



## Safety Data Sheet

Material Name: SAFETY-KLEEN 2-FURANCARBOXYALDEHYDE

SDS ID: 820020

### \*\*\* Section 1 - Identification \*\*\*

**Product Identifier**

SAFETY-KLEEN 2-FURANCARBOXYALDEHYDE

**Product Code**

1061761

**Synonyms**

Furaldehydes, Furfural

**Recommended Use**

If this product is used in combination with other products, refer to the Safety Data Sheet for those products.

**Restrictions on Use**

None known.

**Manufacturer Information**

Safety-Kleen Systems, Inc.  
2600 North Central Expressway  
Suite 200  
Richardson, TX 75080

Phone: 1-800-669-5740  
[www.safety-kleen.com](http://www.safety-kleen.com)

Emergency # 1-800-468-1760

**Issue Date**

May 9, 2015

**Supersedes Issue Date**

January 9, 2014

**Original Issue Date**

March 29, 2007

### \*\*\* Section 2 - Hazard(s) Identification \*\*\*

**Classification in Accordance with 29 CFR 1910.1200.**

Flammable Liquids, Category 4  
Acute Toxicity (Oral), Category 3  
Acute Toxicity (Dermal), Category 4  
Acute Toxicity (Inhalation), Category 3  
Skin Corrosion/Irritation, Category 2  
Serious Eye Damage/Eye Irritation, Category 2  
Carcinogenicity, Category 2  
Specific Target Organ Toxicity, Single Exposure Category 3

**GHS LABEL ELEMENTS**

**Symbol(s)**



**Signal Word**

DANGER!

**Hazard Statement(s)**

Combustible liquid  
Toxic if swallowed  
Harmful in contact with skin  
Toxic if inhaled  
Causes skin irritation

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Causes serious eye irritation  
Suspected of causing cancer  
May cause respiratory irritation

## Precautionary Statement(s)

### Prevention

Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product.

### Response

IF exposed or concerned: Get medical advice/attention. In case of fire:  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician. IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

### Storage

Store in a well-ventilated place. Keep container tightly closed.

### Disposal

Dispose of in accordance with all applicable federal, state and local regulations.

### Hazard(s) Not Otherwise Classified

None known.

## \*\*\* Section 3 - Composition / Information on Ingredients \*\*\*

CAS	Component	Percent
98-01-1	Furfural	99-100

## \*\*\* Section 4 - First Aid Measures \*\*\*

### Description of Necessary Measures

#### Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.

#### Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

#### Ingestion

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

### Most Important Symptoms/Effects

#### Acute

Toxic if swallowed or inhaled. Harmful in contact with skin. Causes skin and serious eye irritation.

#### Delayed

Cancer hazard, respiratory irritation.

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### Indication of Immediate Medical Attention and Special Treatment Needed, If Needed

IF exposed: Call a POISON CENTER or doctor/physician. Treatment may vary with condition of victim and specifics of incident. Call 1-800-468-1760 for additional information.

### \*\*\* Section 5 - Fire-Fighting Measures \*\*\*

#### Suitable Extinguishing Media

Regular foam, carbon dioxide, dry chemical.

#### Unsuitable Extinguishing Media

Do not use high-pressure water streams.

#### Specific Hazards Arising from the Chemical

Combustible in the presence of open flames, sparks, heat and oxidizing materials. May polymerize in the presence of heat. Vapor may travel to ignition source and flashback. Vapors will spread along the ground and collect in low or confined areas. Run-off to sewer may create a fire or explosion hazard. Heated containers may rupture, explode, or be thrown into the air. "Empty" containers may retain residue and can be dangerous.

#### Hazardous Combustion Products

Decomposition and combustion materials may be toxic. Burning may produce carbon monoxide and various hydrocarbons.

#### Special Protective Equipment and Precautions for Firefighters

A positive pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

#### Fire Fighting Measures

Keep storage containers cool with water spray. Keep storage containers cool with water spray. Heated containers may rupture or be thrown into the air. "Empty" containers may contain residue and can be dangerous.

#### NFPA Ratings: Health: 3 Fire: 2 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### \*\*\* Section 6 - Accidental Release Measures \*\*\*

#### Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

#### Methods and Materials for Containment and Clean Up

Remove all ignition sources. All equipment used when handling the product must be grounded. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in **Section 8**. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain spill away from surface water and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean, sparkproof tool into a sealable container for disposal.

Additionally, for large spills: Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for collection and later disposal.

