

Safety Data Sheet

CURALAN EG FUNGICIDE

Revision date : 2012/03/15

Version: 1.2

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(30254536/SDS_CPA_US/EN)

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: | 000000135972 |
| Molecular formula: | C ₁₂ H ₉ NO ₃ Cl ₂ |
| Chemical family: | oxazolidinedione |
| Synonyms: | vinclozolin |

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.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.
Do not get in eyes, on skin, or on clothing.
Avoid inhalation of dusts/mists/vapours.

See Product Label for additional precautionary statements.

State of matter: solid
Colour: tan
Odour: faint 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. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

Irritation / corrosion:

May cause slight irritation to the skin. May cause moderate but temporary irritation to the eyes.

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Sensitization:

Caused skin sensitization in animal studies.

Medical conditions aggravated by overexposure:

Individuals with pre-existing diseases of the respiratory system, skin or eyes may have increased susceptibility to excessive exposures.

Potential environmental effects

Aquatic toxicity:

Acutely toxic for aquatic organisms.

Terrestrial toxicity:

With high probability not acutely harmful to terrestrial organisms.

3. Composition / Information on Ingredients

| <u>CAS Number</u> | <u>Content (W/W)</u> | <u>Chemical name</u> |
|-------------------|----------------------|-------------------------|
| 50471-44-8 | <= 50.0 % | vinclozolin |
| | <= 50.0 % | Proprietary ingredients |
| 14808-60-7 | >= 0.1 % | crystalline silica |
| 13463-67-7 | <= 1.0 % | Titanium dioxide |

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 |
| Autoignition: | 520 °C | |
| Lower explosion limit: | | not determined |
| Upper explosion limit: | | not determined |
| Flammability: | not self-igniting | |

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Suitable extinguishing media:

foam, dry powder, carbon dioxide, water spray

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons,
If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

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:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. 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**General advice:**

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

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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. The authority permits and storage regulations must be observed.

Storage incompatibility:

General advice: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Temperature tolerance

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls and Personal Protection

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

Components with workplace control parameters

| | | |
|--------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| crystalline silica | OSHA | TWA value 2.4 millions of particles per cubic foot of air Respirable ; 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. TWA value 0.1 mg/m3 Respirable ; 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. TWA value 0.3 mg/m3 Total dust ; 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. |
| Titanium dioxide | ACGIH OSHA ACGIH | TWA value 0.025 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 10 mg/m3 ; |

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) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. 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). Wear face shield if splashing hazard exists.

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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

| | | |
|-----------------------------------------------------|---------------------------------|------------------------------------------------------------------------------|
| Form: | granules | |
| Odour: | faint odour | |
| Colour: | tan | |
| pH value: | 6.0 - 8.0 | (10 g/l) |
| Melting point: | | not applicable, The substance / product decomposes therefore not determined. |
| Boiling point: | | The product is a non-volatile solid., not applicable |
| Vapour pressure: | 0.127 mPa | (20 °C) |
| Density: | | not applicable |
| Bulk density: | 576.7 - 704.8 kg/m ³ | |
| Vapour density: | | not determined |
| Partitioning coefficient n-octanol/water (log Pow): | | not applicable |
| Viscosity, dynamic: | | not applicable |
| Viscosity, kinematic: | | not applicable |
| Solubility in water: | | dispersible |
| Molar mass: | 286.11 g/mol | |

10. Stability and Reactivity

Dust explosion class:

Dust explosion class 1 (Kst-value >0 up to 200 bar m s⁻¹) (St 1)

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures. 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:

No substances known that should be avoided.

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., Prolonged thermal loading can result in products of degradation being given off.

Thermal decomposition:

Possible thermal decomposition products:

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carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, halogenated hydrocarbons, Hydrogen chloride, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.

Corrosion to metals:

Corrosive effects to metal are not anticipated.

Oxidizing properties:

not fire-propagating

Not an oxidizer.

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: sensitizing

Repeated dose toxicity

Information on: crystalline silica

Assessment of repeated dose toxicity:

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.

Genetic toxicity

Information on: vinclozolin (active ingredient)

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 (active ingredient)

When given in high doses, the substance was carcinogenic in animal studies. Based on its mechanism of action, a carcinogenic potential is not expected after exposure to low doses. The induction of tumors in animal studies was due to a reversible, nongenotoxic effect for which a threshold dose can be derived.

Reproductive toxicity

Information on: vinclozolin (active ingredient)

Causes impairment of fertility in laboratory animals. After the uptake of low doses an impairment of fertility will not be expected in humans.

Development:

Information on: vinclozolin (active ingredient)

The substance caused malformations/developmental toxicity in laboratory animals. After the uptake of small doses toxicity to development will not be expected in humans.

12. Ecological Information

Fish

Acute:

Oncorhynchus mykiss/LC50 (96 h): > 0.5 mg/l

Aquatic invertebrates

Acute:

Daphnia magna/EC50 (48 h): 4 mg/l

Aquatic plants

Toxicity to aquatic plants:

green algae/EC50 (72 h): > 1.02 mg/l

Non-Mammals

Information on: vinclozolin (active ingredient)

Other terrestrial non-mammals:

bobwhite quail/LC50: > 5,620 mg/kg = feed

mallard duck/LC50: > 5,620 mg/kg = feed

Honey bee/LD50: > 100 ug/bee

Bioaccumulation

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

Other adverse effects:

The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:

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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:

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

Hazard class: 9
Packing group: III
ID number: UN 3077
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(contains VINCLOZOLIN)

Air transport

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3077
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(contains VINCLOZOLIN)

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): Chronic;

EPCRA 313:

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| <u>CAS Number</u> | <u>Chemical name</u> |
|-------------------|----------------------|
| 50471-44-8 | vinclozolin |

State regulations

| <u>State RTK</u> | <u>CAS Number</u> | <u>Chemical name</u> |
|------------------|-------------------|----------------------|
| MA, NJ, PA | 14808-60-7 | crystalline silica |
| MA, NJ, PA | 13463-67-7 | Titanium dioxide |

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.

Recommended 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.

MSDS Prepared by:

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MSDS Prepared on: 2012/03/15

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