ethylene oxide, oxirane@ethylene oxide@Dimethylene oxide@1,2-Epoxy ethane@Oxirane

IDENTIFICATION NUMBERS

- **CAS:** 75-21-8
- **EC/EINECS:** 200-849-9
- **International Chemical Safety Card (ICSC):** 0155

MORE INFORMATION

- **Molecular Formula:** C2H4O
- **Synonyms:** oxirano

USES

solvent, additive, emulsifier, pesticide, fumigant, sterilizer

CLASSIFICATION AND LABELLING (Regulation 1272/2008)

Symbols



GHS02

Flammable gases



GHS04

Gases under pressure



GHS06

Acute toxicity (oral, dermal, inhalation)



GHS08

Respiratory sensitisation

Signal word: Danger

H Phrases

H220 : Extremely flammable gas

Flam. Gas (Cat. 1) : Flammable gas

H340 : May cause genetic defects

Carc. (Cat. 1B) : Carcinogenicity

H360Fd : May damage fertility. Suspected of damaging the unborn child.

Muta. (Cat. 1B) : Germ cell mutagenicity

H331 : Toxic if inhaled

Repr. (Cat. 1B) : Reproductive toxicity

H301 : Toxic if swallowed

Acute Tox. (Cat. 3 *) : Acute toxicity

H335 : May cause respiratory irritation

Acute Tox. (Cat. 3) : Acute toxicity

H336 : May cause drowsiness or dizziness

STOT SE, 3

H372 : Causes damage to organs through prolonged or repeated exposure

STOT SE, 3

H372 : Causes damage to organs through prolonged or repeated exposure

STOT RE, 1

H314 : Causes severe skin burns and eye damage

Corro. piel, 1

H318 : Causes serious eye damage

Daño ocular, 1

H350 : May cause cancer

Gas a pres.,

Nota U.

Notes

- R.1272-Note U

Specific health risks

According to IARC

Substances classified as carcinogens or mutagens Category 2 under the CLP Regulation (GHS), bearing H351 and/or H341 phrases. These are substances suspected of causing cancer or heritable genetic mutations in humans.

IARC GROUP
Grupo 1

IARC VOLUME
(VOL. 97, 100F; 2012)

IARC NOTES
Overall evaluation upgraded to Group 1 based on mechanistic and other relevant data

Carcinogens (other sources)

Substances classified as carcinogens or mutagens Category 3 under the Dangerous Preparations Directive criteria (pre-CLP). Substances with limited evidence or indications of carcinogenicity or mutagenicity.

CATEGORY
G-A2, N-1, CP

SOURCE
ACGIH, NTP, CP65

Breast cancer

Substances classified with H362 phrase (may cause harm to breast-fed children). Toxic for reproduction due to effects on lactation or due to transmissibility through breast milk.

SOURCE
http://sciencereview.silentspring.org/mamm_detail.cfm?cid=75-21-8

Neurotoxic substances

Substances with neurotoxic effects

NEUROTOXIC EFFECT
SNC

LEVEL
4

SOURCE
14

Occupational Exposure Limits (OEL)

Daily exposure limit values (VLA-ED) published by the Spanish National Institute of Safety and Health at Work (INSST). They represent the average concentration of a chemical agent in the worker's breathing zone, measured or calculated in a time-weighted manner for an 8-hour daily working period. (https://www.insst.es/valores-limites-de-exposicion)

OCCUPATIONAL EXPOSURE LIMITS
1.8 mg/m31 ppm Posible contribución importante a la carga corporal total por exposición dérmica

Prohibited for pregnant workers

Substances prohibited for pregnant workers

Carcinogens and mutagens (Regulation 1272/2008)

Substances classified as carcinogenic or mutagenic under Regulation 1272/2008

Reproductive toxicants

Substances classified as toxic for reproduction under Regulation 1272/2008

Specific environmental risks

Persistent bioaccumulative and toxic

Substances identified as Persistent, Bioaccumulative and Toxic (PBT) according to the criteria of Annex XIII of the REACH Regulation. They pose a special risk of accumulation in the environment and in the food chain.

