
Material Safety Data Sheet
Urea-Formaldehyde Concentrate, UFC 85

Section 1. Chemical Product and Company Identification

Product / Trade Name: Urea-Formaldehyde Concentrate, UFC 85

Chemical Family: Urea-Formaldehyde Polymer

Chemical Formula: (CH₄N₂O . CH₂O)_x

Manufacturer: Ehtemam Jam Company IRAN-Asaloye-three Petrochemical-Pars Formalin Site
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Section 2.

Hazardous Components	CAS #	% by Weight	ACGIH TLV™	OSHA PEL
Formaldehyde	50-00-0	30.0 max.	CEIL: 0.3 ppm	TWA: 0.75 ppm STEL: 2 ppm

TWAs are 8 hour exposures unless otherwise noted. STELs are 15 minute exposures unless otherwise noted.

Section 3. Hazards Identification

Health Hazard	3
Fire Hazard	2
Reactivity	1
Personal Protection	○

Note:

Personal protective equipment (PPE) is related to conditions of use. Determination of PPE is the responsibility of the employer. Refer to [Section 8 \(Exposure Controls / Personal Protection\)](#) of this MSDS for recommendations.

Emergency Overview: Colorless, clear to slightly hazy viscous liquid; pungent, irritating odor.

CAUTION!

Combustible liquid. Keep away from heat, sparks, and flames. Vapors can travel to a source of ignition and flash back. Unvented containers may develop pressure on prolonged exposure to heat. Harmful if inhaled. Inhalation of vapors or mist can cause severe respiratory irritation. Maybe harmful if absorbed through skin. Eye and skin irritation or injury may result from exposure to this product. Vapors are extremely irritating to the eyes and mucous membranes. May cause allergic skin reaction. Harmful if swallowed.

Potential Health Effects

Eye contact:

Contact with liquid or mist can cause severe eye irritation or injury. Vapors released from product can cause severe eye irritation. Symptoms may include redness, watering, itching, or a burning sensation in the eyes.

Skin Contact:

A prolonged single exposure can produce severe skin irritation or injury. Symptoms may include itching, scaling, cracking, reddening, or blistering at the site of contact.

Inhalation:

This product may be toxic by inhalation. Inhalation of vapors or mist can cause severe respiratory irritation. Vapors released from product may be irritating to the nose, throat, and lungs. Symptoms may include a burning sensation, coughing, shortness of breath, nausea, or headaches. Severe over-exposure may produce lung damage, choking, unconsciousness, or death.

Ingestion:

This product is orally toxic and may be harmful or fatal if swallowed. However, in normal industrial use, ingestion is not considered a probable route of exposure.

Chronic:

Formaldehyde may cause cancer based on animal data. Repeated or prolonged exposure to formaldehyde may cause skin sensitization, dermatitis, or other allergic reactions. The degree of sensitivity varies with individuals.

This product contains ingredients which may affect the following target organs: **respiratory system, eyes, skin**
See Section 11 Toxicological Information for additional information.

Section 4. First Aid Measures

Eye contact:

Immediately rinse with water. Remove contact lenses. Hold eyelids apart and flush eyes with water for at least 15 minutes. Get immediate medical attention.

Skin Contact:

Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation persists. Launder contaminated clothing before reuse.

Inhalation:

Remove to fresh air immediately. Keep affected person warm and at rest in a half-upright position. Get medical attention if necessary.
If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by trained personnel. Get immediate medical attention.

Ingestion:

If conscious, immediately rinse mouth and induce vomiting by giving a tablespoon of salt in a glass of warm water and repeat until vomit fluid is clear. Get immediate medical attention. Never give anything by mouth to an unconscious person.

Section 5. Fire and Explosion Data:

Fire Hazards

Combustible liquid. Keep away from heat, sparks, open flame, or other ignition sources.

