

SAFETY DATA SHEET

1. Identification

Product identifier: Formamide

Other means of identification

Product No.: 4028, 3797, M522, M520

Recommended use and restriction on use

Recommended use: Not available.

Restrictions on use: Not known.

Details of the supplier of the safety data sheet

Manufacturer

Company Name: Avantor Performance Materials, Inc.
Address: 3477 Corporate Parkway, Suite 200
Center Valley, PA 18034

Telephone: Customer Service: 855-282-6867

Fax: 610-573-2610
Contact Person: Environmental Health & Safety
E-mail: info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada
CHEMTREC: 1-703-527-3887 outside US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Serious Eye Damage/Eye Irritation	Category 2B
Carcinogenicity (Oral)	Category 2
Toxic to reproduction	Category 1B
Specific Target Organ Toxicity - Repeated Exposure (Oral)	Category 2

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Causes eye irritation.
Suspected of causing cancer.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling.
Response:	If exposed or concerned: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Other hazards which do not result in GHS classification:	None.

3. Composition/information on ingredients

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
FORMAMIDE		75-12-7	98 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Drink a few glasses of water or milk. Call a POISON CENTER or doctor/physician if you feel unwell.
Inhalation:	Move to fresh air. Get medical attention if symptoms persist.
Skin Contact:	If skin irritation occurs: Get medical advice/attention.
Eye contact:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms: May cause irritation to skin, eyes, and respiratory tract.

Indication of immediate medical attention and special treatment needed

Treatment: Symptoms may be delayed. Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: In case of fire and/or explosion do not breathe fumes.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media: Water may be ineffective in fighting the fire.

Specific hazards arising from the chemical: Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Ventilate closed spaces before entering them. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

Notification Procedures: Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of vapors and spray mists. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Keep in a cool, well-ventilated place. Store in a dry place. Store locked up. Storage Temperature: Between 2 and 8 C.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	type	Exposure Limit Values	Source
FORMAMIDE	TWA	10 ppm	US. ACGIH Threshold Limit Values (2011)
	REL	10 ppm 15 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)

	TWA	20 ppm	30 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	30 ppm	45 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin Protection

Hand Protection: Wear protective gloves.

Other: Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation use suitable respirator. Air-purifying respirator with a high efficiency particulate filter.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash at the end of each work shift and before eating, smoking and using the toilet.

9. Physical and chemical properties

Appearance

Physical state: liquid

Form: liquid

Color: Colorless

Odor: Faint ammonia odor

Odor threshold: No data available.

pH: 7.1 0.5 molar aqueous solution

Melting point/freezing point: 2.55 °C

Initial boiling point and boiling range: 210 °C (101.325 kPa)

Flash Point: 154 °C (Open Cup)

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%): No data available.

Flammability limit - lower (%): No data available.

Explosive limit - upper (%): No data available.

Explosive limit - lower (%): No data available.

Vapor pressure: 0.01 kPa (25 °C)

Vapor density: 1.56 AIR=1

Relative density: 1.1334 (4 °C)

Solubility(ies)

Solubility in water:	Miscible with water.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-1.51
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	45.04 g/mol (CH ₃ NO)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Excessive heat. Contact with incompatible materials.
Incompatible Materials:	Strong acids. Strong alkalis. Oxidizing agents.
Hazardous Decomposition Products:	Carbon monoxide Carbon dioxide Hydrogen cyanide. Nitrogen Oxides

11. Toxicological information

Information on likely routes of exposure

Ingestion:	May cause irritation of the gastrointestinal tract.
Inhalation:	Spray mists may cause respiratory tract irritation.
Skin Contact:	Causes mild skin irritation.
Eye contact:	Causes eye irritation.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	LD 50 (Rat): 6 g/kg
Dermal	
Product:	LD 50 (Rabbit): 6 g/kg
Inhalation	
Product:	No data available.
Repeated dose toxicity	
Product:	No data available.

Skin Corrosion/Irritation	
Product:	Causes mild skin irritation.

Serious Eye Damage/Eye Irritation	
Product:	Causes eye irritation.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

Carcinogenicity

Product: Suspected of causing cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: Oral: Blood

Aspiration Hazard

Product: Not classified

Other effects:

May cause blood disorders based on animal data. May cause testicular damage based on animal data.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability**Biodegradation**

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative Potential**Bioconcentration Factor (BCF)**

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: -1.51

Mobility in Soil: The product is water soluble and may spread in water systems.

Other Adverse Effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information**DOT**

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

15. Regulatory information**US Federal Regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)****US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Not listed.

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
FORMAMIDE	10000 lbs

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

US State Regulations
US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

<u>Chemical Identity</u>
FORMAMIDE

US. Massachusetts RTK - Substance List

<u>Chemical Identity</u>
FORMAMIDE

US. Pennsylvania RTK - Hazardous Substances

<u>Chemical Identity</u>
FORMAMIDE

US. Rhode Island RTK

<u>Chemical Identity</u>
FORMAMIDE

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision
Issue Date: 02-08-2016

Revision Date: No data available.

Version #: 1.1

Further Information:

No data available.

Disclaimer:

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