



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT CODE A0300
PRODUCT NAME 2-FURALDEHYDE
SUPPLIER Shanghai M & U International Trade Co., Ltd.
Rm 1717, No 598 North NuJiang Road
200333 Shanghai, China
+86-21-32515501 32515502
sales@mu-intel.com

FOR EMERGENCIES CALL CHEMTREC: 800-424-9300 (24-HOURS)

2. HAZARD IDENTIFICATION:

Emergency Overview

OSHA Hazards

Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Harmful by skin absorption., Irritant, Carcinogen

Target Organs

Nerves, Liver, Kidney

Other hazards which do not result in classification

Photosensitizer.

GHS Classification

Flammable liquids (Category 4)

Acute toxicity, Oral (Category 3)

Acute toxicity, Inhalation (Category 2)

Acute toxicity, Dermal (Category 4)

Skin irritation (Category 3)

Eye irritation (Category 2A)

Carcinogenicity (Category 2)

Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H227 Combustible liquid

H301 Toxic if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H330 Fatal if inhaled.

H351	Suspected of causing cancer.
H402	Harmful to aquatic life.
Precautionary statement(s)	
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P305 P351 P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard	2
Flammability	2
Physical hazards	2

NFPA Rating

Health hazard	2
Fire	2
Reactivity Hazard	0

Potential Health Effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Skin	Causes skin irritation. .
Eyes	Causes eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION AND INFORMATION ON INGREDIENTS:

Synonym	Furan-2-carboxaldehyde Furfural
Formula	C5 H4 O2
Molecular Weight	96.08 g/mol

CAS-No	EC-No	Index-No.	Concentration
98-01-1	202-627-7	605-010-00-4	

4. FIRST-AID GUIDE:

General advice

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

If inhaled

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

In case of skin contact

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

In case of eye contact

Flush eyes with water as a precaution

If swallowed

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

5. FIRE-FIGHTING GUIDE:

Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE GUIDE:

Personal precautions

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.

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

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

Store in cool place. 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.

8. EXPOSURE AND PERSONAL PROTECTION:

Contains no substances with occupational exposure limit values.

Personal protective equipment:

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).

Hand 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.

Eye 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 and 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.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance

Form	LIQUID
Color	COLORLESS TO YELLOW TURNING RED-BROWN ON LONG STORAGE

Safety data

Melting point (°C)	-34
Boiling point (°C)	162
Flash point (°F) Closed cup	141
Ignition temperature	315 °C
Lower explosion limit	2.1 %(V)
Upper explosion limit	19.3 %(V)
Vapor pressure (mmHg@20°C)	1.0
Density @25 °C	1.155
Water solubility	MODERATELY
Relative vapor density	3.3
Odor	PUNGENT, ALMOND-LIKE

10. STABILITY AND REACTIVITY:

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Oxidizing agents, Strong acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION:

Acute toxicity

Oral LD50

LD50 Oral - rat - male - 145 - 204 mg/kg

LD50 Oral - rat - female - 90 - 119 mg/kg

Inhalation LC50

LC50 Inhalation - rat - male and female - 4 h - > 0.54 - < 1.63 mg/l

Dermal LD50

LD50 Dermal - rabbit - > 2,000 mg/kg

Skin corrosion/irritation

Skin - rabbit - Mild skin irritation - 24 h - OECD Test Guideline 404

Serious eye damage/eye irritation

Eyes - rabbit - Moderate eye irritation - 24 h - OECD Test Guideline 405

Respiratory or skin sensitization

Maximization Test - guinea pig - OECD Test Guideline 406 - Did not cause sensitization on laboratory animals.

Germ cell mutagenicity

Genotoxicity in vitro - mouse - lymphocyte

Mutation in mammalian somatic cells.

Genotoxicity in vitro - Human - HeLa cell

DNA inhibition

Genotoxicity in vitro - 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.

Potential health effects

Inhalation Inhalation Toxic if inhaled. Causes respiratory tract irritation.

Ingestion Toxic if swallowed.

Skin Causes skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure

Central nervous system depression, Headache, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, Cough

Additional Information

RTECS: LT7000000

12. ECOLOGICAL INFORMATION:

Toxicity

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 32 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 29 mg/l - 24 h

Toxicity to algae EC50 - other microorganisms - 570 mg/l - 24 h

Persistence and degradability

Biodegradability aerobic Biochemical oxygen demand
Result: 93.5 % - Readily biodegradable.
Method: OECD Test Guideline 301C

Other adverse effects

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

13. DISPOSAL RECOMMENDATIONS:

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORTATION INFORMATION:

DOT (US)

UN number: 2810 Class: 6.1 Packing group: III
Proper shipping name: TOXIC LIQUID, ORGANIC, NOS

IMDG

UN number: 2810 Class: 6.1 Packing group: III
Proper shipping name: TOXIC LIQUID, ORGANIC, NOS

IATA

UN number: 2810 Class: 6.1 Packing group: III
Proper shipping name: TOXIC LIQUID, ORGANIC, NOS

15. REGULATORY INFORMATION:

OSHA Hazards

Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Harmful by skin absorption., Irritant, Carcinogen

SARA 302 Components

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

SARA 313 Components

SARA 313: 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.	Revision Date
	98-01-1	

Pennsylvania Right To Know Components

2-Furaldehyde	CAS-No.	Revision Date
	98-01-1	

New Jersey Right To Know Components

2-Furaldehyde	CAS-No.	Revision Date
	98-01-1	

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.

16. OTHER INFORMATION:

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond M&U's control, it is the responsibility of the user both to determine safe conditions for use of this product and to assume liability for loss, damage, or expense arising out of the products improper use. No warranty expressed or implied regarding the product described herein will be created by or inferred from any statement or omission in the MSDS. Various federal, state, or provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in the MSDS. The user should review these regulations to ensure full compliance.