



# SAFETY DATA SHEET

Creation Date 29-Apr-2010

Revision Date 23-Mar-2012

Revision Number 3

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product Identifier**

**Product Description:** cis-1,4-Dichloro-2-butene  
**Cat No.** 430740000; 430741000

**Relevant identified uses of the substance or mixture and uses advised against**

**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**

**Company**

Acros Organics BVBA  
Janssen Pharmaceuticaaan 3a  
2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

**Emergency Telephone Number**

For information in the US, call: 001-800-ACROS-01

For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99

Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300

CHEMTREC Phone Number, Europe: 001-703-527-3887

## SECTION 2. HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

**REGULATION (EC) No 1272/2008**

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 1
Skin Corrosion/irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Carcinogenicity	Category 1A
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1
Flammable liquids.	Category 3

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

**Symbol(s)** T+ - Very toxic  
**R-phrases(s)** R45 - May cause cancer  
R10 - Flammable  
R26 - Very toxic by inhalation  
R34 - Causes burns

**cis-1,4-Dichloro-2-butene**

**Revision Date** 23-Mar-2012

## SECTION 2. HAZARDS IDENTIFICATION

### Risk Combination Phrases

R24/25 - Toxic in contact with skin and if swallowed  
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

### Label Elements



### Signal Word

**Danger**

### Hazard Statements

H311 - Toxic in contact with skin  
H350 - May cause cancer  
H301 - Toxic if swallowed  
H330 - Fatal if inhaled  
H410 - Very toxic to aquatic life with long lasting effects  
H314 - Causes severe skin burns and eye damage  
H226 - Flammable liquid and vapor

**cis-1,4-Dichloro-2-butene**

Revision Date 23-Mar-2012

## SECTION 2. HAZARDS IDENTIFICATION

### Precautionary Statements - EU (§28, 1272/2008)

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician  
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection  
P312 - Call a POISON CENTER or doctor/ physician if you feel unwell  
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P280 - Wear eye protection/ face protection  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/ physician  
P201 - Obtain special instructions before use  
P308 + P313 - IF exposed or concerned: Get medical advice/ attention  
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing  
P273 - Avoid release to the environment  
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

### Other Hazards

No information available.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
2-Butene, 1,4-dichloro-, (Z)- 1476-11-5	EEC No. 216-021-5	>95	1476-11-5	Carc. Cat. 1; R45 T; R24/25 T+; R26 C; R34 N; R50/53 R10;	Flam. Liq. 3 (H226) Carc. 1A (H350) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 2 (H330) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-

**For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16**



# SAFETY DATA SHEET

cis-1,4-Dichloro-2-butene

Revision Date 23-Mar-2012

## SECTION 4. FIRST AID MEASURES

### Description of first aid measures

#### **Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

#### **Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

#### **Ingestion**

Do not induce vomiting. Call a physician or Poison Control Center immediately.

#### **Inhalation**

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

#### **Notes to Physician**

Treat symptomatically

## SECTION 5. FIRE-FIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

#### **Special hazards arising from the substance or mixture**

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

### Environmental precautions

Should not be released into the environment.

### Methods and material for containment and cleaning up



# SAFETY DATA SHEET

**cis-1,4-Dichloro-2-butene**

**Revision Date** 23-Mar-2012

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Do not breathe vapors/dust. Do not ingest. Take precautionary measures against static discharges.

### Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition. Keep away from direct sunlight. Keep refrigerated.

### Specific End Uses

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### **Derived No Effect Level (DNEL)**

No information available.

#### **Predicted No Effect Concentration (PNEC)**

No information available.