### \*\*\* Section 7 - Handling and Storage \*\*\*

#### Precautions for Safe Handling

Keep away from heat, sparks, or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean, sparkproof tools and explosion-proof equipment. When transferring product, metal containers, including trucks and tank cars, should be grounded and bonded. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes. Do not smoke while using this product.

#### Conditions for Safe Storage, Including Any Incompatibilities

Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Keep container tightly closed. Keep cool. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Empty containers may contain product residue. Store in a well-ventilated place. Store locked up. **See Section 14**, Transportation Information for Packing Group information.

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## Incompatibilities

Oxidizing materials, acids.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Component Exposure Limits

#### Furfural (98-01-1)

ACGIH: 2 ppm TWA

Skin - potential significant contribution to overall exposure by the cutaneous route

OSHA Final: 5 ppm TWA; 20 mg/m<sup>3</sup> TWA

prevent or reduce skin absorption

OSHA Vacated: 2 ppm TWA; 8 mg/m<sup>3</sup> TWA

Prevent or reduce skin absorption

### Appropriate Engineering Controls

Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below applicable exposure limits. Where explosive mixtures may be present, equipment safe for such locations should be used.

### Individual Protective Measures, such as Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to regulatory requirements. The following PPE should be considered the minimum required: safety glasses, gloves, lab coat, or apron.

### Eyes/Face Protection

Safety glasses with side shields should be worn at a minimum. Additional protections, such as goggles, face shields, or respirators may be needed depending upon anticipated use and concentrations of vapors or mists. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Contact lens use is not recommended.

### Skin Protection

Where skin contact is likely, wear chemical impervious protective gloves; use of natural rubber (latex) or equivalent gloves is not recommended. To avoid prolonged or repeated contact where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, coveralls, long sleeve shirts, or other protective clothing.

### Respiratory Protection

Use NIOSH-certified, air-purifying respirators with N-, P-, or R- series particulate filter and organic vapor cartridges when concentration of vapor or mist exceeds applicable exposure limits. Protection provided by air-purifying respirators is limited. Selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

**Appearance/Odor :** Colorless to light yellow liquid with an almond-like odor

**pH:** Not available.

**Odor Threshold:** Not available.

**Boiling Point:** 161.9°C(323.4°F)

**Melting Point:** -36.1°C (33°F)

**Solubility (H<sub>2</sub>O):** 8 gm/100gm water @20°C (67°F)

**Specific Gravity:** 1.16 (water = 1).

**Density:** Not available.

**Octanol/H<sub>2</sub>O Coeff.:** Not available.

**Evaporation Rate:** 0.1 (BuAc = 1)

**Auto Ignition Temperature:** 315.46°C (599.8°F)

**LFL:** 2.1

**Flash Point:** 139.8°F (59.9°C)

**UFL:** 19.3

**Viscosity:** Not available

**Vapor Pressure:** 1 mmHg@ 18.5°C (64°F)

**Vapor Density:** Not available

### Other Property Information

No information is available.

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### \*\*\* Section 10 - Stability & Reactivity \*\*\*

#### Reactivity

Polymerization is not known to occur under normal temperature and pressures. Not reactive with water. Violent polymerization can occur when heated or upon contact with strong acids or bases.

#### Chemical Stability

Stable under normal temperatures and pressures.

#### Possibility of Hazardous Reactions

Polymerization is not known to occur under normal temperature and pressures.

#### Conditions To Avoid

Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

#### Incompatible Materials

Avoid oxidizing agents, acids, bases.

#### Hazardous Decomposition Products

None under normal temperatures and pressures.

### \*\*\* Section 11 - Toxicological Information \*\*\*

#### Toxicity Data and Information

##### Component Analysis - LD50/LC50

###### Furfural (98-01-1)

Inhalation LC50 Rat 175 ppm 6 h; Oral LD50 Rat 50 mg/kg

##### Information on Likely Routes of Exposure

###### Inhalation

Toxic or fatal if inhaled. Irritating to the respiratory system. Overexposure may result in central nervous system depression.

###### Ingestion

Toxic by ingestion – may be fatal if swallowed. May cause throat irritation, nausea, vomiting, and central nervous system effects.

###### Skin Contact

Harmful in contact with skin. Causes skin irritation. May cause dermatitis and possibly eczema, allergic sensitization and photosensitization. May be absorbed through the skin with systemic effects and cause harm as noted under Inhalation.

###### Eye Contact

Causes serious eye irritation.

###### Immediate Effects

Toxic if swallowed, harmful in contact with skin, toxic if inhaled, causes skin irritation and serious eye irritation.