Flash Point: approximately 176°F (80°C) [Pensky-Martens Closed Cup]

Flammable Limits(% by volume): Formaldehyde (gas) LOWER: 7 UPPER: 73

Extinguishing Media: Use alcohol foam, carbon dioxide, or dry chemical.

Fire Fighting Instructions:

Use self contained breathing apparatus and protection for skin. Use water spray to cool fire exposed containers and to absorb evolved gaseous formaldehyde.

Combustion Products: Irritating fumes and toxic gases.

Special Hazards:

CAUTION:

1. Vapors can travel to a source of ignition and flash back.
2. Unvented containers can build up pressure if exposed to heat (fire) and rupture violently.
3. Irritating gaseous formaldehyde is evolved from hot solutions.
4. Water runoff can cause environmental damage. Dike and collect water used to fight fire

Section 6. Accidental Release Measures

Spill and Leak Procedures:

1. Turn off all sources of heat or ignition.
2. Stop leak if you can do so without risk.
3. Ventilate area with explosion-proof equipment.
4. Use PPE appropriate to spill size and risk of exposure.
5. Confine spillage and absorb on earth, sand, or other non-combustible absorbent material.
6. Uncontaminated spilled material may be reused.
7. Neutralize the area with sodium sulfite, sodium bisulfite, or a dilute ammonia solution.
8. Retain all contaminated water for removal and treatment. DO NOT flush to sewer.

Section 7. Handling and Storage

Handling:

1. Combustible liquid. Avoid contact with eyes, skin, and clothing. Use proper protective equipment. (see [Section 8](#))
2. Avoid breathing mist or vapor. Use only in a well ventilated area.
3. Ground and bond containers when transferring material. Use explosion-proof pumps.
4. Unvented containers may develop pressure. Open with caution.
5. Wash thoroughly after handling.
6. Eyewash stations and safety showers should be easily accessible to areas where product is used.

Storage:

1. Keep away from heat, sparks, open flame, or other sources of ignition
2. Do not store portable containers in direct sunlight.
3. Keep containers closed when not in use.
4. For maximum storage life, store at temperatures between 70 - 95°F (21.1 - 35°C).
5. Protect from freezing
6. Store away from incompatible materials. (see [Section 10](#))

Section 8. Exposure Controls / Personal Protection

Personal Protective Equipment (PPE):

Eyes and Face: Face shield with safety glasses or chemical safety goggles.

Skin: Rubber or neoprene gloves. Wear additional protective clothing as appropriate to protect skin. Chemical resistant apron or other impervious clothing, full protective suit, rubber boots.

Respiratory: If feasible engineering controls do not prevent overexposure, a full-face respirator with cartridges approved by NIOSH/MSHA for formaldehyde may be used only when exposure levels are known to be within the unit's capability. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or in any situation where air purifying respirators may not provide adequate protection. Observe the OSHA respirator regulations cited in 29 CFR 1910.134.

Engineering Controls:

Use ventilation as necessary to keep exposure to airborne contaminants below the exposure limits. Use explosion-proof ventilation equipment.

Section 9. Physical and Chemical Properties

1. **Physical appearance:** Colorless, clear to slightly hazy viscous liquid
2. **Odor:** pungent, irritating
3. **pH (as is):** approximately 8.0
4. **Boiling Point:** approximately 212°F (100°C)
5. **Melting Point:** not applicable
6. **Specific Gravity@ (25°C):** approximately 1.32-1.33
7. **Vapor Pressure (mm Hg):** approximately 10 @ 77°F (25°C)
8. **Vapor Density:** approximately 1.08 (Air = 1)
9. **% Volatile (w/w):** approximately 15%
10. **Solubility in Water:** soluble

Section 10. Stability and Reactivity Data

Chemical Stability: This product is stable under the recommended storage conditions.

Conditions to Avoid: Avoid storage at temperatures above or below the recommended storage temperature. (see *Section 7*)

Incompatibility with Other Materials: Avoid contact or contamination with strong oxidizers, acids, alkalis.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: Hazardous polymerization will not occur.

