

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Description:	Formamide
Cat No. :	F84-1
Synonyms	Carbamaldehyde; Methanamide.
CAS No	75-12-7
Molecular Formula	C H3 N O

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

Details of the supplier of the safety data sheet

Importer	Supplier
Fisher Scientific Korea	Fisher Scientific
D5,D6, Incheon Airport Logistics Complex	One Reagent Lane
150, Gonghangdong-Ro 296 Beon-Gil	Fair Lawn, NJ 07410
Jung-Gu, Incheon	Tel: (201) 796-7100
Tel: +82-1661-9555	
Fax: +82-2-2023-0603	

E-mail address	Chem.KR@thermofisher.com
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Emergency Telephone Number

Emergency telephone: Medical: +(82) 070-7686-0086 or + 1-703-741-5970
 CHEMTREC: 080 822 1374 (Local), CHEMTREC: 1-800-424-9300 or + 1-703-527-3887
 Korea: 00-308-13-2549 (24 hours a day, 7 days a week)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture
Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Carcinogenicity	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 2

Environmental hazards

Based on available data, the classification criteria are not met

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Label Elements



Signal Word

Danger

Hazard Statements

H351 - Suspected of causing cancer if inhaled

H360 - May damage fertility or the unborn child

H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements

Prevention

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P314 - Get medical advice/attention if you feel unwell

P308 + P313 - IF exposed or concerned: Get medical advice/attention

Storage

P405 - Store locked up

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Other Hazards

This product does not contain any known or suspected endocrine disruptors

NFPA

Health
2

Flammability
1

Instability
0

Physical hazards
N/A

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	Common Name	CAS No	Index No	Weight %
Formamide	Carbamaldehyde; Methanamide.	75-12-7	KE-17231	99 - 100

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

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Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen cyanide (hydrocyanic acid), Ammonia.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental precautions

Should not be released into the environment.

Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

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SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

Specific End Uses

Use in laboratories.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Component	CAS No	Korea	ACGIH TLV	OSHA PEL
Formamide	75-12-7	TWA: 10 ppm Skin	TWA: 1 ppm Skin	(Vacated) TWA: 20 ppm (Vacated) TWA: 30 mg/m ³ (Vacated) STEL: 30 ppm (Vacated) STEL: 45 mg/m ³

Component	CAS No	European Union	The United Kingdom	Germany
Formamide	75-12-7	Not listed	STEL: 30 ppm 15 min STEL: 56 mg/m ³ 15 min TWA: 20 ppm 8 hr TWA: 37 mg/m ³ 8 hr	Haut

ACGIH - Biological Exposure Indices

Component	CAS No	ACGIH - Biological Exposure Indices
Formamide	75-12-7	Not listed

Exposure Controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Protective gloves

Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Personal protective equipment

Respiratory Protection

Use only those certified by the Korea Occupational Safety and Health Administration.

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

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Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls No information available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance (Physical State, Color, etc.) Clear Liquid

Odor Ammonia-like

Odor Threshold No data available

pH 4-5 200 g/l aq.sol

Melting Point/Range 2 - 3 °C / 35.6 - 37.4 °F

Softening Point No data available

Boiling Point/Range 210 °C / 410 °F

Flash Point 175 °C / 347 °F

Method - No information available

Evaporation Rate No data available

Flammability (solid,gas) Not applicable Liquid

Explosion Limits **Lower** 2.7

Upper 19

Vapor Pressure 0.08 mbar @ 20 °C

Vapor Density 1.56 (Air = 1.0)

Specific Gravity / Density 1.133

Bulk Density Not applicable Liquid

Water Solubility Miscible

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component	CAS No	log Pow
Formamide	75-12-7	-0.82

Autoignition Temperature 500 °C / 932 °F

Decomposition Temperature 180 °C

Viscosity 3.75 mPa.s at 20 °C

Explosive Properties No information available

Oxidizing Properties No information available

Molecular Formula C H3 N O

Molecular Weight 45.04

SECTION 10: STABILITY AND REACTIVITY

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Reactivity

None known, based on information available

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous Reactions

Hazardous polymerization does not occur.
None under normal processing.

Conditions to Avoid

Excess heat. Incompatible products.

Incompatible Materials

Acids. Bases. Strong oxidizing agents.

Hazardous Decomposition Products

Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen cyanide (hydrocyanic acid). Ammonia.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

Information on expected route of exposure

Inhalation Ingestion

May be harmful if inhaled. May cause irritation.
May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Eyes Skin

Irritating to eyes.
Irritating to skin. May be harmful in contact with skin.

Information on Health Hazards

(a) acute toxicity;

Oral Dermal Inhalation

Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met

Component	CAS No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formamide	75-12-7	LD50 = 5577 mg/kg (Rat)	17 g/kg (Rabbit)	>3900 ppm (Rat) 6 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory Skin

No data available
No data available

Component	CAS No	Test method	Test species	Study result
Formamide	75-12-7	No data available	No data available	No data available

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(e) germ cell mutagenicity; No data available

Component	CAS No	Test method	Test species	Study result
Formamide	75-12-7	No data available	No data available	No data available

Not mutagenic in AMES Test

(f) carcinogenicity; Category 2

Component	CAS No	Test method	Test species / Duration	Study result
Formamide	75-12-7	No data available	No data available	No data available

Possible cancer hazard. May cause cancer based on animal data

Component	CAS No	IARC	NTP	ACGIH	OSHA	UK
Formamide	75-12-7	Not listed	Not listed	A3	Not listed	Not listed

(g) reproductive toxicity; Category 1

Component	CAS No	Test method	Test species / Duration	Study result
Formamide	75-12-7	No data available	No data available	No data available

Reproductive Effects May cause harm to the unborn child. Possible risk of impaired fertility.
Developmental Effects May cause harm to the unborn child. Developmental effects have occurred in experimental animals.
Teratogenicity Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

Target Organs Liver, Kidney, Blood.

