

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name

Ethyl glyoxylate, ca 50% solution in toluene

Stock number:

L19207

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Identified use:

SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Liq. 2, H225 Highly flammable liquid and vapour.



GHS08 health hazard

Repr. 2 H361d Suspected of damaging the unborn child.

STOT RE 2 H373 May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

 Xn; Harmful

R48/20-63-65: Harmful: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of harm to the unborn child. Harmful: may cause lung damage if swallowed.

 Xi; Irritant

R38: Irritating to skin.

 F; Highly flammable

R11: Highly flammable.

R67: Vapours may cause drowsiness and dizziness.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
Has a narcotizing effect.

Other hazards that do not result in classification

No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Hazard-determining components of labelling:

Hazard statements

The product is classified and labelled according to the CLP regulation.

GHS02, GHS07, GHS08
Danger

Toluene

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H361d Suspected of damaging the unborn child.

H336 May cause drowsiness or dizziness.

H373 May cause damage to the kidneys, the liver, the heart, the reproductive system, the blood tissue, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Inhalative.

H304 May be fatal if swallowed and enters airways.

Precautionary statements

P210

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

P241

Use explosion-proof electrical/ventilating/lighting/equipment.

P301+P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P405

Store locked up.

P501

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

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Dangerous components:**

CAS: 108-88-3

Toluene

EINECS: 203-625-9

 Xn R48/20-63-65; Xi R38; F R11

R67

Repr. Cat. 3

 Flam. Liq. 2, H225; Repr. 2, H361d; STOT RE 2, H373; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336

50,0%

Additional information

None known.

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Non-Hazardous Ingredients

CAS: 924-44-7	Ethyl glyoxylate	50,0%
EINECS: 213-105-3		

SECTION 4: First aid measures**4.1 Description of first aid measures****After inhalation**

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

Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

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

After swallowing

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing agents**CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.**5.2 Special hazards arising from the substance or mixture**If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

6.2 Environmental precautions:

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

Do not allow product to reach sewage system or water bodies.

Do not allow to enter the ground/soil.

6.3 Methods and material for containment and cleaning up:

Keep away from ignition sources.

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.

Keep away from ignition sources.

Prevention of secondary hazards:**6.4 Reference to other sections**

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Handle under dry protective gas.

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:

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

7.2 Conditions for safe storage, including any incompatibilities**Storage****Requirements to be met by storerooms and containers:**

Store in cool location.

Information about storage in one common storage facility:

Store away from air.

Store away from oxidizing agents.

Further information about storage conditions:

Store under dry inert gas.

This product is air sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/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.

8.1 Control parameters**Components with critical values that require monitoring at the workplace:****108-88-3 Toluene (50,0%)**

AGW (Germany)	190 mg/m ³ , 50 ppm 4(II);DFG, EU, H, Y
PEL (USA)	Short-term value: C 300; 500* ppm Long-term value: 200 ppm *10-min peak per 8-hr shift
REL (USA)	Short-term value: 560 mg/m ³ , 150 ppm Long-term value: 375 mg/m ³ , 100 ppm
TLV (USA)	75 mg/m ³ , 20 ppm BEI

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Ingredients with biological limit values:**108-88-3 Toluene (50,0%)**

BGW (Germany)	1,0 mg/l B b Toluol
	3,0 mg/l U c, b o-Kresol
BEI (USA)	0,02 mg/L blood prior to last shift of workweek Toluene
	0,03 mg/L urine end of shift Toluene
	0,3 mg/g creatinine urine end of shift o-Cresol with hydrolysis (background)

Additional information: No data**8.2 Exposure controls****Personal protective equipment****General protective and hygienic measures**

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.

Do not inhale dust / smoke / mist.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

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

Not determined

Safety glasses

Face protection

Protective work clothing.

Breathing equipment:**Protection of hands:****Material of gloves****Penetration time of glove material****Eye protection:****Body protection:****SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Colour:	Colorless to pale yellow
Smell:	Not determined
Odour threshold:	Not determined.

pH-value: Not determined.**Change in condition**

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	110 °C
Sublimation temperature / start:	Not determined

Flash point:	7 °C
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	535 °C
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.
Critical values for explosion:	
Lower:	1,2 Vol %
Upper:	7,0 Vol %
Steam pressure at 20 °C:	29 hPa
Density at 20 °C	1,003 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.

Solvent content:

Organic solvents:	50,0 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity	No information known.
10.2 Chemical stability	Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:	No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions	Reacts with strong oxidizing agents
10.5 Incompatible materials:	Air Oxidizing agents
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

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SECTION 11: Toxicological information**11.1 Information on toxicological effects**

Acute toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

LD/LC50 values that are relevant for classification:**108-88-3 Toluene**

Oral	LD50	636 mg/kg (rat) 14100 µL/kg (rabbit)
Inhalative	LC50	10000 mg/m3 (mouse)
	LC50/4H	49000 mg/m3/4H (rat)

Skin irritation or corrosion: Causes skin irritation.
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
Carcinogenicity: EPA-II: Inadequate information to assess carcinogenic potential.
 IARC-3: Not classifiable as to carcinogenicity to humans.
 ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity: Suspected of damaging fertility or the unborn child.
 The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
Specific target organ system toxicity - repeated exposure: May cause damage to organs through prolonged or repeated exposure.
Specific target organ system toxicity - single exposure: May cause drowsiness or dizziness.
Aspiration hazard: May be fatal if swallowed and enters airways.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
 The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
 Irritant

SECTION 12: Ecological information**12.1 Toxicity**

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:

General notes: Do not allow product to reach ground water, water bodies or sewage system.
 Do not allow material to be released to the environment without proper governmental permits.
 Water hazard class 2 (Self-assessment): hazardous for water.
 Danger to drinking water if even small quantities leak into soil.
 Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Recommendation 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.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA UN1993

14.2 UN proper shipping name
ADR 1993 FLAMMABLE LIQUID, N.O.S., special provision 640D (TOLUENE)
IMDG, IATA FLAMMABLE LIQUID, N.O.S. (TOLUENE)

14.3 Transport hazard class(es)

ADR



Class 3 (F1) Flammable liquids.
Label 3
IMDG, IATA



Class 3 Flammable liquids.
Label 3

Packing group
ADR, IMDG, IATA II

14.5 Environmental hazards:
Marine pollutant: No

14.6 Special precautions for user Warning: Flammable liquids.
Kemler Number: 33

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC
Code Not applicable.

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Transport/Additional information:

ADR	E2
Excepted quantities (EQ):	1L
Limited quantities (LQ)	2
Transport category	D/E
Tunnel restriction code	
UN "Model Regulation":	UN1993, FLAMMABLE LIQUID, N.O.S. , special provision 640D (TOLUENE), 3, II

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

108-88-3 Toluene

Standard for the Uniform Scheduling of Drugs and Poisons

108-88-3 Toluene

S6

National regulations**Information about limitation of use:**Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.**Classification according to VbF:****Technical instructions (air):**

Class	Share in %
NK	50,0

Water hazard class:

Water hazard class 2 (Self-assessment): hazardous for water.

Other regulations, limitations and prohibitive regulations**ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

Substances of very high concern (SVHC) according to REACH, Article 57

None of the ingredients are listed.

REACH - Pre-registered substances

All ingredients are listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 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.

Relevant phrases

H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
R11 Highly flammable.
R38 Irritating to skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R63 Possible risk of harm to the unborn child.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

Department issuing data specification sheet:**Abbreviations and acronyms:**

Health, Safety and Environmental Department.
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

DE/E