Safety Data Sheet
CURALAN FUNGICIDE

1. Product and Company Identification

Company
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Substance number: 000000246686

2. Hazards Identification

Emergency overview

CAUTION:
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
HARMFUL IF ABSORBED THROUGH SKIN.
Causes eye irritation.
MAY CAUSE ALLERGIC SKIN REACTION.
Do not get in eyes, on skin, or on clothing.

See Product Label for additional precautionary statements.

State of matter: solid
Colour: dark brown
Odour: faint specific odour

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
Relatively nontoxic after single ingestion. Relatively nontoxic after short-term inhalation. Slightly toxic after short-term skin contact.

Irritation / corrosion:
May cause moderate but temporary irritation to the eyes.

Sensitization:
Caused skin sensitization in animal studies.
3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Content (W/W)</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>50471-44-8</td>
<td>52.08 %</td>
<td>vinclozolin</td>
</tr>
<tr>
<td>1332-58-7</td>
<td>&lt;= 35.0 %</td>
<td>Kaolin</td>
</tr>
<tr>
<td>13463-67-7</td>
<td>&lt;= 1.0 %</td>
<td>Titanium dioxide</td>
</tr>
<tr>
<td>14808-60-7</td>
<td>&lt;= 1.0 %</td>
<td>crystalline silica</td>
</tr>
<tr>
<td>&gt;= 10.0 %</td>
<td></td>
<td>Proprietary ingredients</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

General advice:
First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:
Remove the affected individual into fresh air and keep the person calm.

If on skin:
Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:
Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

Note to physician
Antidote: No known specific antidote.
Treatment: Treat symptomatically.

5. Fire-Fighting Measures

Flash point: not applicable
Lower explosion limit: not determined
Upper explosion limit: not determined
Flammability: not highly flammable (Directive 92/69/EEC, A.10)

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Hazards during fire-fighting:
carbon monoxide, carbon dioxide,
The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.
6. Accidental release measures

**Personal precautions:**
Avoid dust formation. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

**Environmental precautions:**
Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

**Cleanup:**
Avoid raising dust. Sweep/shovel up. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

**Handling**
Protection against fire and explosion:
Avoid dust formation. Dust can form an explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

**Storage**
General advice:
Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination.

**Storage incompatibility:**
General advice: Segregate from foods and animal feeds.

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

**Components with occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA</th>
<th>TWA value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>crystalline silica</td>
<td>OSHA</td>
<td>2.4 millions of particles per cubic foot of air Respirable</td>
<td>The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.1 mg/m³ Respirable</td>
<td>The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3 mg/m³ Total dust</td>
<td>The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>OSHA</td>
<td>0.025 mg/m³ Respirable fraction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA value 15 mg/m³ Total dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA value 10 mg/m³ Total dust</td>
<td></td>
</tr>
</tbody>
</table>
Advice on system design:
Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles).

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>granules</td>
</tr>
<tr>
<td>Odour</td>
<td>faint specific odour</td>
</tr>
<tr>
<td>Colour</td>
<td>dark brown</td>
</tr>
<tr>
<td>pH value</td>
<td>approx. 5.5</td>
</tr>
<tr>
<td>Melting point</td>
<td>&gt; 100 °C</td>
</tr>
<tr>
<td>Density</td>
<td>not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.416</td>
</tr>
<tr>
<td>Bulk density</td>
<td>approx. 41 Lb/ft³</td>
</tr>
<tr>
<td>Partitioning coefficient n-octanol/water (log Pow):</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>not applicable</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>dispersible</td>
</tr>
</tbody>
</table>
10. Stability and Reactivity

Minimum ignition energy:
> 1.3 J

Conditions to avoid:
Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage. This product may form an explosive mixture if: 1. the dust is suspended in the atmosphere as a dust cloud AND 2. the concentration of the dust is above the lower explosion limit (LEL) AND 3. the limiting oxygen concentration (LOC) is exceeded.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

Hazardous reactions:
The product is chemically stable. Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
Possible thermal decomposition products: carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. To avoid thermal decomposition, do not overheat.

Oxidizing properties:
not fire-propagating

11. Toxicological information

Acute toxicity

Oral:
Type of value: LD50
Species: rat
Value: > 5,000 mg/kg

Inhalation:
Type of value: LC50
Species: rat
Value: > 5.3 mg/l
Exposure time: 4 h

Dermal:
Type of value: LD50
Species: rat
Value: > 2,000 mg/kg

Irritation / corrosion

Skin:
Species: rabbit
Result: non-irritant

Eye:
Species: rabbit
Result: non-irritant

**Sensitization:**
Guinea pig maximization test
Species: guinea pig
Result: Caused skin sensitization in animal studies.

**Repeated dose toxicity**

*Information on: vinclozolin*
Assessment of repeated dose toxicity:
Repeated oral exposure may affect certain organs.

*Information on: crystalline silica*
Assessment of repeated dose toxicity:
Repeated inhalation exposure may affect certain organs. The substance may cause increase in lung mass and lung tissue changes after repeated inhalation.
This product may contain greater than 0.1% crystalline silica. Repeated exposure to high concentrations results in silicosis, a lung disease characterized by coughing, difficult breathing, wheezing, scarring of the lungs, and repeated, non-specific chest illnesses.

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**Genetic toxicity**

*Information on: vinclozolin*
Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

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**Carcinogenicity**

*Information on: vinclozolin*
Indication of possible carcinogenic effect in animal tests.

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**Reproductive toxicity**

*Information on: vinclozolin*
Causes impairment of fertility in laboratory animals.

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**Development:**

*Information on: vinclozolin*
The substance caused malformations/developmental toxicity in laboratory animals.

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**12. Ecological Information**

**Fish**

*Information on: vinclozolin*
Acute:
Oncorhynchus mykiss/LC50 (96 h): > 0.5 mg/l

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**Aquatic invertebrates**

*Information on: vinclozolin*
Acute:
Daphnia magna/EC50 (48 h): 4 mg/l
Aquatic plants

Information on: vinclozolin
Toxicity to aquatic plants:
green algae/EC50 (72 h): > 1.02 mg/l

Degradability / Persistence
Biological / Abiological Degradation

Information on: vinclozolin
Evaluation: Not readily biodegradable (by OECD criteria).

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA:
The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different waste-code assignments. This product is not regulated by RCRA.

14. Transport Information

Land transport
USDOT
Not classified as a dangerous good under transport regulations

Sea transport
IMDG
Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO
Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations
Registration status:
- Chemical: TSCA, US blocked / not listed
- Crop Protection: TSCA, US released / exempt

OSHA hazard category: IARC 1, 2A or 2B carcinogen; NTP listed carcinogen; Chronic target organ effects reported; ACGIH TLV established

EPCRA 311/312 (Hazard categories): Acute; Chronic

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State regulations:

<table>
<thead>
<tr>
<th>State RTK</th>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA, PA</td>
<td>1332-58-7</td>
<td>Kaolin</td>
</tr>
<tr>
<td>MA, NJ, PA</td>
<td>13463-67-7</td>
<td>Titanium dioxide</td>
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CA Prop. 65:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other Information

Refer to product label for EPA registration number.

Unsuitable for use: fungicide;

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

SDS Prepared by:
BASF NA Product Regulations
msds@basf.com
SDS Prepared on: 2013/02/20

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