Product Safety Summary for Glycerine carbonate

SUBSTANCE NAME

Glycerine carbonate
Glycerol-1,2-carbonate
4-hydroxymethyl-1,3-dioxolan-2-one
1,3-Dioxolan-2-one, 4-(hydroxymethyl)-
4-(hydroxymethyl)-1,3-dioxolan-2-one

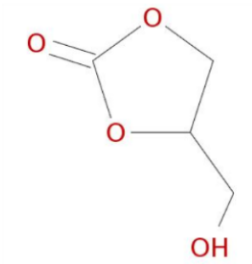
GENERAL STATEMENT

Glycerine carbonate is a cyclic carbonate with two reactive functional groups. Glycerine carbonate is a colorless liquid with a mild odour. It is an organic compound with a wide range of uses and applications. Its main use is as raw material for the production of materials made of polyester or polyurethane. It is a non-dangerous substance

CHEMICAL IDENTITY

EC Name:	4-hydroxymethyl-1,3-dioxolan-2-one
EC-No. :	213-235-0
CAS-No. :	931-40-8
Molecular formula:	C4H6O4

Structural formula:



USES AND APPLICATIONS

Glycerine carbonate is a colorless liquid with a mild odour used mainly to as raw material for the production of materials made of polyester or polyurethane. Glycerine carbonate can also be found in cosmetics such perfumes and fragrances.

PHYSICAL CHEMICAL PROPERTIES

Glycerine carbonate is a colorless liquid with a mild odour.

Melting point/range:	-60°C at 1013 hPa
Boiling point/boiling range:	239°C at 102.1 kPa
Decomposition temperature:	Not determined
Flashpoint:	149.5°C at 101.3 kPa
Flammability (solid, gaseous):	Non flammable
Ignition temperature:	404°C at 1013 hPa

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Explosive properties: Product does not present an explosion hazard.
Molecular weight: 118.088 g/mol

log Pow: -1.39 at 25ºC
Vapor pressure: 0.93 Pa at 25°C
Relative density: 1.41 at 20°C
Solubility in/Miscibility with water: 1000 g/L
Dynamic Viscosity: 82.706 cSt at 20°C

HEALTH EFFECTS

Glycerine carbonate is not classified as a hazardous substance. There are no experimental (animal or human) data on the toxicokinetic behavior of it (except an in vitro dermal absorption test of Glycerine carbonate) but, based on its physical-chemical parameters and available data, Glycerine carbonate absorption factors have been estimated to be 50% and 100% after oral and inhalation exposure respectively. It is not classified as skin or eye irritation, neither sensitization substance nor CMR or STOT.

EFFECT ASSESSMENT	RESULT
Acute Toxicity (oral/dermal/inhalation)	No adverse effect observed for acute toxicity for any of the routes (oral, dermal or inhalation)
Irritation/Corrosivity (skin/eye/respiratory tract)	Skin irritation / corrosion: No adverse effect observed (not irritating) Eye irritation / corrosion: No adverse effect observed (not irritating) Respiratory irritation / corrosion: No study available
Sensitization (skin/respiratory tract)	Study does not allow to conclude on the skin sensitisation potential of the substance. No adverse effect observed (not sensitising). There are no available study for respiratory sensitisation.
Repeated Dose Exposure	Glycerine carbonate is not classified as STOT RE.
Mutagenicity	No adverse effect observed (negative). Glycerine carbonate is not classified as a mutagenic agent
Carcinogenicity	No carcinogenicity data is available.
Reproductive Toxicity	Not classified as reproductive toxicant.

ENVIRONMENTAL EFFECTS

Three acute fish studies were available. Two studies were performed with Glycerine carbonate and one study was performed using the read-across substance Glycerol. No mortality were seen at the highest concentrations tested. Based on these results, Glycerine carbonate can be classified as not harmful for fish, so as a conclusion, Glycerine carbonate is not classified for environment.

Bioaccumulation of Glycerine carbonate is not expected because of very low Kow.

EFFECT ASSESSMENT	RESULT
Aquatic Toxicity	Based on available acute toxicity data, Glycerine carbonate should not be classified for the aquatic environment.