###### Delayed Effects

Cancer hazard, central nervous system depression.

###### Irritation/Corrosivity

Causes skin and serious eye irritation.

###### Respiratory Sensitization

May cause respiratory irritation.

###### Skin Sensitization

Harmful in contact with skin. Causes skin irritation.

###### Carcinogenicity

Suspected of causing cancer.

###### Component Carcinogenicity

###### Furfural (98-01-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 63 [1995] (Group 3 (not classifiable))

###### Germ Cell Mutagenicity

No information available for the product.

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## Teratogenicity

No information available for the product.

## Reproductive Effects

No information available for the product.

## Specific Target Organ Effects - Single Exposure

May cause respiratory irritation.

## Specific Target Organ Effects - Repeated Exposure

Central nervous system, respiratory system.

## Aspiration Hazard

No data available.

## Medical Conditions Aggravated by Exposure

Individuals with pre-existing respiratory tract (nose, throat, and lungs), central nervous system, cardiovascular, blood, kidneys, liver, skin and/or skin disorders may have increased susceptibility to the effects of exposure.

## \*\*\* Section 12 - Ecological Information \*\*\*

### Ecotoxicity

Toxic to aquatic life.

### Component Analysis - Ecotoxicity - Aquatic Toxicity

#### Furfural (98-01-1)

Duration/Test/Species	Concentration/Conditions	Notes
96 Hr LC50 Pimephales promelas	13.4 - 19.3 mg/L [static]	
96 Hr LC50 Pimephales promelas	16.79 - 26.35 mg/L [flow-through]	

### Persistence and Degradability

May cause long term effects in the aquatic environment.

### Bioaccumulation Potential

Product is not expected to bioaccumulate.

### Mobility in Soil

No information available for the product.

### Other Adverse Effects

No additional information is available.

## \*\*\* Section 13 - Disposal Considerations \*\*\*

### Disposal Methods

Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding proper recycling or disposal.

If discarded, this product is considered a RCRA ignitable waste, D001. Based on available data, this information applies to the product as supplied to the user. Processing, use, or contamination by the user may change the waste code applicable to this product.

## \*\*\* Section 14 - Transport Information \*\*\*

DOT	Shipping Name: Furaldehydes
	UN/NA #: UN1199 Hazard Class: 6.1 Packing Group: II
	Required Label(s): POISON
TDG	Shipping Name: Furaldehydes
	UN/NA #: UN1199 Hazard Class: 6.1, (3) Packing Group: II
	Required Label(s): POISON

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## \*\*\* Section 15 - Regulatory Information \*\*\*

### Federal Regulations

#### SARA 302/304

#### Component Analysis

Based on the ingredient listed in Section 3, this product does not contain any "extremely hazardous substances" listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or section 304 as identified in 40 CFR Part 355, Appendix A and B.

#### SARA 311/312 Hazardous Categories

**Acute Health:** Yes **Chronic Health:** Yes **Fire:** Yes **Pressure:** No **Reactive:** Yes

#### SARA Section 313

#### Component Analysis

This product does not contain any "toxic" chemical subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

### CERCLA

#### Component Analysis

Based on the ingredient(s) listed in SECTION 3, this product contains the following "hazardous substance" listed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4 with the following reportable quantities (RQ):

**Furfural (98-01-1)**

5000 lb final RQ; 2270 kg final RQ

### TSCA Inventory

All the components of this product are listed on, or are automatically included as "naturally occurring chemical substances" on, or are exempted from the requirement to be listed on, the TSCA Inventory.

#### Component Analysis

Component	CAS #	TSCA
Furfural	98-01-1	Yes

### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	MA	MN	NJ	PA	CA
Furfural	98-01-1	Yes	Yes	Yes	Yes	Yes

None of this product's components are listed on the state lists from CA, MA, MN, NJ, or PA.

No components are listed under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

### Canadian Regulations

#### Component Analysis

Component	CAS #	CAN
Furfural	98-01-1	DSL

### Canadian WHMIS Information

B2, D2A, D2B.

#### Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

**Furfural (98-01-1)**

1 %

## \*\*\* Section 16 - Other Information \*\*\*

### Revision Information

Reformat to OSHA HazCom 29 CFR 1910.1200 adoption of GHS Revision 3.

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### Key/Legend

ACGIH - American Conference of Governmental Industrial Hygienists; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

### Disclaimer

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, Safety-Kleen assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information or the product to which the information refers. The data contained on this sheet apply to the product as supplier to the user.