SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers
   Product name : Furan
   Product Number : 185922
   Brand : Aldrich
   Index-No. : 603-105-00-5
   REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
   CAS-No. : 110-00-9

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
   Company : Sigma-Aldrich Inc.
   3050 SPRUCE ST
   ST. LOUIS MO 63103
   UNITED STATES
   Telephone : +1 314 771-5765
   Fax : +1 800 325-5052

1.4 Emergency telephone
   Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Flammable liquids (Category 1), H224
   Acute toxicity, Oral (Category 4), H302
   Acute toxicity, Inhalation (Category 4), H332
   Skin irritation (Category 2), H315
   Germ cell mutagenicity (Category 2), H341
   Carcinogenicity (Category 1B), H350
   Specific target organ toxicity - repeated exposure (Category 2), H373
Long-term (chronic) aquatic hazard (Category 3), H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

**Labelling according Regulation (EC) No 1272/2008**

**Pictogram**

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
<td>H224 Extremely flammable liquid and vapor.</td>
</tr>
<tr>
<td></td>
<td>H302 + H332 Harmful if swallowed or if inhaled.</td>
</tr>
<tr>
<td></td>
<td>H315 Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td>H341 Suspected of causing genetic defects.</td>
</tr>
<tr>
<td></td>
<td>H350 May cause cancer.</td>
</tr>
<tr>
<td></td>
<td>H373 May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td></td>
<td>H412 Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

**Precautionary statement(s)**

| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P233 | Keep container tightly closed. |
| P273 | Avoid release to the environment. |
| P304 + P340 + P312 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. |
| P308 + P313 | IF exposed or concerned: Get medical advice/ attention. |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |

**Supplemental Hazard information (EU)**

euH019 May form explosive peroxides.

Restricted to professional users.

**Reduced Labeling (<= 125 ml)**

**Pictogram**

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| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |

**Supplemental Hazard information (EU)**

euH019 May form explosive peroxides.
2.3 **Other hazards**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. May form explosive peroxides.

**SECTION 3: Composition/information on ingredients**

### 3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furan</td>
<td>Flam. Liq. 1; Acute Tox. 4; Skin Irrit. 2; Muta. 2; Carc. 1B; STOT RE 2; Aquatic Chronic 3; H224, H302, H332, H315, H341, H350, H373, H412</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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

**SECTION 4: First aid measures**

4.1 **Description of first-aid measures**
No data available

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**
Carbon dioxide (CO2) Foam Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

5.2 **Special hazards arising from the substance or mixture**
Carbon oxides Combustible.

5.3 **Advice for firefighters**
No data available
5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
No data available

6.3 Methods and materials for containment and cleaning up
No data available

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Light sensitive. Store under inert gas. Air sensitive. Refrigerate before opening. Over time, pressure may increase causing containers to burst. Handle and open container with care.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters

8.2 Exposure controls
Personal protective equipment

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 10 min
Material tested: Butoject® (KCL 898)

**Control of environmental exposure**
Prevent product from entering drains.
### SECTION 9: Physical and chemical properties
#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
</table>
| a) Appearance                                 | Form: liquid  
Color: light brown                                                   |
| b) Odor                                       | No data available                                                           |
| c) Odor Threshold                             | No data available                                                           |
| d) pH                                         | No data available                                                           |
| e) Melting point/freezing point               | Melting point/freezing point: -85.61 °C at 1.013 hPa - (ECHA)               |
| f) Initial boiling point and boiling range    | 32 °C at 1.011 hPa - lit.                                                   |
| g) Flash point                                | -36 °C - closed cup                                                         |
| h) Evaporation rate                           | No data available                                                           |
| i) Flammability (solid, gas)                  | No data available                                                           |
| j) Upper/lower flammability or explosive limits| Upper explosion limit: 14.3 %(V)  
Lower explosion limit: 2.3 %(V)                                          |
| k) Vapor pressure                             | 798 hPa at 25 °C                                                            |
| l) Vapor density                              | No data available                                                           |
| m) Density                                    | 0.936 g/mL at 25 °C - lit.                                                 |
| n) Water solubility                           | Relative density: 0.94 at 20 °C                                             |
| o) Partition coefficient: n-octanol/water      | 10 g/l at 25 °C                                                            |
| p) Autoignition temperature                   | No data available                                                           |
| q) Decomposition temperature                  | No data available                                                           |
| r) Viscosity                                  | Viscosity, kinematic: No data available  
Viscosity, dynamic: No data available |
| s) Explosive properties                       | No data available                                                           |
| t) Oxidizing properties                       | none                                                                        |

#### 9.2 Other safety information
No data available

### SECTION 10: Stability and reactivity
#### 10.1 Reactivity
No data available
10.2 **Chemical stability**  
May form peroxides on prolonged storage. Date container and periodically test for peroxides.  
Contains the following stabilizer(s):  
butyl hydroxytoluene (BHT) (0.025 %)

10.3 **Possibility of hazardous reactions**  
No data available

10.4 **Conditions to avoid**  
No data available

10.5 **Incompatible materials**  
Strong oxidizing agents

10.6 **Hazardous decomposition products**  
In the event of fire: see section 5

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**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Acute toxicity**  
Acute toxicity estimate Oral - 500,1 mg/kg  
(Calculation method)  
LD50 Oral - Rat - 200 - 2.000 mg/kg  
Acute toxicity estimate Inhalation - 4 h - 11,1 mg/l - vapor(Calculation method)

LC50 Inhalation - Rat - 4 h - 5,3 mg/l

Remarks: (External MSDS)  
(Regulation (EC) No 1272/2008, Annex VI)  
Dermal: No data available  
**Skin corrosion/irritation**  
No data available  
**Serious eye damage/eye irritation**  
No data available  
**Respiratory or skin sensitization**  
No data available  
**Germ cell mutagenicity**  
Suspected of causing genetic defects.  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: positive  
Test Type: In vitro mammalian cell gene mutation test  
Test system: Mouse lymphoma test  
Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 476  
Result: positive

Test Type: Chromosome aberration test  
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: positive

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure. Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Central nervous system depression. Prolonged or repeated exposure to skin causes defatting and dermatitis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 61 mg/l - 96,0 h (OECD Test Guideline 203)

12.2 Persistence and degradability

Biodegradability anaerobic - Exposure time 28 d
Result: 4% - Not readily biodegradable.
Remarks: (ECHA)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Endocrine disrupting properties

Product:  
Assessment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
No data available

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2389  
IMDG: 2389  
IATA: 2389

14.2 UN proper shipping name
ADR/RID: FURAN  
IMDG: FURAN  
IATA: Furan  
Passenger Aircraft: Not permitted for transport  
Cargo Aircraft: Not permitted for transport

14.3 Transport hazard class(es)
ADR/RID: 3  
IMDG: 3  
IATA: 3

14.4 Packaging group
ADR/RID: I  
IMDG: I  
IATA: -

14.5 Environmental hazards
ADR/RID: no  
IMDG Marine pollutant: no  
IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Furan
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles: Furan
National legislation

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.

EUH019 May form explosive peroxides.
H224 Extremely flammable liquid and vapor.
H302 Harmful if swallowed.
H302 + H332 Harmful if swallowed or if inhaled.
H315 Causes skin irritation.
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