FATE AND BEHAVIOR	RESULT
Biodegradation	Glycerine carbonate is readily biodegradable in water and sediment. Biodegradability in soil and sediment is not relevant (does not have to be performed) due to the substance is readily biodegradable.
Bioaccumulation potential	Very low bioaccumulation potential
PBT/vPvB conclusion	Glycerine carbonate is neither PBT nor vPvB based on biodegradation and bioaccumulation results and no hazard to aquatic species.

EXPOSURE

Human Health
Exposure to Glycerine carbonate can occur to workers in industrial facilities where it is produced, stored, handled, formulated or processed. Professional users or consumers may come into contact with Glycerine carbonate through commonly used formulated products, such as solvents, cosmetics, perfumes, fragrances. Base on the uses, the most likely routes of exposure of Glycerine carbonate are skin contact and inhalation. However, the health effects of Glycerine carbonate are such that it does not pose a risk to any kind of user, so as the substance is not classified for human health or environmental hazards, no hazard was identified.

Environment
Glycerine carbonate may be released to the environment in air and water from manufacturing and industrial use facilities and also from fragrances and cosmetics from the users. However, all identified uses of the substance have been assessed as safe for the environment.
The substance has been classified as readily biodegradable, with a very low potential of bioaccumulation and not PBT/vPvB.

Consequently, all identified uses of the substance are assessed as safe for human health and the environment.

RISK MANAGEMENT RECOMMENDATIONS

Glycerine carbonate is not classified for human health or environmental hazards, so the substance is not a hazardous substance. However, it is a good practice to train personnel that handle the substance and to protect workers who may be exposed to Glycerine carbonate by taking the usual precautionary measures to protect against chemical exposure. Therefore, protective clothing, gloves and safety glasses should be worn when handling Glycerine carbonate. Unless high concentrations are present, respiratory protection is not required, provided ventilation is good.

STATE AGENCY REVIEW

This substance has been registered under REACH (EC) No. 1907/2006.
Glycerine carbonate is listed in the following Chemical Inventories: EINECS, IECSC, Canada DSL, KECI, ECNS, TSCA,

REGULATORY INFORMATION/CLASSIFICATION AND LABELING

The substance is not classified according to the CLP Regulation. (REGULATION (EC) No 1272/2008)

CONTACT INFORMATION WITHIN COMPANY

For further information on this substance or product safety summaries in general, please contact:

Company: UBE Corporation Europe, S.A.U
Department: R&D Product Liability
Address: Poligono Industrial El Serrallo, s/n
Town/Country: Grao de Castellon (Castellon), Spain
Postal code: 12100
E-mail: sds.ube.eu@ube.es

Additional information can be found at:
http://www.ube.es
http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/

GLOSSARY

Acute toxicity	Harmful effect resulting from a single or short-term exposure to a substance.
Bioaccumulation	Progressive accumulation in living organisms of a chemical substance present in the environment.
Carcinogenicity	Substance effects causing cancer.
Chronic toxicity	Harmful effect after repeated exposures or long-term exposure to a substance.
CAS	Chemical Abstracts Service (division of the American Chemical Society).
Canadian DSL	Domestic Substances List of Canada.
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Existing Notified Chemical Substances (Japan).
KECI	Korean Existing Chemical Inventory.
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China.
TSCA	Toxic Substance Control Act (USA).
GHS	Globally Harmonized System of Classification and Labeling of Chemicals
HPV	High Production Volume Chemicals.
Mutagenicity	Substance effect that cause mutation on genes.
PBT	Persistent, bioaccumulative, toxic chemical.

Persistence	Refers to the length of time a compound stays in the environment, once introduced.
Risk Management Measures	Engineering controls, conditions and protective equipment needed to be implemented to ensure that the risks to human health and the environment are adequately controlled.
REACH (EC) No. 1907/2006	European Commission Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals.
REGULATION (EC) No 1272/2008	European Commission Regulation on Classification, Labeling and Packaging of Substances and Mixtures.
Reprotoxicity	Including teratogenicity, embryotoxicity and harmful effects on fertility.
Sensitizing	Allergenic.
Sediment	Topsoil, sand and minerals washed from land into water forming in the end a layer at the bottom of rivers and sea.
Vapor pressure	A measure of a substance's property to evaporate.
vPvB	Very persistent, very bio-accumulative.

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