SOURCES

REACH

LINK

http://apps.echa.europa.eu/registered/data/dossiers/DISS-828df712-525d-186a-e044-00144fd73934/DISS-828df712-525d-186a-e044-00144fd73934_DISS-828df712-525d-186a-e044-00144fd73934.html

Volatile organic compounds

Volatile Organic Compounds (VOCs) regulated by Directive 1999/13/EC on the limitation of VOC emissions from certain activities, and by Royal Decrees 117/2003 and 227/2006. Substances contributing to tropospheric ozone formation that are subject to emission limits in industrial activities.

Environmental regulations

LPCIC (EPER)

Priority substances and specific pollutants within the EU water policy framework, established by the Water Framework Directive (2000/60/EC) and the Priority Substances Directive (2008/105/EC and amendments). Substances posing significant risk to European surface waters and subject to Environmental Quality Standards (EQS).

EPER WATER

false

EPER AIR

true

EPER SOIL

true

EPER Air

Substances from List 2 of Annex III of the IPPC Directive (integrated into the Industrial Emissions Directive 2010/75/EU). Pollutants that may affect surface and groundwater bodies and must be considered in the integrated environmental authorisation of industrial installations.

EPER Soil

Substances from List 3 of Annex III of the IPPC Directive (integrated into the Industrial Emissions Directive 2010/75/EU). Substances present in waste generated by IPPC installations that must be controlled and minimised within the framework of best available techniques.

Restriction/prohibition regulations

Restricted substances under REACH

Substances listed in Annex XVII of the REACH Regulation (EC) No 1907/2006, subject to restrictions on their manufacture, placing on the market or use. Restrictions may be total or partial, limiting specific applications, maximum concentrations or user groups.

NOTES

Limitations: Without prejudice to the other parts of this Annex the following shall apply to entries 28 to 30: 1. Shall not be placed on the market, or used, - as substances, - as constituents of other substances, or, - in mixtures, for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than: - either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or, - the relevant concentration specified in Directive 1999/45/EC where no specific concentration limit is set out in Part 3 of Annex VI to Regulation (EC) No 1272/2008. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: ‘Restricted to professional users’. 2. By way of derogation, paragraph 1 shall not apply to: (a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/ EC; (b) cosmetic products as defined by Directive 76/ 768/EEC; (c) the following fuels and oil products: - motor fuels which are covered by Directive 98/70/EC, - mineral oil products intended for use as fuel in mobile or fixed combustion plants, - fuels sold in closed systems (e.g. liquid gas bottles); (d) artists’ paints covered by Directive 1999/45/ EC; (e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date. Source: Regulation 1907/2006 (REACH). Annex XVII

Substances under CoRAP evaluation

Substances included in the Community Rolling Action Plan (CoRAP) of the REACH Regulation. These are substances selected for evaluation by EU Member States due to indications of risk to human health or the environment, with the aim of clarifying whether regulatory action is warranted.

YEAR	MEMBER STATE
2012	Austria

INITIAL GROUNDS FOR CONCERN

Human health/CMR; Exposure/High aggregated tonnage

Substances under PACT evaluation

Substances under active regulatory monitoring through ECHA's PACT (Public Activities Coordination Tool). Allows tracking which regulatory authorities are examining a substance and what potential regulatory actions are being considered (restriction, SVHC identification, harmonised classification, etc.).

MEMBER STATE	LAST UPDATE
NORWAY	2018-10-25T00:00:00

Major accident hazards (Seveso)

Hazardous substances listed in Annex I of the Seveso III Directive (Directive 2012/18/EU), transposed in Spain by Royal Decree 840/2015. Their presence in industrial establishments in quantities equal to or above established thresholds triggers obligations to implement major accident risk control measures.