### Exposure controls

#### **Engineering Measures**

Use only under a chemical fume hood Ensure that eyewash stations and safety showers are close to the workstation location Use explosion-proof electrical/ventilating/lighting/equipment

#### **Personal protective equipment**

##### **Eye Protection**

Safety glasses with side-shields

##### **Hand Protection**

Protective gloves

##### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure

##### **Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice

#### **Environmental exposure controls**

No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### **Physical State**

Liquid



# SAFETY DATA SHEET

cis-1,4-Dichloro-2-butene

Revision Date 23-Mar-2012

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow
odor	pungent
pH	No information available.
Vapor Density	4.32
Boiling Point/Range	152°C / 305.6°F@ 758 mmHg
Melting Point/Range	-48°C / -54.4°F
Flash Point	55°C / 131°F
Autoignition Temperature	No information available.
Specific Gravity	1.180
Molecular Formula	C4 H6 Cl2
Molecular Weight	125

## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

### Chemical Stability

Light sensitive. Moisture sensitive.

### Possibility of Hazardous Reactions

<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions .</b>	None under normal processing..

### Conditions to Avoid

Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition, Exposure to moist air or water, Exposure to light.

### Incompatible Materials

Strong oxidizing agents.

### Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

### Acute Toxicity

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Butene, 1,4-dichloro-, (Z)-	89 mg/kg (rat)	521 mg/kg (rabbit)	



# SAFETY DATA SHEET

**cis-1,4-Dichloro-2-butene**

**Revision Date** 23-Mar-2012

## Chronic Toxicity

### **Carcinogenicity**

The European Union classifies this product as a carcinogen

### **Sensitization**

No information available.

### **Mutagenic Effects**

No information available

### **Reproductive Effects**

No information available.

### **Developmental Effects**

No information available.

### **Target Organs**

Eyes Skin Respiratory system

### **Other Adverse Effects**

The toxicological properties have not been fully investigated.

### **Endocrine Disruptor Information**

None known

## SECTION 12. ECOLOGICAL INFORMATION

### Toxicity

#### **Ecotoxicity effects**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

#### Persistence and degradability

No information available

#### Bioaccumulative potential

No information available.

#### Mobility in soil

No information available.

#### Results of PBT and vPvB assessment

#### Other adverse effects

No information available

## SECTION 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Waste from Residues / Unused Products**

Dispose of in accordance with local regulations

#### **Contaminated Packaging**

Empty containers should be taken to local recyclers for disposal



# SAFETY DATA SHEET

cis-1,4-Dichloro-2-butene

Revision Date 23-Mar-2012

## SECTION 14. TRANSPORT INFORMATION

### IMDG/IMO

UN-No UN3390  
Hazard Class 6.1  
Subsidiary Hazard Class 8  
Packing Group I  
Proper Shipping Name Toxic by Inhalation Liquid, Corrosive, n.o.s.

### ADR

UN-No UN3390  
Hazard Class 6.1  
Subsidiary Hazard Class 8  
Packing Group I  
Proper Shipping Name Toxic by inhalation liquid, corrosive, n.o.s.

### IATA

UN-No UN3390  
Hazard Class 6.1  
Subsidiary Hazard Class 8  
Proper Shipping Name Toxic by inhalation liquid, corrosive, n.o.s. , FORBIDDEN FOR IATA TRANSPORT

## SECTION 15. REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
2-Butene, 1,4-dichloro-, (Z)-	216-021-5	-		X	-	X	-	X	-	X	-

#### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**CHINA** - China Inventory of Existing Chemical Substances

**AICS** - Inventory of Chemical Substances

**KECL** - Existing and Evaluated Chemical Substances





# SAFETY DATA SHEET

cis-1,4-Dichloro-2-butene

Revision Date 23-Mar-2012

## Chemical Safety Assessment

### SECTION 16. OTHER INFORMATION

#### Full text of R-phrases referred to under sections 2 and 3

R45 - May cause cancer

R10 - Flammable

R26 - Very toxic by inhalation

R34 - Causes burns

R24/25 - Toxic in contact with skin and if swallowed

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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Revision Summary

Reason for revision

(M)SDS sections updated, 14.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet