

Safety Data Sheet

Glyoxal 40%

Revision date : 2018/04/16
Version: 11.0

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(30037091/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

Glyoxal 40%

Recommended use of the chemical and restriction on use

Recommended use*: for industrial use only

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: aldehydes, in water
Synonyms: Ethanedial

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
Skin Sens.	1	Skin sensitization
Muta.	2	Germ cell mutagenicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Aquatic Acute	3	Hazardous to the aquatic environment - acute

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Label elements

Pictogram:



Signal Word:
Warning

Hazard Statement:

H320	Causes eye irritation.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H402	Harmful to aquatic life.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe mist or vapour.
P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P202	Do not handle until all safety precautions have been read and understood.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P362	IF ON SKIN (or hair): Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
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Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Labeling of special preparations (GHS):

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Contains formaldehyde.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
107-22-2	>= 39.5 - <= 40.5%	glyoxal
107-21-1	>= 0.0 - <= 2.5%	ethylene glycol

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Wash contaminated clothing before reuse. If irritation develops, seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention.

If swallowed:

Rinse mouth and then drink plenty of water. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, foam, dry powder, carbon dioxide

Special hazards arising from the substance or mixture

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Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.

Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas.

Conditions for safe storage, including any incompatibilities

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Unsuitable materials for containers: Paper/Fibreboard

Further information on storage conditions: Protect from air.
Keep container tightly closed.

Storage stability:

Storage temperature: < 50 °C

Storage duration: 6 Months

May yellow after lengthy storage.

During the storage a product characteristic clouding or crystallin precipitation of the trimeric glyoxal hydrate may occur.

The process is reversible if warmed up mild (max. 40 °C).

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

Protect from temperatures above: 50 °C

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The packed product must be protected against exceeding the indicated temperature.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

ethylene glycol

ACGIH TLV CLV 100 mg/m³ aerosol ; TWA value 25 ppm
Vapor fraction ; STEL value 50 ppm Vapor
fraction ; STEL value 10 mg/m³ Aerosol,
inhalable. ;

glyoxal

ACGIH TLV TWA value 0.1 mg/m³ Inhalable fraction and
vapor ;

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. Wear a NIOSH-certified (or equivalent) organic vapour respirator.

Hand protection:

chloroprene rubber (Neoprene), nitrile rubber (Buna N), polyvinylchloride (Pylox)

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:

Work place should be equipped with a shower and an eye wash. Wear protective clothing as necessary to prevent contact. When using, do not eat, drink or smoke. Avoid contact with skin and eyes. Remove soiled or soaked clothing immediately. Wash off any contamination that gets onto the skin with plenty of water and soap, skin care.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	faint odour	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Colour:	colourless to yellow	
pH value:	2 - 3.5 (400 g/l)	
melting range:	-50 - -15 °C	(OECD Guideline 102)

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Boiling point:	103.6 °C (1,013 hPa)	(Directive 92/69/EEC, A.2)
Flash point:	Non-flammable.	
Flammability:	not flammable	
Lower explosion limit:	For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Autoignition:	approx. 285 °C	(DIN 51794)
Vapour pressure:	20.2 hPa (20 °C)	(Directive 92/69/EEC, A.4)
	Information applies to the solvent.	
	106.7 hPa (50 °C)	(Directive 92/69/EEC, A.4)
	Information applies to the solvent.	
Density:	approx. 1.27 g/cm3 (20 °C)	(Directive 92/69/EEC, A.3)
	1.2514 g/cm3 (50 °C)	
Relative density:	1.27 (20 °C)	(Directive 92/69/EEC, A.3)
Partitioning coefficient n-octanol/water (log Pow):	-1.15 (approx. 23 °C)	(OECD Guideline 107)
Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.	
Thermal decomposition:	No decomposition if correctly stored and handled.	
Viscosity, dynamic:	8.37 mPa.s (20 °C)	(OECD 114)
	4.25 mPa.s (40 °C)	(OECD 114)
Viscosity, kinematic:	6.6 mm2/s (20 °C)	(OECD 114)
	3.38 mm2/s (40 °C)	(OECD 114)
Particle size:	The substance / product is marketed or used in a non solid or granular form.	
Solubility in water:	(approx. 20 °C) miscible	
Molar mass:	58.04 g/mol	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

No corrosive effect on metal.

Formation of
flammable gases:

Remarks:

Forms no flammable gases in the presence of water.

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Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.

Conditions to avoid

Temperature: > 50 degrees Celsius
See MSDS section 7 - Handling and storage.

Incompatible materials

strong alkalies

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if correctly stored and handled.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact. Of moderate toxicity after short-term inhalation.

Oral

Type of value: LD50

Species: rat (male/female)

Value: 3,300 mg/kg (OECD Guideline 401)

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: 2.44 mg/l (OECD Guideline 403)

Exposure time: 4 h

An aerosol was tested.

Dermal

Type of value: LD50

Species: rat (male/female)

Value: > 2,000 mg/kg (OECD Guideline 402)

Limit concentration test only (LIMIT test).

Assessment other acute effects

Assessment of STOT single:

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Causes temporary irritation of the respiratory tract.

Irritation / corrosion

Assessment of irritating effects: Eye contact causes irritation. Skin contact causes irritation.

Skin

Species: rabbit

Result: Irritant.

Method: OECD Guideline 404

Eye

Species: rabbit

Result: Irritant.

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Caused skin sensitization in animal studies. Caused sensitization in humans.

Guinea pig maximization test

Species: guinea pig

Result: sensitizing

Method: OECD Guideline 406

Human Maximization Test

Species: human

Result: sensitizing

Method: Patch test

Literature data.

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

Genetic toxicity

Assessment of mutagenicity: The substance was mutagenic in various test systems with microorganisms and cell cultures; however, these results could not be confirmed in tests with mammals. Mutagenic properties can not be excluded on the basis of experimental data.

Carcinogenicity

Assessment of carcinogenicity: The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure

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The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. Based on long-term (chronic) toxicity study data, the product is very likely not harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) > 186 - < 272 mg/l, *Leuciscus idus* (DIN 38412 Part 15, static)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

Aquatic invertebrates

EC50 (48 h) 161 mg/l, *Daphnia magna* (Directive 79/831/EEC, static)

Nominal concentration. The ecological data given are those of the active ingredient.

LC50 (96 h) 76.0 mg/l, *Americamysis bahia* (other, semistatic)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

Aquatic plants

EC50 (72 h) > 40 mg/l (growth rate), *Scenedesmus subspicatus* (OECD Guideline 201, static)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

EC10 (72 h) > 10 mg/l (growth rate), *Scenedesmus subspicatus* (OECD Guideline 201, static)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

EC50 (72 h) 347.1 mg/l (growth rate), *Skeletonema costatum* (OECD Guideline 201)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

No observed effect concentration (72 h) 118.4 mg/l (growth rate), *Skeletonema costatum* (OECD Guideline 201)

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

Chronic toxicity to fish

No observed effect concentration (34 d) 112 mg/l, *Pimephales promelas* (OPP 72-4 (EPA-Guideline), Flow through.)

The ecological data given are those of the active ingredient. The statement of the toxic effect relates to the analytically determined concentration.

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Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d) 3.19 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

The statement of the toxic effect relates to the analytically determined concentration. The ecological data given are those of the active ingredient.

Assessment of terrestrial toxicity

Toxic effects have been observed in studies with soil living organisms. Toxic effects have been observed in studies with terrestrial plants.

Soil living organisms

Toxicity to soil dwelling organisms:

LC50 (14 d) > 135 mg/kg, Eisenia foetida (OECD Guideline 207, artificial soil)

The ecological data given are those of the active ingredient. The details of the toxic effect relate to the nominal concentration.

EC50 (28 d) > 1,054 mg/kg, soil dwelling microorganisms (OECD 217, natural soil)

The details of the toxic effect relate to the nominal concentration. The data have been calculated from values for a preparation with a lower substance concentration. The ecological data given are those of the active ingredient.

EC50 (28 d) > 1,054 mg/kg, soil dwelling microorganisms (OECD 216, natural soil)

The details of the toxic effect relate to the nominal concentration. The data have been calculated from values for a preparation with a lower substance concentration. The ecological data given are those of the active ingredient.

Toxicity to terrestrial plants

No observed effect concentration (21 d) 314 mg/kg, Brassica napus (OECD Guideline 208)

The ecological data given are those of the active ingredient. The data have been deduced from values for a preparation or mixture with a lower substance concentration.

Other terrestrial non-mammals

No data available.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

DIN 38412 Part 8 static

bacterium/EC10 (16 h): 22.8 mg/l

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

OECD Guideline 209 static

activated sludge/EC50 (0.5 h): > 400 mg/l

The details of the toxic effect relate to the nominal concentration. The ecological data given are those of the active ingredient.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

90 - 100 % DOC reduction (19 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic, non-adapted) Readily biodegradable (according to OECD criteria).

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Assessment of stability in water

According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis)

The product has not been tested. The statement has been derived from the structure of the product.

Bioaccumulative potential

Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential

Bioconcentration factor: 3.2, Fish (calculated)

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

Additional information

Sum parameter

Chemical oxygen demand (COD): 350 mg/g

Biochemical oxygen demand (BOD) Incubation period 5 d: 175 mg/g

13. Disposal considerations

Waste disposal of substance:

Do not discharge into waterways or sewer systems without proper authorization. Dispose of in accordance with national, state and local regulations.

Container disposal:

Uncontaminated packaging can be recycled.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

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15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

Biocide TSCA, US blocked / not listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

EPCRA 313:

CAS Number

107-21-1

Chemical name

ethylene glycol

Reportable Quantity for release:

5,000 lb

State regulations

State RTK

NJ

CAS Number

107-21-1

Chemical name

ethylene glycol

107-22-2

glyoxal

PA

107-21-1

ethylene glycol

50-00-0

Formaldehyde

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

WARNING: This product can expose you to chemicals including FORMALDEHYDE (GAS), which is known to the State of California to cause cancer, and ETHYLENE GLYCOL (INGESTED), which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

NFPA Hazard codes:

Health: 2

Fire: 0

Reactivity: 0

Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Muta.	2	Germ cell mutagenicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Acute Tox.	5 (oral)	Acute toxicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Skin Sens.	1	Skin sensitization

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2018/04/16

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