SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Trade name FORBID® 4F ORNAMENTAL INSECTICIDE/MITICIDE
Product code (UVP) 06478182
SDS Number 102000012417
EPA Registration No. 432-1279

Relevant identified uses of the substance or mixture and uses advised against
Use Insecticide, Miticide
Restrictions on use See product label for restrictions.

Information on manufacturer
Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.
All Emergencies, 24hr/ 7 days 1-800-334-7577

Product Information
Telephone No. 1-866-99BAYER (1-866-992-2937)

SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards
No particular hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiromesifen</td>
<td>283594-90-1</td>
<td>45.20</td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>10.00</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact Hold eye 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 eye. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water spray, Carbon dioxide (CO2), Dry chemical

Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters Wear self-contained breathing apparatus and protective suit.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point: Not combustible.
Autoignition temperature: no data available
Lower explosion limit: no data available
Upper explosion limit: no data available
Explosivity: not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Precautions: Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces. Ensure adequate ventilation.

Methods and materials for containment and cleaning up
Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice: Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.
Reference to other sections: Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling: Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.
Hygiene measures: Wash hands before breaks and immediately after handling the product. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.
Conditions for safe storage, including any incompatibilities:
Requirements for storage areas and containers
Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiromesifen</td>
<td>283594-90-1</td>
<td>0.92 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Glycerine (Total dust.)</td>
<td>56-81-5</td>
<td>15 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (PEL)</td>
<td>02 2006</td>
<td>OSHA Z1</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Glycerine (Total dust.)</td>
<td>56-81-5</td>
<td>10 mg/m³ (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Glycerine (Total dust and mist.)</td>
<td>56-81-5</td>
<td>10 mg/m³ (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Glycerine (Respirable fraction and dust or fume.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (TWA)</td>
<td>06 2008</td>
<td>TN OEL</td>
</tr>
<tr>
<td>Glycerine (Particulate.)</td>
<td>56-81-5</td>
<td>50 ug/m³ (ST ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine (Particulate.)</td>
<td>56-81-5</td>
<td>5 ug/m³ (AN ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine (Vapor.)</td>
<td>56-81-5</td>
<td>1000 ug/m³ (AN ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Glycerine (Vapor.)</td>
<td>56-81-5</td>
<td>1000 ug/m³ (ST ESL)</td>
<td>02 2013</td>
<td>TX ESL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection
When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection
Chemical resistant nitrile rubber gloves

Eye protection
Goggles
Skin and body protection
Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
white to light beige

Physical State
Liquid

Odor
musty earthy

Odour Threshold
no data available

pH
3.5 - 5.5 (100 %)

Vapor Pressure
no data available

Vapor Density (Air = 1)
no data available

Density
1.08 g/cm³ at 20 °C

Evaporation rate
no data available

Boiling Point
no data available

Melting / Freezing Point
no data available

Water solubility
miscible

Minimum Ignition Energy
not applicable

Decomposition temperature
not applicable

Partition coefficient: n-octanol/water
no data available

Viscosity
900 - 1,500 mPa.s

Flash point
Not combustible.

Autoignition temperature
no data available
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition not applicable

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid freezing

Incompatible materials no data available

Hazardous decomposition products No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Ingestion, Inhalation, Eye contact, Skin Absorption

Immediate Effects Eye May be minimally irritating following prolonged direct contact.

Skin Harmful if absorbed through skin. May cause slight irritation.

Ingestion Harmful if swallowed.

Inhalation Harmful if inhaled. Mists may cause respiratory tract irritation.

Information on toxicological effects
Acute oral toxicity LD50 (male/female combined rat) > 2,000 mg/kg
Acute inhalation toxicity
- LC50 (male/female combined rat) 1.8 mg/l
- Exposure time: 4 h
- Determined in the form of liquid aerosol.
- No deaths

LC50 (male/female combined rat) > 7.2 mg/l
- Exposure time: 1 h
- Determined in the form of liquid aerosol.
- Extrapolated from the 4 hr LC50.

Acute dermal toxicity
- LD50 (male/female combined rat) > 2,000 mg/kg

Skin irritation
- Slight irritation (rabbit)

Eye irritation
- Minimally irritating. (rabbit)

Sensitisation
- Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity
- Spiromesifen did not cause specific target organ toxicity in experimental animal studies.

Assessment Mutagenicity
- Spiromesifen was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity
- Spiromesifen was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH
- None.

NTP
- None.

IARC
- None.

OSHA
- None.

Assessment toxicity to reproduction
- Spiromesifen caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Spiromesifen is related to parental toxicity.

Assessment developmental toxicity
- Spiromesifen caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Spiromesifen are related to maternal toxicity.

Further information
- Only acute toxicity studies have been performed on the formulated product.
SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
LC50 (Rainbow trout (Oncorhynchus mykiss)) 0.0155 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient spiromesifen.

Toxicity to aquatic invertebrates
EC50 (Water flea (Daphnia magna)) > 0.0923 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient spiromesifen.

Toxicity to aquatic plants
IC50 (Pseudokirchneriella subcapitata) > 0.094 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient spiromesifen.

Biodegradability
Spiromesifen: not rapidly biodegradable

Koc
Spiromesifen: Koc:30900

Bioaccumulation
Spiromesifen: Bioconcentration factor (BCF) 545
Does not bioaccumulate.

Mobility in soil
Spiromesifen: Immobile in soil

Environmental precautions
Apply this product as specified on the label.
Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.
Do not allow to get into surface water, drains and ground water.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Do not apply when weather conditions favor runoff or drift.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law.
If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Contaminated packaging
Do not re-use empty containers.
Triple rinse containers.
Empty residue into application equipment.
Puncture container to avoid re-use.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

**RCRA Information**
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

### SECTION 14: TRANSPORT INFORMATION

**49CFR**
Not dangerous goods / not hazardous material

**IMDG**
- UN number: 3082
- Class: 9
- Packaging group: III
- Marine pollutant: YES
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SPIROMESIFEN SOLUTION)

**IATA**
- UN number: 3082
- Class: 9
- Packaging group: III
- Environm. Hazardous Mark: YES
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SPIROMESIFEN SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

### SECTION 15: REGULATORY INFORMATION

- **EPA Registration No.** 432-1279
- **US Federal Regulations**
  - TSCA list
    - Glycerine 56-81-5
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
Glycerine 56-81-5 MN

Canadian Regulations
Canadian Domestic Substance List
Glycerine 56-81-5

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

International Regulations
European Inventory of Existing Commercial Substances (EINECS)
Glycerine 56-81-5

EPA/FIFRA Information:
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 required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes and clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.

SECTION 16: OTHER INFORMATION
NFPA 704 (National Fire Protection Association):

- Health: 2
- Flammability: 0
- Instability: 0
- Others: none


- Health: 2
- Flammability: 0
- Physical Hazard: 0
- PPE: 0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

Revision Date: 02/07/2014

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.