

SDS: Glycerol formal

1. Identification

Name Glycerol formal

CAS Number 99569-11-6

Recommendation for the chemical and restrictions on use

Applications

Research and development only. CAS: 99569-11-6 is being sent to you as a Research and Development product as defined by the Toxic Substances Control Act (TSCA) of 1976. Due to TSCA's R&D exemption, this product is not listed on the U.S. EPA's Toxic Substances Control Act inventory.

Restrictions

This product may not be used for commercial purposes or in formulations used for commercial purposes.

Supplier's Details

InKemia Green Chemicals, Inc.

1213 West Loop North Suite 140, Houston, TX 77005

+1 (713) 909-7717

web@inkemiagreenchemicals.com

Emergency contact number

InKemia Green Chemicals, Inc.

Tel: +1 (713) 909-7717

For emergency calls only.

2. Hazards

Classification of the substance or mixture

Classification

Combustible liquid (Category 4), H227.
Eye irritation (Category 2A), H319.

Label elements

Pictogram



Signal word

Warning

Hazard Statements

H227 - Combustible liquid.

H319 - Causes serious eye irritation.

Precautionary Statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P264 - Wash skin thoroughly after handling.

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

SDS: Glycerol formal

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.

P337 + P313 - If eye irritation persists: Get medical advice/attention. P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P403 - Store in a well-ventilated place. Keep cool

P501 - Dispose of contents/container to an approved waste disposal plant

3 - Composition/information on ingredients

Substances

Chemical Name

Glycerol formal

Synonyms

1,3-dioxan-5-ol; 1,3-dioxolan-4-ylmethanol; 1,3-dioxan-5-ol; glycerol formal.

CAS Number

99569-11-6

Molecular Formula

C4H8O3

Molecular Weight (g/mol)

104.105

Hazardous components

Component	Classification	Concentration
1,3-Dioxan-5-ol	Flam. Liq. 4; Eye Irrit. 2A; H227, H319.	50-60 %
1,3-Dioxolan-4-ylmethanol	Flam. Liq. 4; Eye Irrit. 2A; H227, H319.	40-50 %

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

Impurities and stabilizing additives

No data available.

Mixtures

This product is a mixture of an average composition of:

1,3-Dioxan-5-ol: 55 wt.%

1,3-Dioxolan-4-ylmethanol: 45 wt. %

4 - First-aid measures

Description of first aid measures

General information

Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.

SDS: Glycerol formal

Inhalation	Remove from exposure, moving to fresh air. Artificial respiration and oxygen are necessary if not breathing. Consult a physician.
Ingestion	Wash out mouth with water if the person is conscious. Do not induce vomiting. Consult a physician.
Skin contact	Immediately wash skin with soap and copious amounts of water.
Eye contact	Immediately irrigate with copious amounts of water for 15 minutes. Remove contact lenses, if present and easy to do. Consult a physician.
Protection of first-aiders	First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described might vary depending on the concentration and length of exposure.
Inhalation	Slightly dangerous.
Ingestion	Slightly dangerous.
Skin contact	May cause irritation.
Eye contact	May cause irritation.

Indication of immediate medical attention and special treatment need

Notes for the doctor	Treat symptomatically.
-----------------------------	------------------------

5 – Fire-fighting measure

Extinguishing media

Suitable extinguisher media	CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Unsuitable extinguisher media	No data available.

Special hazards arising from the substance or mixture

Specific hazards	Combustible liquid. At high temperatures, vapors may accumulate in low or confined areas. Runoff to sewer may create fire or explosion hazards. Keep away from sources of ignition (heat, sparks, flames, static electricity, pilot lights, and mechanical/electrical equipment). Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.
-------------------------	--

Hazardous combustion products	Thermal decomposition or combustion may liberate carbon oxides
--------------------------------------	--

SDS: Glycerol formal

and other toxic gases or vapors.

Advice for firefighters

Protective actions during firefighting

Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Avoid discharge to the aquatic environment. Control runoff water by containing and keeping it out of sewers and watercourses. If the risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighting

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots, and gloves provide a basic level of protection for chemical incidents.

6 – Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Personal Precautions

Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into the spilled material.

Environmental precautions

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleanup

Methods for cleaning

Contain and remove the spillage, soaking up the residue with non-flammable absorbent. Place in an adequate container for immediate disposal. Eliminate sources of ignition. For waste disposal see Section 13.

Reference to other sections

For personal protection see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For disposal see section 13.

7 – Handling and storage

Precautions for safe handling

Usage precautions

SDS: Glycerol formal

This product is for R+D only. As a TSCA-exempt R&D substance, this product must be used by or directly under the supervision of a technically qualified individual(s) as defined by TSCA. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink, and animal feeding stuff. Keep container tightly sealed when not in use. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers. For precautions see Section 2.

Advice on general occupational hygiene

Promptly wash if in contact with skin. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

Conditions for safe storage, including any Incompatibilities

Storage precautions

Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well-ventilated place. Keep containers upright. Protect containers from damage. Keep in a fresh and dry place, avoiding direct sunlight. Keep container tightly sealed, in a fireproof place.

Storage class

Miscellaneous hazardous material storage. Preferably in a well-ventilated solvent cabinet.

Specific end uses

The identified uses for this product are in Section 1.

8 – Exposure controls/personal protection

Control parameters

Occupational exposure limits:

Contains no substances with occupational exposure limit values.

Protective equipment



Engineering control measures

SDS: Glycerol formal

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Eye/Face protection

Wear safety glasses with side-shields.

Hand protection

Avoid skin contact. Wear protective clothes and solvent resistant gloves (nitrile).

Other skin and body protection

Use engineering controls to reduce air contamination to permissible exposure level. Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact.

Hygiene measures

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with a multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure

Not available.

9 – Physical and chemical properties

Appearance	Colorless liquid.	Water miscibility @ 20 °C, g/L	Miscible.
Odor threshold	Not applicable.	Solubility (other)	No data available.
Melting point/Freezing point, °C	Lower than -50	Partition coefficient, log Pow @ 25 °C	-1.0
Boiling point, °C	193-195	Autoignition temperature, °C	Higher than 400
Flash point	93	Decomposition temperature, °C	No data available.
Evaporation rate	No evaporation.		
Upper / lower	No data available.		

SDS: Glycerol formal

flammability or/and explosive limits		Dynamic viscosity @ 25 °C, cP	14
Vapor pressure @ 20 °C, kPa	0.047 (EPI Suite estimation)	Explosive properties	Not classified.
Vapor density (air=1)	No data available.	Oxidizing properties	No data available.
Relative density @ 25 °C, g/cm³	1.210	Flammability	Non-flammable liquid.
		Surface tension @ 20 °C, mN/m	44.5

10 – Stability and reactivity

Reactivity	No data available.
Chemical stability	Stable under normal storage conditions. Hygroscopic.
Possibility of hazardous reactions	Hazardous polymerization do not occur under normal conditions.
Incompatible materials	Strong oxidizing agents. Strong bases. Strong acids.
Conditions to avoid	Ignition sources.
Hazardous decomposition products	No data available.

11 – Toxicological information

Acute toxicity - oral

Acute toxicity - oral (LD50,mg/kg) >8,000

Species Rat

Notes (oral LD50) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Acute toxicity - dermal (LD50,mg/kg) >2,000

Species Rat

Notes (Dermal LD50) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Acute toxicity - inhalation (LC50,dust/mist mg/l) > 5 mg/l, (Mist).

Species Rat

Notes (Inhalation LD50) No deaths occurred at this concentration/Based on the available data, respiratory irritation was not observed.

Skin corrosion/irritation

Result Mild irritant to skin.

SDS: Glycerol formal

Serious eye damage/irritation

Result Rat - Irritating to eyes.

Respiratory sensitization

Result Based on available data the classification criteria are not met.

Skin sensitization

Result Guinea pig - Did not cause allergic skin reactions.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

IARC No component of this product present at levels greater than or equal to 0.1% is identified as human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Fertility No data available.

Development No data available.

Specific target organ toxicity

STOT-single exposure No data available.

STOT-repeated exposure No data available.

Additional information

General information This product is classified as hazardous.

Inhalation Vapor may cause dizziness.

Ingestion No data available.

Skin contact May cause mild skin irritation.

Eye contact Eye irritant.

Route of entry Ingestion, Inhalation, skin and/or eye contact.

Target organs Not specific target organ known.

12 - Ecological information

SDS: Glycerol formal

Toxicity

Ecotoxicity

Not regarded as dangerous for the environment. However, large or frequent spills may have dangerous effects on the environment.

Acute toxicity

Toxicity to fish

LC50 (96h.) > 10,000 mg/l (Fathead minnow, EPA-T.E.S.T. Estimation)

Aquatic invertebrates

EC50 (48h.) > 1,000 mg/l (Daphnia magna, EPA-T.E.S.T. Estimation)

Aquatic plants

IGC50 (48h.) >10,000 mg/l (T. pyroformis, EPA-T.E.S.T. Estimation)

Persistency and biodegradability

Persistency and biodegradability

No data available.

Result: -

This product is readily biodegradable.

Biodegradation

Readily biodegradable (EPI Suite estimation).

Biological oxygen demand(mg/g)

No data available.

Chemical oxygen demand(mg/g)

No data available.

BOD/COD ratio

No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB

No data available.

Other adverse effects

No data available.

13 – Disposal considerations

Waste treatment methods

General information

The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of safely. When handling waste, the safety precautions applying to the handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues.

Disposal methods



SDS: Glycerol formal

Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration and landfill should only be considered when recycling is not feasible.

14 – Transport information

DOT (US)

UN number: NA 1993 Class: CBL Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Glycerol formal).
Reportable Quantity (RQ):
Poison Inhalation Hazard:

(Remark: The combustible liquid classification only applies when shipped in single package sizes > 119 gallons).

IMDG

Not classified as hazardous goods.

IATA

Not classified as hazardous goods.

Transport in bulk according to

Annex II of MARPOL 73/78, and the IBC Code:
Not applicable.

15 – Regulatory information

US Federal Regulations and state regulations

Components of the product are listed in the quoted regulations. For details, please refer to the regulations directly. This list is not exhaustive; please check for other applicable regulations.

This product has been classified by hazard criteria of the Controlled Products Regulations, and the SDS contains all the information required by the Controlled Products Regulations.

US Federal Regulations

SARA 302 Section 302 (Specific toxic chemical listings)

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA Section 311/312 (Specific toxic chemical listings)

Acute Health Hazard.

SARA Section 313 (Specific toxic chemical listings)

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

RCRA (hazardous waste code)

None of the ingredients are listed.

TSCA (Toxic Substances Control Act)

"Glycerol formal" is listed as CAS: 68441-91-1 on the TSCA inventory. CAS: 99569-11-6 is not TSCA-listed and is supplied as R+D product.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

None of the ingredients are listed.

US State Regulations

SDS: Glycerol formal

Proposition 65 (California)

Chemicals are known to cause cancer

None of the chemicals in this product are listed.

Chemicals are known to cause reproductive toxicity for females

None of the chemicals in this product are listed.

Chemicals are known to cause reproductive toxicity for males

None of the chemicals in this product are listed.

Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components

No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right to Know Components

No components are subject to the New Jersey Right to Know Act.

Canada

This product is not available in Canada.

16 – Other information

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

H227 Combustible liquid.

H319 Causes eye irritation.

Flam. Liq. Flammable liquids.

Eye Irrit. Eye Irritant.

GHS Column Model 2017 Classification

Acute health hazards (single exp) Low

Chronic health hazards (repeated exp.) Negligible

Environmental hazards Negligible

Physical-chemical hazards Low

Further Information

The information above is believed to be accurate and represents the best information available. However, we make no warranty of merchantability or any other warranty, express or implied, on such information and we assume no liability resulting from its use. Users should make their investigations to determine the suitability of the information for their purposes. In no event shall the InKemia Green Chemicals, Inc. be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages arising, even if the InKemia Green Chemicals, Inc. has been advised of the possibility of such damages.

Issued by

LHD

Ver. 2.0 Rev. 02-11-2017

Print.