



# MATERIAL SAFETY DATA SHEET

according to the Global Harmonized System

Date of issue: 03/16/2013

Version 1.0

## SECTION 1. Identification

### Product identifier

Product number	820365
Product name	Cyclohexane-1,2-dicarboxylic anhydride (mixture of isomeres) for synthesis

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

Identified uses	Chemical for synthesis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   SDS Phone Support: +1-978-715-1335   General Inquiries: +1-978-751-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)  e-mail: mm_sds@merckgroup.com
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Emergency telephone	613-996-6666 CANUTEC (Canada) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Serious eye damage, Category 1, H318  
Respiratory sensitization, Category 1, H334  
Skin sensitization, Category 1, H317

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

*Hazard Statements*  
H317 May cause an allergic skin reaction.

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H318 Causes serious eye damage.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

*Precautionary Statements*

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Other hazards**

None known.

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**SECTION 3. Composition/information on ingredients**

Formula	C <sub>8</sub> H <sub>10</sub> O <sub>3</sub> (Hill)
CAS-No.	13149-00-3
Molar mass	154.16 g/mol

**Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*cis-Cyclohexane-1,2-dicarboxylic anhydride (>= 90 % - <= 100 % )*  
13149-00-3

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**SECTION 4. First aid measures**

**Description of first-aid measures**

*Inhalation*

After inhalation: fresh air.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

*Ingestion*

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

Allergic reactions

**Indication of any immediate medical attention and special treatment needed**

No information available.

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**SECTION 5. Fire-fighting measures**

**Extinguishing media**

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*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

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

Combustible material, Vapors are heavier than air and may spread along floors.  
Development of hazardous combustion gases or vapors possible in the event of fire.

**Advice for firefighters**

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Avoid generation of dusts; do not inhale dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**Environmental precautions**

Do not empty into drains.

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

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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**SECTION 7. Handling and storage**

**Precautions for safe handling**

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

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

Tightly closed. Dry.

Store at +15°C to +25°C (+59°F to +77°F).

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

*Ingredients*

Basis	Value	Threshold limits	Remarks
<i>cis-Cyclohexane-1,2-dicarboxylic anhydride 13149-00-3</i>			
CAD AB OEL	Ceiling Limit Value:	0.005 mg/m <sup>3</sup>	
CAD BC OEL	Ceiling Limit Value:	0.005 mg/m <sup>3</sup>	Form of exposure: Vapor and aerosol, inhalable.
CAD MB OEL	Ceiling Limit Value:	0.005 mg/m <sup>3</sup>	Form of exposure: Inhalable fraction and vapor.
CAD ON OEL	Ceiling Limit Value (CEV):	0.005 mg/m <sup>3</sup>	Form of exposure: Inhalable fraction and vapor.

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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**SECTION 9. Physical and chemical properties**

Physical state	powder, finocrystalline
Color	white
Odor	aromatic
Odor Threshold	No information available.

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pH	No information available.
Melting point	30 - 33 °C
Boiling point/boiling range	565 °F (296 °C) at 1,013 hPa
Flash point	306 °F (152 °C) Method: open cup
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	0.01 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	1.23 g/cm <sup>3</sup> at 68 °F (20 °C)
Water solubility	7 g/l at 68 °F (20 °C) (slow decomposition)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	47 mPa.s at 104 °F (40 °C)
Explosive properties	No information available.
Ignition temperature	743 °F (395 °C) DIN 51794

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**SECTION 10. Stability and reactivity**

**Reactivity**

Forms explosive mixtures with air on intense heating.

**Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

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**Possibility of hazardous reactions**

Violent reactions possible with:

Strong acids, Bases, bases, Oxidizing agents

**Conditions to avoid**

Strong heating.

**Incompatible materials**

no information available

**Hazardous decomposition products**

no information available

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**SECTION 11. Toxicological information**

**Information on toxicological effects**

*Likely route of exposure*

Eye contact, Skin contact, Ingestion

*Acute oral toxicity*

LD50 rat: 4,040 mg/kg (IUCLID)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

*Acute inhalation toxicity*

Symptoms: Shortness of breath, Cough, mucosal irritations

*Skin irritation*

Irritations

*Eye irritation*

Causes serious eye damage.

*Sensitization*

Sensitization test (Magnusson and Kligman):

Result: positive

Method: OECD Test Guideline 406

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

*Genotoxicity in vitro*

Ames test

Result: negative

(IUCLID)

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

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IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Further information**

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12. Ecological information**

**Ecotoxicity**

*Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): 660 mg/l; 48 h (IUCLID)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 103 mg/l; 24 h (IUCLID)

*Toxicity to bacteria*

EC10 *Pseudomonas putida*: 85 mg/l; 18 h (IUCLID)

**Persistence and degradability**

*Biodegradability*

98 %; 28 d

(IUCLID)

Readily biodegradable.

**Bioaccumulative potential**

No information available.

**Mobility in soil**

No information available.

**Other adverse effects**

*Additional ecological information*

Discharge into the environment must be avoided.

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**SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

Not classified as dangerous in the meaning of transport regulations.

**Air transport (IATA)**

Not classified as dangerous in the meaning of transport regulations.

**Sea transport (IMDG)**

Not classified as dangerous in the meaning of transport regulations.

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**SECTION 15. Regulatory information**

**Canada**

**WHMIS Classification**

D2A Very Toxic Material Causing Other Toxic Effects  
D2B Toxic Material Causing Other Toxic Effects  
E Corrosive Material

Respiratory sensitizer, Skin sensitizer, Corrosive to eyes

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**Notification status**

TSCA: Not Listed on TSCA inventory. For Research and Development Use only. Not For Manufacturing or Commercial Purposes.

*Ingredients*

cis-Cyclohexane-1,2-dicarboxylic anhydride

DSL: This product contains one or several components that are not on the Canadian DSL nor NDSL.

*Ingredients*

cis-Cyclohexane-1,2-dicarboxylic anhydride

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

**Full text of H-Statements referred to under sections 2 and 3.**

H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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