
Medical Emergencies:
(800) 331-3148 (U.S.A. & Canada)
(651) 632-6793 (All Other Countries - Collect)

2. Hazards identification

Appearance Aerosolized liquid

Physical State No information available

Odor odorless

Physical hazards Non-flammable aerosol.

Potential health effects
Principle Routes of Exposure Skin contact, Eye contact, Inhalation.
Acute effects
Eyes May cause irritation.
Skin Non-irritating during normal use. Prolonged or repeated contact may dry skin and cause irritation.
Inhalation May cause irritation of respiratory tract.
Ingestion Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic effects
Aggravated Medical Conditions Asthma.
3. Composition/information on ingredients

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl ether</td>
<td>115-10-6</td>
<td>10-20</td>
</tr>
<tr>
<td>Petroleum distillates, hydrotreated</td>
<td>6474-47-8</td>
<td>1-5</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>82657-04-3</td>
<td>0.053</td>
</tr>
<tr>
<td>Prallethrin</td>
<td>23031-36-9</td>
<td>0.03</td>
</tr>
</tbody>
</table>

4. First aid measures

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

Inhalation                                       Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Ingestion                                        Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Notes to physician                               This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

5. Fire-fighting measures

Flammable properties                             Non-flammable aerosol.

Flash Point                                       Does not flash

Special hazards arising from the substance or mixture

Sensitivity to Mechanical Impact                 not applicable

Sensitivity to Static Discharge                  not applicable

Extinguishing media

Suitable extinguishing media                     Use CO2, dry chemical, or foam..

Hazardous combustion products                   Toxic fumes may be produced.

Specific hazards arising from the chemical       Closed containers may rupture violently under fire conditions.

Advice for fire-fighters

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

NFPA

Health Hazard 1
6. Accidental release measures

Personal precautions
Isolate and post spill area. Remove all sources of ignition. Ventilate the area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8. If ventilation is not possible wear full protection suit and chemical protective equipment.

Environmental precautions
Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.

Methods for cleaning up
Transfer damaged cartridges or cans to containers for later disposal. Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13. Rinsate may be disposed at a waste water treatment plant.

OTHER INFORMATION
For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. Handling and storage

Handling
Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

Storage
Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container only.

8. Exposure controls/personal protection

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl ether 115-10-6</td>
<td>TWA: 1000 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petroleum distillates, hydrotreated light 64742-47-8</td>
<td>TWA: 200 mg/m³ Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Occupational exposure controls

Engineering measures
Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal protective equipment

General Information
If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection
For dust, splash, mist or spray exposures wear a filtering mask.

Eye/face protection
For dust, splash, mist or spray exposure, wear chemical protective goggles or a face-shield.

Skin and body protection
Wear long-sleeved shirt, long pants, socks, shoes, and gloves.

Hand protection
Protective gloves
Hygiene measures
Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Aerosolized liquid</td>
</tr>
<tr>
<td>Color</td>
<td>clear</td>
</tr>
<tr>
<td>Physical State</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>pH</td>
<td>6.0-6.6</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Does not flash</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not applicable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flammable properties</td>
<td>Non-flammable aerosol.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>0.975 g/mL</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient:</td>
<td>not applicable</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat, flames and sparks</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>May emit toxic fumes under fire conditions.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
</tbody>
</table>

11. Toxicological information

Acute toxicity
Large doses of bifenthrin ingested by laboratory animals produced signs of toxicity including convulsions, tremors and bloody nasal discharge. Bifenthrin does not cause acute delayed neurotoxicity. Experience to date indicates that contact with bifenthrin may occasionally produce skin sensations such as rashes, numbing, burning or tingling. These sensations are reversible and usually subside within 12 hours.

<table>
<thead>
<tr>
<th>Contact</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>Mild Irritant</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Mild Irritant</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May cause irritation of respiratory tract.</td>
</tr>
</tbody>
</table>
Bifenthrin: Did not show carcinogenic effects in animal experiments.

Bifenthrin: Not genotoxic.

Bifenthrin: No toxicity to reproduction.

Tremors were associated with chronic exposure of laboratory animals to bifenthrin, which may disappear with continued exposure.

Bifenthrin: Not teratogenic in animal studies

Bifenthrin: A slight increase in male mouse urinary bladder tumors at the highest dose was probably not of toxicological concern.

12. Ecological information

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum distillates, hydrotreated light</td>
<td>LC50= 45 mg/L Pimephales promelas 96 h</td>
<td>LC50= 2.2 mg/L Lepomis macrochirus 96 h</td>
<td>LC50= 2.4 mg/L Oncorhynchus mykiss 96 h</td>
<td>LC50 = 4720 mg/L 96 h</td>
</tr>
</tbody>
</table>

Environmental Fate

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Type of Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bifenthrin</td>
<td>Bioconcentration factor (BCF)</td>
<td>1709</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>Half-life in soil</td>
<td>~85 days</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>log Pow</td>
<td>6.6</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>Mobility in soil</td>
<td>Not expected to reach groundwater</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>Stability in water</td>
<td>Stable to hydrolysis over a wide range of pH values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl ether</td>
<td>-0.18</td>
</tr>
</tbody>
</table>

Persistence and degradability

Inherently biodegradable.
13. Disposal considerations

Waste disposal methods

Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated packaging

Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. Transport information

Packaging Type

Non-Bulk

DOT

Proper shipping name

Consumer Commodity, ORM-D

TDG

Proper shipping name

Aerosols

Hazard Class

2

UN/ID No

UN1950

ICAO/IATA

UN/ID No

UN1950

Proper shipping name

Aerosols, non-flammable

Hazard Class

2

IMDG/IMO

Proper shipping name

Aerosols

UN/ID No

UN1950

15. Regulatory information

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard

No

Chronic Health Hazard

No

Fire Hazard

No

Sudden Release of Pressure Hazard

No

Reactive Hazard

No

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). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum distillates, hydrotreated light</td>
<td>Partially exempt chemical substance termed Petroleum Process Stream</td>
</tr>
</tbody>
</table>
International Regulations

Mexico - Grade

No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

not determined

16. Other information

Revision Date: 2011-02-18
Reason for revision: No information available

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Prepared By

FMC Corporation

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End of Material Safety Data Sheet