

# Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 25.08.2010

Revision: 25.08.2010

**1 Identification of substance****Product details****Trade name****(R)-(-)-4-Fluorostyrene oxide****Stock number:**

L19583

**Manufacturer/Supplier:**Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com**Informing department:**

Product safety department.

**Emergency information:**Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftnotruf.uni-mainz.de Telefon: +49(0)6131/19240**2 Hazards identification****Hazard designation:**

Xn Harmful

**Information pertaining to particular dangers for man and environment**R 20/21 Harmful by inhalation and in contact with skin.  
R 36 Irritating to eyes.  
R 40 Limited evidence of a carcinogenic effect.**GHS label elements****Warning**

H351 - Suspected of causing cancer.

**Warning**

H312 - Harmful in contact with skin.

H332 - Harmful if inhaled.

H319 - Causes serious eye irritation.

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

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

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Prevention:****Response:****Storage:****Disposal:****3 Composition/information on ingredients****Chemical characterization:****Designation: (CAS#)**

(R)-(-)-4-Fluorostyrene oxide (CAS# 134356-73-3): 100%

**4 First aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

**After skin contact**

Seek immediate medical advice.

Instantly wash with water and soap and rinse thoroughly.

**After eye contact**

Seek immediate medical advice.

**After swallowing**

Rinse opened eye for several minutes under running water. Then consult doctor.

Seek immediate medical advice.

**5 Fire fighting measures****Suitable extinguishing agents**

CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

**Special hazards caused by the material, its products of combustion or flue gases:**

Can be released in case of fire:

Carbon monoxide and carbon dioxide

Hydrogen fluoride (HF)

Wear self-contained breathing apparatus.

Wear full protective suit.

**Protective equipment:****6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

**Measures for environmental protection:**

Ensure adequate ventilation

**Measures for cleaning/collecting:**

Do not allow material to be released to the environment without proper governmental permits.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to item 13.

Ensure adequate ventilation.

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

**Additional information:****7 Handling and storage****Handling****Information for safe handling:**

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

**Storage****Requirements to be met by storerooms and containers:**

No special requirements.

**Information about storage in one common storage facility:**

Store away from oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with critical values that require monitoring at the workplace:**

Not required.

(Contd. on page 2)  
GB

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## Trade name **(R)-(-)-4-Fluorostyrene oxide**

<b>Additional information:</b>	No data	(Contd. of page 1)
<b>Personal protective equipment</b> <b>General protective and hygienic measures</b>	The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Avoid contact with the eyes and skin.	
<b>Breathing equipment:</b> <b>Protection of hands:</b> <b>Material of gloves</b>	Use breathing protection with high concentrations. Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. Impervious gloves	
<b>Penetration time of glove material</b> <b>Eye protection:</b> <b>Body protection:</b>	Not determined Safety glasses Protective work clothing.	

### 9 Physical and chemical properties:

<b>General Information</b>		
<b>Form:</b> <b>Colour:</b> <b>Smell:</b>	Liquid Colourless Pungent	
<b>Change in condition</b> <b>Melting point/Melting range:</b> <b>Boiling point/Boiling range:</b> <b>Sublimation temperature / start:</b>	Not determined 92°C (14mm Hg) Not determined	
<b>Flash point:</b>	77°C	
<b>Ignition temperature:</b>	Not determined	
<b>Decomposition temperature:</b>	Not determined	
<b>Danger of explosion:</b>	Product is not explosive.	
<b>Critical values for explosion:</b> <b>Lower:</b> <b>Upper:</b>	Not determined Not determined	
<b>Steam pressure:</b>	Not determined	
<b>Density at 20°C</b>	1.17 g/cm <sup>3</sup>	
<b>Solubility in / Miscibility with</b> <b>Water:</b>	Not miscible or difficult to mix	

### 10 Stability and reactivity

<b>Thermal decomposition / conditions to be avoided:</b> <b>Materials to be avoided:</b> <b>Dangerous reactions:</b> <b>Dangerous products of decomposition:</b>	No decomposition if used and stored according to specifications. Oxidizing agents No dangerous reactions known Carbon monoxide and carbon dioxide Hydrogen fluoride
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### 11 Toxicological information

<b>Acute toxicity:</b> <b>Primary irritant effect:</b> <b>on the skin:</b> <b>on the eye:</b> <b>Sensitization:</b> <b>Additional toxicological information:</b>	May cause irritation Irritant effect. No sensitizing effect known. To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. Danger by skin resorption. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
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### 12 Ecological information:

<b>Additional ecological information:</b> <b>General notes:</b>	Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system. Do not allow material to be released to the environment without proper governmental permits.
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### 13 Disposal considerations

<b>Product:</b> <b>Recommendation</b>	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
<b>Uncleaned packagings:</b> <b>Recommendation:</b>	Disposal must be made according to official regulations.

### 14 Transport information

<b>Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)</b>		
		
<b>ADR/RID-GGVS/E Class:</b> <b>Kemler Number:</b> <b>UN-Number:</b> <b>Packaging group:</b> <b>Label</b> <b>Designation of goods:</b> <b>Limited quantities (LQ)</b> <b>Transport category</b>	6.1 (T1) Toxic substances. 60 2810 III 6.1 2810 TOXIC LIQUID, ORGANIC, N.O.S. ((R)-(-)-4-Fluorostyrene oxide) LQ7 2	

(Contd. on page 3)  
GB

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(Contd. of page 2)

Tunnel restriction code E

Maritime transport IMDG/GGVSea:



IMDG/GGVSea Class: 6.1  
 UN Number: 2810  
 Label: 6.1  
 Packaging group: III  
 Marine pollutant: No  
 Correct technical name: TOXIC LIQUID, ORGANIC, N.O.S. ((R)-(-)-4-Fluorostyrene oxide)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 6.1  
 UN/ID Number: 2810  
 Label: 6.1  
 Packaging group: III  
 Correct technical name: TOXIC LIQUID, ORGANIC, N.O.S. ((R)-(-)-4-Fluorostyrene oxide)

UN "Model Regulation": UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, III

## 15 Regulatory information

Designation according to EC guidelines:

Code letter and hazard designation of product:



Xn Harmful

Risk phrases:

20/21 Harmful by inhalation and in contact with skin.  
 36 Irritating to eyes.  
 40 Limited evidence of a carcinogenic effect.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 36/37 Wear suitable protective clothing and gloves.

National regulations

Information about limitation of use:

For use only by technically qualified individuals.  
 Employment restrictions concerning young persons must be observed.

Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

## 16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Contact:

Zachariah Holt

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
 ICAO: International Civil Aviation Organization  
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)