

## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione

### 1.2 Other means of identification

**Product number**

-

**Other names**

rac-(5R)-3-(3,5-dichlorophenyl)-5-ethenyl-5-methyl-1,3-oxazolidine-2,4-dione; Caswell No. 323C; Vinclozoline

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses**

Industrial and scientific research uses.

**Uses advised against**

no data available

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Skin sensitization, Category 1

Carcinogenicity, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

Reproductive toxicity, Category 1B

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



**Signal word**

Danger

**Hazard statement(s)**

H317 May cause an allergic skin reaction

H351 Suspected of causing cancer

H411 Toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

**Prevention**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P203 Obtain, read and follow all safety instructions before use.

P273 Avoid release to the environment.

**Response**

P302+P352 IF ON SKIN: Wash with plenty of water/...

P333+P317 If skin irritation or rash occurs: Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P318 IF exposed or concerned, get medical advice.

P391 Collect spillage.

**Storage**

P405 Store locked up.

**Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 2.3 Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione	N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione	50471-44-8	256-599-6	100%

## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

**If inhaled**

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

**Following skin contact**

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### **Following eye contact**

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### **Following ingestion**

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### **4.2 Most important symptoms/effects, acute and delayed**

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

### **4.3 Indication of immediate medical attention and special treatment needed, if necessary**

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

---

## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: SMALL FIRE: Dry chemical, CO<sub>2</sub>, water spray or regular foam. LARGE FIRE: Water spray, fog or regular foam. Do not scatter spilled material with high-pressure water streams. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal. FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

### **5.2 Specific hazards arising from the chemical**

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

### **5.3 Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

---

## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental precautions**

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### **6.3 Methods and materials for containment and cleaning up**

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a POTW is acceptable only after review by the governing authority. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must meet Hazardous Material Criteria for disposal.

---

## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### **7.2 Conditions for safe storage, including any incompatibilities**

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

---

## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

Occupational Exposure limit values

no data available

#### Biological limit values

no data available

## 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

---

## SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Vinclozolin is a colorless crystals with slight aromatic odor. Used as a fungicide.
Colour	Colorless crystals.
Odour	Slight aromatic odor
Melting point/freezing point	108Â°C
Boiling point or initial boiling point and boiling range	369.9Â°C at 760 mmHg
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	>30Â°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In methanol 1.54, acetone 33.4, ethyl acetate 23.3, n-heptane 0.45, toluene 10.9, dichloromethane 47.5 (all in g/100 mL at 20 deg C).
Partition coefficient n-octanol/water	log Kow = 3.10
Vapour pressure	1.2X10 <sup>-7</sup> mm Hg at 20 deg C
Density and/or relative density	1.496 g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Hydrolysis rapidly occurs under alkaline conditions

### 10.2 Chemical stability

Stable up to 50 degrees C. Stable in neutral and weakly acidic media.

### 10.3 Possibility of hazardous reactions

A halogenated dicarboximide. Organic amides/imides react with azo and diazo compounds to generate toxic gases. Flammable gases are formed by the reaction of organic amides/imides with strong reducing agents. Amides are very weak bases (weaker than water). Imides are less basic yet and in fact react with strong bases to form salts. That is, they can react as acids. Mixing amides with dehydrating agents such as P<sub>2</sub>O<sub>5</sub> or SOCl<sub>2</sub> generates the corresponding nitrile. The combustion of these compounds generates mixed oxides of nitrogen (NO<sub>x</sub>).