(j) aspiration hazard; No data available

Other Adverse Effects
 No information available.

Component	CAS No	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Formamide	75-12-7	Not applicable	Not applicable	Not applicable

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects

Component	CAS No	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Formamide	75-12-7	LC50: = 9135 mg/L, 96h static (Brachydanio rerio)	EC50: > 500 mg/L, 48h (Daphnia magna)	EC50: > 500 mg/L, 96h (Desmodesmus subspicatus) EC50: > 500 mg/L, 72h (Desmodesmus subspicatus)	EC50 > 10000 mg/L 17 h

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Persistence and degradability
Persistence Readily biodegradable
Persistence is unlikely.

Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Formamide	-0.82	No data available

Mobility in soil The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

Ozone Depletion Potential

Component	CAS No	Ozone Depletion Potential
Formamide	75-12-7	Not listed

Other adverse effects No information available

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues/Unused Products Waste is classified as hazardous. Dispose in accordance with the Wastes Control Act (폐기물관리법).

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Other Information Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

SECTION 14: TRANSPORT INFORMATION

Road and Rail Transport Not Regulated

IATA Not regulated

IMDG/IMO Not regulated
Marine Pollutant No hazards identified

Special Precautions for User No special precautions required

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Legend: X - Listed '-' - Not Listed

International Inventories

Component	CAS No	KECL	TSCA	EINECS	IECSC	DSL	NDSL	PICCS	ENCS	ISHL	AICS
Formamide	75-12-7	KE-17231	X	200-842-0	X	X	-	X	X	X	X

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Formamide	75-12-7	Not applicable	Not applicable	Not applicable	Not applicable

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Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential
Formamide	75-12-7	Listed	Not applicable	Not applicable

Korean National Regulations

Component	CAS No	Act on Registration and Evaluation of Chemical Substances (K-REACH)	Authorised Chemicals	Existing Substances Subject to Registration
Formamide	75-12-7	Annex 1 - KE-17231	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Toxic Chemicals	Chemical Control Act - Prohibited Chemicals	Chemical Control Act - Use Restricted Chemicals
Formamide	75-12-7	Not applicable	Not applicable	Not applicable

Component	CAS No	Chemical Control Act - Accident Precaution Chemicals (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Storage (% in mixtures)	Chemical Control Act - Accident Precaution Chemicals - Quantity limits Manufacture/Use (% in mixtures)
Formamide	75-12-7	Not applicable	Not applicable	Not applicable

Component	CAS No	Waste Control Law	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance
Formamide	75-12-7	Not applicable	Listed	CMR

Component	CAS No	ISHA - Harmful Agents Subject to Work Environment Monitoring	ISHA - Prohibited substances	ISHA - Substances requiring permission
Formamide	75-12-7	Not applicable	Not applicable	Not applicable

Component	CAS No	ISHA - Substances subject to control	ISHA - Harmful Agents Requiring Health Examination	ISHA - Permissible Exposure Limits
Formamide	75-12-7	Listed	Not applicable	Not applicable

Component	CAS No	ISHA - Subject to Process Safety Reports (minimum quantity)	ISHA - Threshold Limit Values (TLVs) Chemicals	ISHA - Special management materials
Formamide	75-12-7	Not applicable	TWA: 10 ppm Skin	Formulations containing 0.3% or more

National Fire Association - Dangerous Substances Minimum quantity requiring a permit

Component	CAS No	Class 1 - Oxidising solids	Class 2 - Flammable solid	Class 3 - Spontaneously Combustible Substances and Dangerous Substances When Wet	Class 4 - Flammable liquids	Class 5 - Self-reactive substances	Class 6 - Oxidising liquids
Formamide	75-12-7	Not applicable	Not applicable	Not applicable	5. Group 3 Petroleum (Soluble) 4000 L	Not applicable	Not applicable

Control Parameters

Component	CAS No	Korea	ACGIH - Biological Exposure Indices
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Formamide	75-12-7	TWA: 10 ppm Skin	Not listed
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US Management Information

OSHA - Occupational Safety and Health Administration

Not applicable

Component	CAS No	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Formamide	75-12-7	Not applicable	Not applicable

CERCLA Not applicable

Component	CAS No	CERCLA Extremely Hazardous Substances RQs	Hazardous Substances RQs	SARA 313 - Threshold Values %
Formamide	75-12-7	Not applicable	Not applicable	1.0 %

GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Danger.

H351 - Suspected of causing cancer. H360FD - May damage fertility. May damage the unborn child. H373 - May cause damage to organs through prolonged or repeated exposure.

P201 - Obtain special instructions before use. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P308 + P313 - IF exposed or concerned: Get medical advice/attention.

SECTION 16: OTHER INFORMATION

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

POW - Partition coefficient Octanol:Water

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadviser - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit

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and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date	03-Dec-2010
Revision Date	06-Jun-2024
Revision Number	5
Revision Summary	SDS sections updated.

MOEL's Public Notice No. 2023-9 (Standards for Classification and Labeling of Chemical Substances and Safety Data Sheets)

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet