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Revision Number 9

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

1.1. Product identification

Product Description:	Formamide_
Cat No. :	F/1550/PB08, F/1550/PB17
Synonyms	Carbamaldehyde; Methanamide.
CAS-No	75-12-7
EC-No.	200-842-0
Molecular Formula	C H3 N O
Reach Registration Number	-

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

micals. I uses: Uses of substances as such or in preparations at industrial sites ory chemicals as a laboratory reagent trial use resulting in manufacture of another substance (use of intermediates) available

1.3. Details of the supplier of the safety data sheet

CompanyFisher Scientific UKBishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United KingdomE-mail addressbegel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166 Chemtrec US: (800) 424-9300 Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Carcinogenicity Reproductive Toxicity Specific target organ toxicity - (repeated exposure)

Environmental hazards

Category 2 (H351) Category 1B (H360FD) Category 2 (H373)

Formamide

Based on available data, the classification criteria are not met

2.2. Label elements



Signal Word

Danger

Hazard Statements

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

Precautionary Statements

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

Additional EU labelling

Restricted to professional users

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Formamide	75-12-7	EEC No. 200-842-0	>95	Carc. 2 (H351)
				Repr. 1B (H360FD)
				STOT RE 2 (H373)

Reach Registration Number

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice

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

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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.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move 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.
4.2. Most important symptoms and	d effects, both acute and delayed

None reasonably foreseeable.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Formamide

Suitable Extinguishing Media

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

Extinguishing media which must not be used for safety reasons

No information available.

5.2. 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 (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen cyanide (hydrocyanic acid), Ammonia.

5.3. Advice for firefighters

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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Formamide		STEL: 30 ppm 15 min	TWA / VME: 20 ppm (8	TWA: 10 ppm 8 uren	TWA / VLA-ED: 10 ppm
		STEL: 56 mg/m ³ 15 min	heures).	TWA: 18 mg/m ³ 8 uren	(8 horas)
		TWA: 20 ppm 8 hr	TWA / VME: 30 mg/m ³	Huid	TWA / VLA-ED: 19
		TWA: 37 mg/m ³ 8 hr	(8 heures).		mg/m ³ (8 horas)
			,		Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
Formamide		Haut	TWA: 10 ppm 8 horas		TWA: 10 ppm 8 tunteina
			Pele		TWA: 19 mg/m ³ 8
					tunteina
					STEL: 20 ppm 15
					minuutteina
					STEL: 37 mg/m ³ 15
					minuutteina
					lho

Component	Austria	Denmark	Switzerland	Poland	Norway
Formamide	Haut	TWA: 10 ppm 8 timer	Haut/Peau	TWA: 23 mg/m ³ 8	TWA: 10 ppm 8 timer
	MAK-KZW: 18 ppm 15	TWA: 18 mg/m ³ 8 timer	TWA: 10 ppm 8	godzinach	TWA: 18 mg/m ³ 8 timer
	Minuten	Hud	Stunden	-	STEL: 15 ppm 15
	MAK-KZW: 32 mg/m ³ 15		TWA: 18 mg/m ³ 8		minutter. value
	Minuten		Stunden		calculated

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Formamide

MAK-TMW: 9 ppm 8 Stunden MAK-TMW: 16 mg/m ³ 8		STEL: 27 mg/m ³ 15 minutter. value calculated
Stunden		Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Formamide	TWA: 15.0 mg/m³ STEL : 30.0 mg/m³	TWA-GVI: 20 ppm 8 satima. TWA-GVI: 37 mg/m ³ 8 satima. STEL-KGVI: 30 ppm 15 minutama. STEL-KGVI: 56 mg/m ³ 15 minutama.	STEL: 54 mg/m ³ 15 min		

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Formamide	Nahk TWA: 10 ppm 8 tundides. TWA: 20 mg/m ³ 8 tundides. STEL: 15 ppm 15 minutites. STEL: 30 mg/m ³ 15 minutites.		skin - potential for cutaneous absorption STEL: 30 ppm STEL: 45 mg/m ³ TWA: 20 ppm TWA: 30 mg/m ³		TWA: 10 ppm 8 klukkustundum. TWA: 18 mg/m ³ 8 klukkustundum. Skin notation Ceiling: 20 ppm Ceiling: 36 mg/m ³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Formamide		TWA: 10 ppm IPRD			TWA: 11 ppm 8 ore
		TWA: 20 mg/m ³ IPRD			TWA: 20 mg/m ³ 8 ore
		Oda			STEL: 16 ppm 15
		STEL: 15 ppm			minute
		STEL: 30 mg/m ³			STEL: 30 mg/m ³ 15
		-			minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Formamide	MAC: 3 mg/m ³		TWA: 18 mg/m ³ 8 urah	Indicative STLV: 15 ppm	
	_		Koža	15 minuter	
				Indicative STLV: 30	
				mg/m ³ 15 minuter	
				LLV: 10 ppm 8 timmar.	
				LLV: 20 mg/m ³ 8	
				timmar.	
				Hud	

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

Derived No Effect Level (DNEL) No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration No information available.

(PNEC)

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that evewash 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 (European standard - EN 166)					
Hand Protection	Protective gloves					
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)		
Skin and body prot	ection Long sle	eved 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 compatability, 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.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance Physical State	Clear Liquid	
Odor Odor Threshold pH	Ammonia-like No data available 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/wat	er)	
Component	log Pow	
Formamide	-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	
9.2. Other information		
	- · · · · · -	
Molecular Formula	C H3 N O	
Molecular Weight	45.04	

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous reac	tions_
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
10.4. Conditions to avoid	Excess heat. Incompatible products.
10.5. Incompatible materials	Acids. Bases. Strong oxidizing agents.
10.6. Hazardous decomposition pro	oducts

10.6. Hazardous decomposition products

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

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity; Oral

Inhalation

Dermal

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	LD50 Oral	LD50 Dermal	LC50 Inhalation		
Formamide	LD50 = 5577 mg/kg (Rat) LD50 > 5000 mg/kg (Rat)	17 g/kg(Rabbit)	>3900 ppm (Rat)6 h		
(b) skin corrosion/irritation;	Based on available data, the c	lassification criteria are not me	t		
(c) serious eye damage/irritation;	Based on available data, the classification criteria are not met				
(d) respiratory or skin sensitization; Respiratory Skin	Based on available data, the c Based on available data, the c				
(e) germ cell mutagenicity;	Based on available data, the c	lassification criteria are not me	t		
	Not mutagenic in AMES Test				
(f) carcinogenicity;	Category 2				
	Possible cancer hazard. May o	cause cancer based on animal	data		
(g) reproductive toxicity; Reproductive Effects Developmental Effects Teratogenicity	Category 1B May cause harm to the unborn May cause harm to the unborn animals. Teratogenic effects have occu	n child. Developmental effects l			
(h) STOT-single exposure;	Based on available data, the c	lassification criteria are not me	t		
(i) STOT-repeated exposure;	Category 2				
Target Organs	Liver, Kidney, Blood.				
(j) aspiration hazard;	Based on available data, the c	lassification criteria are not me	t		
Symptoms / effects,both acute and	No information available				

delayed

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Formamide	LC50: = 9135 mg/L, 96h	EC50: > 500 mg/L, 48h	EC50: > 500 mg/L, 96h	EC50 > 10000 mg/L 17
	static (Brachydanio	(Daphnia magna)	(Desmodesmus	h
	rerio)		subspicatus)	
	LC50: 4600 - 9300		EC50: > 500 mg/L, 72h	
	mg/L, 96h static		(Desmodesmus	
	(Leuciscus idus)		subspicatus)	

Formamide

12.2. Persistence and degradability	Readily biodegradable
Persistence	Persistence is unlikely.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

No data available for assessment.

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

12.4. Mobility in soil

The product is water soluble, and may spread in water systems $% \left(\frac{1}{2} \right) = 0$. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
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

IMDG/IMO

Not regulated

14.1. UN number 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group

ADR

Not regulated

 14.1. UN number

 14.2. UN proper shipping name

 14.3. Transport hazard class(es)

 14.4. Packing group

<u>IATA</u>

Not regulated

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u>

14.4. Packing group

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Not applicable, packaged goods Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

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

International Inventories

X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Formamide	200-842-0	-		Х	Х	-	Х	Х	Х	Х	Х

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Formamide		Use restricted. See item 30. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details)	

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Formamide	WGK 1	Class I : 20 mg/m ³ (Massenkonzentration)

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment. Take note of Dir 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

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

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b)
	Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemica	DSL/NDSL - Canadian Domestic Substances List/Non-Domestic
Substances/EU List of Notified Chemical Substances	Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances	ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances	AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances	NZIOC - New Zealand Inventory of Chemicals

 WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic 	 TWA - Time Weighted Average IARC - International Agency for Research on Cancer PNEC - Predicted No Effect Concentration LD50 - Lethal Dose 50% EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative
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 Key literature references and sources for data Suppliers safety data sheet, Chemadvisor - LOLI, Merck index,	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 Compounds 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 and standards.

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

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Revision Summary	SDS sections updated, 2, 3.

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