

Section 1. Product and Company Identification

Product Name Furfural
CAS Number 98-01-1

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
☎ (914) 654-6800 📠 (914) 654-6899
🌐 parchem.com ✉ info@parchem.com

EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the Substance or Mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 3), H402

Hazards not otherwise classified (HNOC) or not covered by GHS:

Photosensitizer.

GHS Label Elements, Including Precautionary Statements

Pictograms:



Signal Word: Danger

Hazard and Precautionary Statements:

Hazard Statements

H227 Combustible liquid.
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.



H351 Suspected of causing cancer.
H402 Harmful to aquatic life.

Precautionary Statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.
P284 Wear respiratory protection.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Section 3. Composition / Information on Ingredients

Common Name	Furfural
Synonym(s)	2-Furaldehyde; Furan-2-Carboxaldehyde
Formula	C ₅ H ₄ O ₂
CAS Number	98-01-1



COMPONENT	CLASSIFICATION	CONCENTRATION
Furfural	Flam. Liq. 4; Acute Tox. 3; Acute Tox. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; Aquatic Acute 3; H227, H301, H312, H319, H330, H351, H402	≤ 100%

Section 4. First Aid Measures

Description of First-aid Measures

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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

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

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

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

Most Important Symptoms and Effects, both Acute and Delayed: The most important known symptoms and effects are described in the labelling and/or in section 11

Indication of any Immediate Medical Attention and Special Treatment Needed: No data available

Section 5. Firefighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Special Hazards arising from the Substance or Mixture: Carbon oxides

Advice for Firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further Information: Use water spray to cool unopened containers.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.



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). Keep in suitable, closed containers for disposal.

Reference to Other Sections: For disposal see section 13.

Section 7. Handling and Storage

Precautions for Safe Handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

Conditions for Safe Storage, including any Incompatibilities: 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.

Storage Class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

Section 8. Exposure Controls / Personal Protection

Control Parameters

Components with Workplace Control Parameters

Component	CAS Number	Value	Control Parameters	Basis
2-Furaldehyde	98-01-1	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	5.000000 ppm 20.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m ³ is approximate.		
		See Appendix D - Substances with No Established RELs		

Biological Occupational Exposure Limits

Component	CAS Number	Parameters	Value	Biological Specimen	Basis
2-Furaldehyde	98-01-1	Furoic acid	200.0000 mg/L	In Urine	ACGIH – Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

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.

Body Protection: Complete suit protecting against chemicals, 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 multipurpose 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. Discharge into the environment must be avoided.

Section 9. Physical and Chemical Properties

Appearance: Clear, viscous, liquid

Color: Light brown

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting Point/Range: -36°C (-33°F) - lit.

Initial Boiling Point and Boiling Range: 162°C (324°F) - lit.

Flash Point (Closed Cup): 61.7°C (143.1°F)

Evaporation Rate: No data available

Flammability (solid, gas): No data available

Upper/Lower Flammability or Explosive limits

Upper Explosion Limit: 19.3% (V)

Lower Explosion Limit: 2.1% (V)

Vapor Pressure: 18.0 hPa (13.5 mmHg) at 55°C (131°F)

2.3 hPa (1.7 mmHg) at 20°C (68°F)

Vapor Density: 3.32 - (Air = 1.0)

Relative Density: 1.16 g/cm³ at 25°C (77°F)

Water Solubility: Soluble

Partition Coefficient (n-Octanol/Water): log Pow: 0.41

Auto-ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Explosive Properties: No data available

Oxidizing Properties: No data available

Other Safety Information

Surface Tension: 43.5 mN/m at 20°C (68°F)

Relative Vapor Density: 3.32 - (Air = 1.0)

Section 10. Stability and Reactivity

Reactivity: No data available

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: No data available

Conditions to Avoid: Heat, flames and sparks.

Incompatible Materials: Oxidizing agents, Strong acids

Hazardous Decomposition Products

Other Decomposition Products: No data available

In the event of fire: See section 5

Section 11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity

LD50 Oral – Rat – Male: 145 - 204 mg/kg

LD50 Oral – Rat – Female: 90 - 119 mg/kg

LC50 Inhalation – Rat – Male and Female – 4h: 0.54 - 1.63 mg/L (OECD Test Guideline 403)

LD50 Dermal – Rabbit: > 2,000 mg/kg (OECD Test Guideline 402)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

No data available



Skin Corrosion/Irritation

Skin – Rabbit

Result: Mild skin irritation – 24h (OECD Test Guideline 404)

Serious Eye Damage/Eye Irritation

Eyes – Rabbit

Result: Moderate eye irritation – 24h (OECD Test Guideline 405)

Respiratory or Skin Sensitization

Maximization Test (GPMT) – Guinea pig

Did not cause sensitization on laboratory animals.

(OECD Test Guideline 406)

Germ Cell Mutagenicity

Mouse

lymphocyte

Mutation in mammalian somatic cells.

Human

HeLa cell

DNA inhibition

Human

lymphocyte

Sister chromatid exchange

Carcinogenicity

Carcinogenicity – Rat – Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 3 – Group 3: Not classifiable as to its carcinogenicity to humans (2-Furaldehyde)

NTP: No component of this product, present at levels greater than or equal to 0.1%, is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product, present at levels greater than or equal to 0.1%, is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive Toxicity: No data available

Specific Target Organ Toxicity – Single Exposure: No data available

Specific Target Organ Toxicity – Repeated Exposure: No data available



Aspiration Hazard: No data available

Additional Information

RTECS: LT7000000

Central nervous system depression, Headache, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough
Stomach - Irregularities - Based on Human Evidence

Section 12. Ecological Information

Toxicity

Toxicity to fish LC50 – Pimephales promelas (fathead minnow) - 32 mg/L - 96h
Toxicity to daphnia and other aquatic invertebrates
EC50 – Daphnia magna (Water flea) - 29 mg/L - 54h
Toxicity to algae EC50 – Other microorganisms - 570 mg/L - 24h

Persistence and Degradability

Biodegradability aerobic Biochemical oxygen demand - Exposure time 28d

Bioaccumulative Potential: No data available

Mobility in Soil: No data available

Results of PBT and vPvB Assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other Adverse Effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (US)

UN Number: 1199

Class: 6.1 (3)

Packing Group: II

Proper Shipping Name: Furaldehydes

Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG

UN Number: 1199

Class: 6.1 (3)



Packing Group: II
EMS-No: F-E, S-D
Proper Shipping Name: Furaldehydes

IATA
UN Number: 1199
Class: 6.1 (3)
Packing Group: II
Proper Shipping Name: Furaldehydes

Section 15. Regulatory Information

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components

2-Furaldehyde (CAS-No. 98-01-1)
Revision Date: 1993-04-24

Pennsylvania Right to Know Components

2-Furaldehyde (CAS-No. 98-01-1)
Revision Date: 1993-04-24

New Jersey Right to Know Components

2-Furaldehyde (CAS-No. 98-01-1)
Revision Date: 1993-04-24

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

HMIS Rating

Health: 2*
Flammability: 2
Reactivity: 0

NFPA Rating

Health: 2
Flammability: 2
Reactivity: 0



Section 16. Other Information

Disclaimer: 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.

