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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1.Identification
1.1GHS Product identifier
Formamide, 98%
Code F 1505

2.Hazard identification
2.1Classification of the substance or mixture
Reproductive toxicity, Category 1B
2.2GHS label elements, including precautionary statements
Pictogram(s)

Signal word	Danger
Hazard statement(s)	none
Precautionary statement(s)	
Prevention	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	P308+P313 IF exposed or concerned: Get medical advice/ attention.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification
none

3.Composition/information on ingredients
3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
formamide	formamide	75-12-7	none	100%

4.First-aid measures
4.1Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled
Fresh air, rest. Refer for medical attention.
In case of skin contact
Remove contaminated clothes. Rinse skin with plenty of water or shower.
In case of eye contact
Rinse with plenty of water for several minutes (remove contact lenses if easily possible).
If swallowed
Rinse mouth. Refer for medical attention .
4.2Most important symptoms/effects, acute and delayed
INHALATION: A moderate irritant to mucous membranes. EYES: Moderately irritating to the eyes. SKIN: A mild to moderate irritant to the skin. (USCG, 1999)
4.3Indication of immediate medical attention and special treatment needed, if necessary
Absorption, Distribution and Excretion
FORMAMIDE IS ABSORBED DIRECTLY THROUGH GUINEA PIG SKIN ... .

5.Fire-fighting measures
5.1Extinguishing media
Suitable extinguishing media
Fire Extinguishing Agents: Dry chemical, water, alcohol foam, or carbon dioxide. (USCG, 1999)
5.2Specific hazards arising from the chemical
Special Hazards of Combustion Products: Toxic fumes emitted on decomposition (carbon monoxide and ammonia), beginning at 180 - 210\u00b0C. Behavior in Fire: Vapor will burn in air above 154.44\u00b0C. (USCG, 1999)
5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures
6.1Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
6.2Environmental precautions
Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent. Store and dispose of according to local regulations.
6.3Methods and materials for containment and cleaning up
Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Separated from oxidants, acids and bases. Dry.For storage ... tanks of stainless steel or aluminum are indicated. When small amounts of iron are permissible, mild steel can be used for tank cars and drums. Caffeine, adenine and other purines stabilize formamide in storage ...

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 10 ppm (15 mg/cu m)[skin].
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

Physical state	Clear, colorless liquid
Colour	Slightly viscous, colorless liquid
Odour	Faint ammonia odor
Melting point/ freezing point	-46\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	210\u00b0C(lit.)
Flammability	Class IIIB Combustible Liquid: Fl.P. at or above 93.33\u00b0C.Combustible. Gives off irritating or toxic fum (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	150\u00b0C
Auto-ignition temperature	500\u00b0C
Decomposition temperature	210\u00b0C
pH	7.1 (0.5 molar aqueous soln)
Kinematic viscosity	nX10+5 @ 20\u00b0C= 4320; @ 30\u00b0C= 2926
Solubility	In water:miscible
Partition coefficient n-octanol/water (log value)	log Kow= -1.51
Vapour pressure	0.08 mm Hg (20 \u00b0C)
Density and/or relative density	1.134g/mLat 25\u00b0C(lit.)
Relative vapour density	1.55 (vs air)
Particle characteristics	no data available

10.Stability and reactivity
10.1Reactivity

no data available
10.2Chemical stability
Stable under recommended storage conditions.
10.3Possibility of hazardous reactions
Combustible when exposed to heat or flame.The vapour is heavier than air.FORMAMIDE is incompatible with strong oxidizers, acids and bases. Sensitive to light. Reacts with water very slowly at room temperature, but rate is accelerated by acids and bases at elevated temperatures. Incompatible with iodine, pyridine and sulfur trioxide. Reacts explosively with furfuryl alcohol, H_2O_2, $Tl(NO_3)_3.H_2O$, nitromethane and P_2O_5. An effective solvent: dissolves casein, glucose, tannins, starch, lignin, polyvinyl alcohol, cellulose acetate, nylon, the chlorides of copper, lead, zinc, tin, cobalt, iron, aluminum and nickel, the acetates of the alkali metals, some inorganic sulfates and nitrates. Attacks copper and brass .
10.4Conditions to avoid
no data available
10.5Incompatible materials
Incompatible with iodine, pyridine and sulfur trioxide.
10.6Hazardous decomposition products
WHEN HEATED TO DECOMPOSITION, EMITS TOXIC FUMES OF /NITROGEN OXIDES/.

11.Toxicological information
Acute toxicity
Oral: LD50 Rat oral 6 g/kg
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
no data available
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: no data available
Toxicity to daphnia and other aquatic invertebrates: no data available
Toxicity to algae: no data available
Toxicity to microorganisms: no data available
12.2Persistence and degradability
AEROBIC: Theoretical BODs were measured for formamide of 1.6, 4.7, and 11.8% over 6-, 12-, and 24-hr inoculation periods(1), respectively. Theoretical BODs greater than 30% over a 2 week incubation period(2,3), and 22.6 and 57.7% over a 2 week incubation period(4) were noted using the Japanese MITI standard BOD test.
12.3Bioaccumulative potential
An estimated BCF of 3 was calculated for formamide(SRC), using a log Kow of -1.51(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).
12.4Mobility in soil
The Koc of formamide is 3.6(1). According to a classification scheme(2), this Koc value suggests that formamide is expected to have very high mobility in soil(SRC).
12.5Other adverse effects
no data available

13.Disposal considerations
13.1Disposal methods
Product
The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
Contaminated packaging
Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information
14.1UN Number
ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.
14.2UN Proper Shipping Name
ADR/RID: unknown
IMDG: unknown
IATA: unknown
14.3Transport hazard class(es)
ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.
14.4Packing group, if applicable
ADR/RID: Not dangerous goods. IMDG: Not dangerous goods. IATA: Not dangerous goods.
14.5Environmental hazards
ADR/RID: no IMDG: no IATA: no
14.6Special precautions for user
no data available
14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
no data available

15.Regulatory information
15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
formamide	formamide	75-12-7	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.