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

---

## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat oral 10,000 mg/kg
- Inhalation: LC50 Rat inhalation > 29,100 mg/cu m over 4hr
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

Cancer Classification: Group C Possible Human Carcinogen

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

### STOT-repeated exposure

no data available

### Aspiration hazard

no data available

---

## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: 47500 ug/L for 96 hr (95% confidence interval: 37100-60300 ug/L) /96.5% purity
- Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water flea, age 20 hr); Conditions: freshwater, static; Concentration: 3650 ug/L for 48 hr; Effect: intoxication, immobilization /96.5% purity
- Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (Green algae, age 7 days); Conditions: freshwater, static; Concentration: 1020 ug/L for 5 days; Effect: population abundance /98% purity
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

Vinclozolin is persistent in soil, being only partly degraded by soil microorganisms(1). When vinclozolin was applied to a previously untreated sandy loam soil (17.7% clay, 67.5% sand, 14.8% silt, pH 6.5, 1.05% organic C), less than 10% of the applied dose remained after 40 days(2). Following re-treatment at 50 days, less than 10% remained 23 days later, and when treated for the third time, less than 10% remained after just 2 days(2). In a clay loam soil (19.1% clay, 68.9% sand, 12.0% silt, pH 6.3, 0.68% organic C), times for 50% loss of the first, second, and third applications of vinclozolin were about 7, 4, and 2.5 days, respectively(2). In a third soil (8.6% clay, 75.7% sand, 15.7% silt, pH 5.0, 1.13% organic carbon), 47% of the initial dose remained after 140 days(2). When treated for the first time after pre-incubation with the fungicide, about 60% of the vinclozolin was recovered after 69 days(2). During an 80 day incubation period, only limited degradation of vinclozolin was observed in soils at pH 4.3 and 5.0(3). In soil with pH 5.7, the time for 50% loss of vinclozolin was about 75 days; times for 50% degradation following the first, second, and third application of vinclozolin were 70, 30, and 6 days, respectively(3). In soil with pH 6.5, the times for 50% degradation following the first, second, and third applications were 30, 22, and 7 days, respectively(3). After 14 days incubation in soil with no pretreatment, and soil pretreated with iprodione, vinclozolin, myclozolin, and procymidone, the concentration of vinclozolin was 5.45, 5.50, 0.05, 5.39, and 5.45 mg/kg, respectively; after 28 days the concentration of vinclozolin was 2.44, 2.44, 1.89, 0, 2.37, and 2.31 mg/kg, respectively(4). In Patumahoe clay loam, the time for 50% loss of vinclozolin following the first, second, and third soil application of the fungicide was 22, 3.5, and 1 days, respectively(5). For five different types of field soil (clay loam, silt loam, loam, sandy loam and sandy clay loam) ranging in pH from 7.98 to 8.35, 90% degradation was reached after one, two and three applications of vinclozolin in approximately 35, 21 and 7 days, respectively(6).

### 12.3 Bioaccumulative potential

One study predicted worst-case BCF values in fish for vinclozolin of 60 and 1,260(1), respectively, on a wet weight basis with 5% lipid, and on a lipid basis predicted from the log Kow of 3.10(2) if no metabolism occurs or is negligible(1). Another study calculated a BCF range of 78 to 112(3). An estimated BCF of 52 was calculated in fish for vinclozolin(SRC), using a log Kow of 3.10(2) and a regression-derived equation(4). According to a classification scheme(5), these BCF data suggest the potential for bioconcentration in aquatic organisms is moderate to very high(SRC), provided the compound is not metabolized by the organism(SRC).

## 12.4 Mobility in soil

In laboratory tests, vinclozolin migrated through Ottawa sand more deeply compared to aquatic hapludult soil, where all vinclozolin mass was retained in the upper 5 cm under high (6.7 mm) and low (3.1 mm) rain events(1). One review suggested Koc values range from 100 to 735(2). A Koc value of 1,570 was determined in a Chalmers silty clay loam(3). According to a classification scheme(4), these disparate Koc values suggest that vinclozolin is expected to range from low to high mobility in soil.

## 12.5 Other adverse effects

no data available

---

## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

---

## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.) IATA: Not dangerous goods. (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.) IATA: Not dangerous goods. (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.) IATA: Not dangerous goods. (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.) IATA: Not dangerous goods. (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

---

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione	N-3,5-dichlorophenyl-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione	50471-44-8	256-599-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

---

## SECTION 16: Other information

Information on revision

**Creation Date** July 15, 2019

**Revision Date** July 15, 2019

### **Abbreviations and acronyms**

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### **References**

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>