



Specialized in chemicals

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Material Safety Data Sheet

Furosemide

Section 1: Chemical Product and Company Identification

Molecular formula: C₁₂H₁₁ClN₂O₅S

CAS Nr: 54-31-9

EINECS: 200-203-6

Molecular weight:330.74

Synonyms: FUROSEMID

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Section 2: Composition and Information on Ingredients

Substances

Formula : C₁₂H₁₁ClN₂O₅S

Molecular Weight : 54-31-9.mol

CAS-No. : 54-31-9

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Methanol		
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3;
EC-No.	200-659-6	STOT SE 1; H225, H301 +
Index-No.	603-001-00-X	H311 + H331, H370
Registration number	01-2119433307-44-XXXX	
Furosemide		
CAS-No.	54-31-9	Repr. 1B; H360
EC-No.	200-203-6	<0.5%

Hazardous ingredients according to Directive 1999/45/EC			
Component		Classification	Concentration
Methanol			
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3;	>= 50 - <= 100%
EC-No.	200-659-6	STOT SE 1; H225, H301 +	
Index-No.	603-001-00-X	H311 + H331, H370	
Registration number	01-2119433307-44-XXXX		
Furosemide			
CAS-No.	54-31-9	T,R61	<0.5%
EC-No.	200-203-6		

Section 3: Hazards Identification

3.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 3), H311

Specific target organ toxicity - single exposure (Category 1), H370

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

F Highly flammable R11

T Toxic R23/24/25, R39/23/24/25

For the full text of the R-phrases mentioned in this Section, see Section 16.

3.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Sigma-Aldrich - 130206 Page 2 of 8

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H331 Toxic if inhaled.

H370 Causes damage to organs.

Precautionary statement(s)

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

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280 Wear protective gloves/ protective clothing.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/ physician.

Supplemental Hazard None

Statements

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)	F Highly flammable T Toxic
R-phrase(s)	
R11	Highly flammable.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
S-phrase(s)	
S16	Keep away from sources of ignition - No smoking.
S36/37	Wear suitable protective clothing and gloves.
S45	In case of accident or if you feel unwell, seek medical advice immediately(show the label where possible).

3.3 Other hazards - none

Section 4: First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

hygroscopic

7.3 Specific end use(s)

A part from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0,3 mm

Break through time: 60 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de,

test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with 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).

Control of environmental exposure

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

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid
b) Odour	no data available
c) Odour threshold	Threshold no data available
d) pH	no data available
e) Melting point/freezing point	no data available
Melting point/range: -90 °C - lit.	
f) Initial boiling point and boiling range	no data available
g) Flash point	11 °C - closed cup
h) Evaporation rate	no data available

i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	no data available
o) Partition coefficient: noctanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available
9.2 Other safety information	no data available

Section 10: Stability and Reactivity Data

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

No data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Furosemide)

IMDG:	METHANOL, SOLUTION		
IATA:	Methanol, SOLUTION		
14.3 Transport hazard class(es)			
ADR/RID: 3 (6.1)	IMDG: 3 (6.1)	IATA: 3 (6.1)	
14.4 Packaging group			
ADR/RID: II	IMDG: II	IATA: II	
14.5 Environmental hazards			
ADR/RID: no	IMDG Marine pollutant: no	IATA: no	
14.6 Special precautions for user			
No data available			

Section 15: Other Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

Section 16: Other Information

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

Acute Tox. Acute toxicity

Aquatic Chronic Chronic aquatic toxicity

Carc. Carcinogenicity

Flam. Liq. Flammable liquids

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H302 + H332 Harmful if swallowed or if inhaled

H331 Toxic if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H412 Harmful to aquatic life with long lasting effects.

Muta. Germ cell mutagenicity

Full text of R-phrases referred to under sections 2 and 3

Acute Tox. Acute toxicity

Flam. Liq. Flammable liquids

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled

H331

H311 Toxic in contact with skin.

H331 Toxic if inhaled.

H360 May damage fertility or the unborn child.

H370 Causes damage to organs.

Repr. Reproductive toxicity
STOT SE Specific target organ toxicity - single exposure

Full text of R-phrases referred to under sections 2 and 3

F Highly flammable
T Toxic
R11 Highly flammable.
R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R61 May cause harm to the unborn child.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.