

Material Safety Data Sheet

May be use to comply with OSHA's Hazard Communication Standard, 29CFR 1910.1200. Standard must be consulted for specific requirements.

Furan

MSDS Date: 7/1/2012

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name:

Furan

Manufacturer's Name and Address:

Penn A Kem LLC

3324 Chelsea Avenue

Memphis, TN 38108

Emergency Number, CHEMTREC

Information, if inside US:

800 424 9300

(877) 895 7366

SECTION 2: Composition/Information on Ingredients

CAS NO.: 110-00-9

EINECS/ELINCS: 203-727-3

Chemical Name: furan

Molecular Weight: 68.08

Chemical Formula: C₄H₄O

Percent: 100%

Note: This material may be inhibited with 250 ppm BHT.

SECTION 3: Hazards Identification

Emergency Overview:

Danger. Extremely flammable, highly toxic, colorless to light yellow color, liquid.

Route of Entry

Inhalation, skin absorption, ingestion.

Potential Health Effects

May cause cancer

Acute overexposure

Odor, headache, fatigue, CNS depressant, nausea, vomiting, unconsciousness, respiratory paralysis.

Eye:

May cause eye irritation.

Skin:

May cause skin irritation. May cause skin allergy.

Ingestion:

May cause irritation of the digestive tract.

Inhalation:

May cause respiratory tract irritation. May cause build-up of fluid in the lungs.

Chronic:

Listed by IARC as 2B, Possibly carcinogenic to humans

Listed by NTP as reasonably anticipated to cause cancer.

Listed by OSHA as select carcinogen.

Target Organs:

Liver, kidneys, G.I. system, vapors are CNS depressant. May lower blood pressure.

Note: Avoid skin contact. Do not breath vapors. Handle in a closed piping system or in a laboratory hood.

SECTION 4: First Aid Measures

Eyes:

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation:

Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Note to Physician: Treat symptomatically and supportively.

SECTION 5: Fire Fighting Measures

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General Information:	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media:	Use agent most appropriate to extinguish fire. Use dry chemical, carbon dioxide, or appropriate foam. Water spray may be ineffective and may spread fire.
Flash Point:	-36°C
Auto ignition Temperature:	390°C
Explosion limits, Lower:	2.3 vol% at 20°C.
Upper:	14.3 vol% at 20°C.
NFPA Rating:	Health: 3; Flammability: 4; Instability: 1

SECTION 6: Accidental Release Measures

General Information:	Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:	Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

SECTION 7: Handling and Storage

Handling:	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.
Storage:	Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

SECTION 8: Exposure Controls, Personal Protection

Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits:	
Chemical name:	furan
ACGIH:	None listed
NIOSH:	None listed
OSHA – Final PELs	None listed

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SECTION 8: Exposure Controls, Personal Protection Cont'd

Personal Protective Equipment:

- Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin:** Wear appropriate protective gloves to prevent skin exposure.
- Clothing:** Wear appropriate protective clothing to prevent skin exposure.
- Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

SECTION 9: Physical and Chemical Properties

- Physical State:** Liquid
- Appearance:** Clear, colorless to light yellow color.
- Odor:** Strong distinctive odor.
- pH:** Not available.
- Vapor Pressure:** 9.2 PSI at 20°C.
- Vapor Density:** 2.3
- Evaporation Rate:** Not available.
- Viscosity:** Not available.
- Boiling Point:** 32°C
- Freezing/Melting Point:** Not available.
- Decomposition Temperature:** Not available.
- Solubility:** Not available.
- Specific Gravity/Density:** 0.94 g/cc.
- Molecular Formula:** C₄H₄O
- Molecular Weight:** 68.08

SECTION 10: Stability and Reactivity

- Chemical Stability:** Stable under normal temperatures and pressures.
- Conditions to Avoid:** Incompatible materials, excess heat, strong oxidants.
- Incompatibilities with other Materials:** Strong oxidizing agents.
- Hazardous Decomposition Products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
- Hazardous Polymerization:** Has not been reported.

SECTION 11: Toxicological Information

- RTECS#:** LT8524000 furan.
- CAS#:** 110-00-9
- LD50/LC50:** Rat, oral LD50, greater than 2 g/kg./ Rabbit, oral LD50, 234 mg/kg, Rat, LC50 3400 ppm/1hr (Hazelton), Mouse LC50 43 ppm/1 hr (AIHAAP)
- Carcinogenicity:** Listed by IARC as 2B, possibly carcinogenic to humans
Listed by NTP as reasonably anticipated to cause cancer .
Listed by OSHA as S, select carcinogen

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Epidemiology: Target organ liver, kidney, gastrointestinal.

SECTION 11: Toxicological Information Cont'd

Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: EC mutagenic cat 3
Neurotoxicity: No information available.
Other Studies: Ames test negative.

SECTION 12: Ecological Information

Ecotoxicity: LC50 (96 hr): 61 mg/l (Pimephales Promelas).
Volatile organic compounds (VOC): 100%.
WGK: 2 (internal classification).

SECTION 13: Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification. Per 261.33(f) furan carries a U124 code.

RCRA P-Series: None listed.
RCRA U-Series: U124

SECTION 14: Transport Information

US DOT	
Shipping Name:	Furan, 3
Hazard Class:	Flammable Liquid, toxic
UN Number:	UN 2389
Packing Group:	I (RQ = 100 lbs.)

International	
Shipping Name:	Furan, 3
Hazard Class:	Flammable Liquid, toxic
UN Number:	UN 2389
Packing Group:	I (RQ = 100 lbs.)

SECTION 15: Regulatory Information

US FEDERAL:

TSCA (Toxic Substance Control Act): Furan is listed on the TSCA inventory.

TSCA Significant New Use Rule: None of the chemicals in this product have SNUR under TSCA.

Section 12b: None of the chemicals in this product are listed under TSCA Section 12b.

CERLA Hazardous Substances and Corresponding RQs:
Furan has an RQ of 100 lbs.

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SARA Section 302 (Superfund Amendments and Reauthorizations Act): Furan has TPQ of 500.

313 Reportable Ingredients: Furan is reportable under Section 313.

Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules: None of the chemicals are under a Chemical Test Rule.

Clean Act: This material does not contain any hazardous air pollutants, Class 1 Ozone depleters, or Class 2 Ozone depleters.

Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances, Priority Pollutants, or Toxic Pollutants under the CWA.

OSHA: OSHA considers furan to be highly hazardous.

STATE:

California Prop 65:

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives:

Hazard Symbols: Extremely flammable, Toxic

Risk Phrases: R45 May cause cancer

R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed. Extremely flammable

Safety Phrases:

- S 16 Avoid contact with skin and eyes.
- S 37, Wear suitable gloves.
- S 45, In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 28A, In case of skin contact, wash immediately with plenty of water.

WGK (Water Danger/Protection): 2 (internal classification).

Canada – DSL/NDSL: Furan is listed on the DSL or NDSL list.

Canada – WHMIS:

Canadian Ingredient Disclosure List: None.

SECTION 16: Additional Information

MSDS Creation Date: 07/15/2003

Revision #7 Date: 7/1/2012 Updated SARA 313

The data contained herein is based on information currently available to Penn A Kem, and believed to be factual and the opinions expressed to be those of qualified experts; however, this data is not to be taken as a warranty or representation for which Penn A Kem assumes legal responsibility.