Special Remarks: Prolonged storage or cooling may cause formation and precipitation of paraformaldehyde. The contact of formaldehyde with strong bases such as caustic soda may cause a violent exothermic reaction and splattering.

Section 11. Toxicological Information

Eye: Contact with liquid or mist can cause severe eye irritation or injury.

Formaldehyde: EYE: Rabbit, 50 ug (24 hours); severe irritation

Dermal: A prolonged single exposure can produce severe skin irritation or injury. The dermal toxicity of this product is not known.

Formaldehyde: DERMAL (LD50): Rabbit, 270 mg/kg

Inhalation: This product may be toxic by inhalation. Inhalation of vapors or mist can cause serious burns of the entire respiratory tract.

Formaldehyde: VAPOR (LC50): Rat, 480 ppm (LCLo): Cat, 325 ppm (2 hrs)

Oral: This product is orally toxic and may be harmful or fatal if swallowed.

Formaldehyde: ORAL (LDLo): Woman, 108 mg/kg

Subchronic Effects:

Exposure to gaseous formaldehyde may cause temporary irritation of the nose and throat and may

lead to respiratory disorders. However, in a thorough review of sensory/respiratory irritation studies of formaldehyde from the standpoint of occupational exposure, an expert panel has observed that exposure to concentrations of 0.3 ppm or lower failed to produce irritation. No irritation will usually be reported at 0.5 ppm, especially if persons are exposed only 8 hours per day. With regard to respiratory disorders, studies have concluded the threshold for long term exposures causing chronic pulmonary effects is between 0.4 and 3 ppm and chronic obstructive pulmonary disease is 2 ppm. Additionally, persons with asthma responded no differently than healthy individuals at concentrations as high as 3 ppm. Some reports, however, suggest formaldehyde may cause asthma and that pre-existing respiratory disorders may be aggravated by exposure.

Chronic Effects:

Carcinogenicity:

Epidemiological studies of workers exposed to formaldehyde have failed to consistently identify an association between formaldehyde exposure and cancer. In animal studies, rats and mice exposed to high levels of formaldehyde developed nasal cancer while hamsters did not. These exposure levels are far above those expected to be found in the workplace. These animal studies provide an inference of carcinogenic hazard for humans. Although human tissue may be inherently susceptible to formaldehyde carcinogenicity, this effect may require exposure to concentrations that humans could not tolerate. Formaldehyde is listed by the International Agency for Research on Cancer (IARC) as a probable human carcinogen (Group 2A). The National Toxicology Program has included formaldehyde in its Annual Report on Carcinogens. OSHA regulates formaldehyde as a potential carcinogen for exposures at or exceeding 0.5 ppm.

Target Organs: See [Section 3](#).

Section 12. Ecological Information

Ecotoxicity: This product is biodegradable under aerobic and anaerobic conditions.

Section 13. Disposal Considerations

Waste Disposal: Dispose of absorbed material in accordance with all federal, state, and local regulations. Dispose of contaminated water in a contained waste treatment system.

RCRA: The requirements of the federal hazardous waste regulations do not apply unless the waste fails to pass any of EPA's four tests for determining hazardous wastes.

Note: If this product is altered, it is the responsibility of the user to determine whether the material meets the criteria for hazardous waste at the time of disposal.

Section 14. Transportation Information

DOT

Regulated

Shipping Description	Bulk Shipments	Non-bulk Shipments
Proper Shipping Name	Combustible liquid, n.o.s.(Formaldehyde)	Other regulated substances, liquid, n.o.s. (Formaldehyde)
Hazard Class	Combustible liquid	9
Identification Number	NA 1993	NA 3082
Packing Group	III	III
Reportable Quantities	RQ (Formaldehyde)	RQ (Formaldehyde)
Placards / Labels	Placards: Combustible	Labels: Class 9
Special Provisions for Transport	This shipping description is for domestic shipments only . Use "Environmentally hazardous liquid, n.o.s. (formaldehyde); 9; UN 3082" for bulk International shipments.	This shipping description is for domestic ground shipments only . RQs may not apply to smaller quantity shipments. For air shipments, use "Aviation regulated liquid n.o.s. UN 3334".

