Specialized in chemicals

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MaterialSafety Data Sheet

2 - Furancarboxyaldehyde

Section 1: Chemical Product and Company Identification

Product Name: 2-Furancarboxyaldehyde
Catalog Codes: SLF1573, SLF2086
CAS#: 98-01- 1
RTECS: LT7000000
TSCA: TSCA 8(b) inventory: 2-Furancarboxyaldehyde
CI#: Not available.
Synonym: Furfural; Furaldehyde
Chemical Name: 2-Furancarboxyaldehyde
Chemical Formula: C5-H4-O2

Contact Information for Emergency: (0086) 551 65418681

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
2-Furancarboxyaldehyde	98-01- 1	100

Toxicological Data on Ingredients: 2-Furancarboxyaldehyde: ORAL (LD50): Acute: 65 mg/kg [Rat.]. 400 mg/kg [Mouse]. VAPOR (LC50): Acute: 175 ppm 6 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer).
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/male [POSSIBLE]. The substance may be toxic to kidneys, the nervous system, liver, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream . Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 392°C (737.6°F)

Flash Points: CLOSED CUP: 60°C (140°F). OPEN CUP: 68°C (154.4°F) (Cleveland).

Flammable Limits: LOWER: 2. 1% UPPER: 19.3%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
When heated to decomposition it emits acrid smoke and irritating fumes. Vapor forms flammable mixture with air. Vapor may travel considerable distance to source of ignition and flash back. Spontaneous occurs when furfural is mixed with sodium hydrogen carbonate.

Special Remarks on Explosion Hazards: Not available

Section 6: Accidental Release Measures

Small spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Do not store below 8°C (46.4°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 5 (ppm) from OSHA (PEL) [United States] TWA: 2 (ppm) from ACGIH (TLV) [United States] TWA: 7.9 (mg/m3) from ACGIH (TLV) [United States] TWA: 5 (ppm) TWA: 20 (mg/m3) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Almond-like. (Strong.)

Taste: distinct caramel

Molecular Weight: 96.09 g/mole

Color: Colorless. Amber.

pH (1% soln/water): Not available.

Boiling Point: 161.8°C (323.2°F)

Melting Point: -38.7°C (-37.7°F)

Critical Temperature: 397°C (746.6°F)

Specific Gravity: 1.1598 (Water = 1)

Vapor Pressure: 0.3 kPa (@ 20°C)

Vapor Density: 3.3 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.078 - 0.4 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 0.4

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in cold water, hot water, diethyl ether, acetone. Soluble in chloroform, petroleum ether, benzene, and ethanol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Light sensitive. Furfural may undergo a violent reaction when in the presence of strong mineral acids, alkalies, or oxidizing materials. It is also incompatible with ammonia, aliphatic amines, and aromatic amines.. Many coatiangs and plastics are attacked by furfural. This material may spontaneously polymerize under certain conditions. Polymerization reactions are usually exothermic (heat releasing). Once initiated, it cannot be stopped until it reaches completion.

Special Remarks on Corrosivity: Not available.

Polymerization:
Yes. This material may spontaneously polymerize under certain conditions. Polymerization reactions are usually exothermic (heat releasing). Once initiated, it cannot be stopped until it reaches completion.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 65 mg/kg [Rat.]. Acute toxicity of the vapor (LC50): 175 ppm 6 hours [Rat.].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. 3 (Not classifiable for human.) by IARC.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. DEVELOPMENTAL
TOXICITY: Classified Reproductive system/toxin/male [POSSIBLE]. May cause damage to the following organs: kidneys, the nervous system, liver, upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case

of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material. May cause adverse reproductive effects (fetotoxcity and paternal effects) based on animal data. May cause cancer (tumorigenic) based on animal data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects:
Skin: Causes skin irritation. Absorption may occur through intact skin.
Eyes: Causes eye irritation.
Inhalation: Vapor is irritating to mucous membranes and upper respiratory tract and may affect behavior/central nervous system. Symptoms may include sore throat, and may cause headaches, dizziness, labored breathing, shortness of breath, and pulmonary congestion. May also affect metabolism.
Ingestion: Harmful if swallowed. May cause gastrointestinal tract irritation with sore throat, abdominal pain, nausea, and vomiting, and diarrhea. It may also affect behavior/Central Nervous system (seizures, convulsions, ataxia, central nervous system depression, headache, fatigue, tremor), respiration (respiratory stimulation), liver, blood, urinary system, peripheral nervous system, and may cause tongue numbness, loss of taste sense, and throat itching.
Chronic Potential Health Effects: Skin: Repeated or prolonged exposure may dermal sensitization, eczema, and allergic contact dermatitis.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 37.1 ppm 96 hours [Trout] .

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal :
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Furaldehyde UNNA: 1199 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

15. 1. International regulations

CAS No.	TSCA	EINECS	DSL	IECSC	NZIoC	PICCS	KECI	AICS
98-01- 1	Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed

TSCA: United States Toxic Substances Control Act Inventory

EINECS: European Inventory ofExisting Commercial Chemical Substances DSL:

Canadian Domestic Substances List

IECSC: China Inventory ofExisting Chemical Substances

PICCS: Philippines Inventory of Chemicals and Chemical Substances

NZIoC: New Zealand Inventory ofChemicals

KECI: Existing and Evaluated Chemical Substances

AICS: List of existing chemical substances in Australia

Section 16: Other Information

References: Not available.
Other Special Considerations: Not available.
Created: 10/09/2005 06:31 PM
Last Updated: 05/21/2022 12:00 PM

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