Section 15. Regulatory Information

Federal Regulations: The following regulations may have reporting requirements for the components listed. See "Key to Abbreviations and Acronyms" under Section 16 for definitions

CERCLA / SARA Emergency Reporting:

A spill or release of this material may trigger the emergency release reporting requirements under CERCLA (40 CFR Part 300) and/or SARA Title III (40 CFR Part 355). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

Formaldehyde

SARA Title III Section 313 Supplier Notification:

This product is known to contain the following chemicals which are listed in 40 CFR 372.65 as toxic chemicals requiring notification. This information must be included in all MSDS's that are copied and distributed for this product.

Component	CAS #	% by Weight
Formaldehyde	50-00-0	30.0 max.

CWA Section 307:

The following chemicals are listed under Section 307 as toxic pollutants not eligible for waiver from best available technology economically achievable (BAT) effluent limitations.

Not applicable.

CWA Section 311:

The following chemicals are listed under Section 311 as hazardous substances requiring the submission of a National Pollutant Discharge Elimination System (NPDES) permit application to EPA.

Formaldehyde

TSCA:

All components of this product are listed on the Toxic Substances Control Act Inventory or are excluded from listing requirements.

Other Regulations:

See the OSHA Formaldehyde Standard 29 CFR 1910.1048 for worker training, workplace monitoring, and medical surveillance requirements.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):

This product contains the following substance(s) known to the State of California to cause cancer:

Formaldehyde

Section 16. Other Information**FDA Status:**

21 CFR 176.170 (b) (2) and (c): May be used as a component of the food-contact surface of paper and paperboard, provided that the food-contact surface of the paper or paperboard complies with the extractives limitations prescribed in paragraph (c) of this section. Limitation: For use only as a preservative for coating formulations.

21 CFR 176.200: May be used safely as a component of articles intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food. Limitation: For use only as a preservative of defoamer.

Other Special Considerations:**CAUTION:**

Empty containers may contain product residue. Continue to observe recommended safety precautions when handling empty containers.

Section(s) Changed Since Last Revision:

14. Transportation Information

Key to Abbreviations and Acronyms:

ACGIH- American Conference of Governmental Industrial Hygienists

ANSI- American National Standards Institute

CEIL- Ceiling value

CERCLA- Comprehensive Environmental Response, Compensation, and Liability Act

CFR- Code of Federal Regulations

CWA- Clean Water Act

DOT- Department of Transportation

FDA- Food and Drug Administration

HCS- Hazard Communication Standard

HMIS- Hazardous Materials Information System

IARC- International Agency for Research on Cancer

LC50- The concentration of a material expected to kill 50% of an animal test group.

LCLO- Lowest lethal concentration of a substance

LD50- The dose of a material expected to kill 50% of an animal test group.

LDLO- Lowest lethal dose of a material

MSHA- Mine Safety and Health Administration

N.O.S.- Not Otherwise Specified

NFPA- National Fire Protection Association

NIOSH- National Institute for Occupational Safety and Health

NTP- National Toxicology Program

OSHA- Occupational Safety and Health Administration

PEL- Permissible Exposure Limit (OSHA)

RCRA- Resource Conservation and Recovery Act

RQ- Reportable Quantity

SARA- Superfund Amendments and Reauthorization Act

STEL- Short Term Exposure Limit

TLV- Threshold Limit Value (recommended by ACGIH)

TSCA- Toxic Substances Control Act

TWA- Time Weighted Average

IMPORTANT:

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