Material Safety Data Sheet

Formalin (RXSOL-95-1191-025)

1. Product and Company Identifaction

Product Name	FORMALIN - Formaldehyde
Part Number	RXSOL-19-1191-025

Company Details:
RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai, Chennai, Vizag, Kolkata, UAE & Oman

Phone	+91 22 27815540 / 41 / 42
Fax	+91 22 2781 1318 :::AOH :0091 9821214367
Email	123@rxmarine.com
Website	www.rxmarine.com

2. Composition / informationon ingredients

Component	CAS-No.	Weight %	EC No
DI Water	7732-18-5	45 - 48	.....
Formaldehyde	50-00-0	35 - 43	200 001 8
Methyl alcohol	67-56-1	05 - 10%	200-659-6

3. Hazards Identification

Prevention • P210: Keep away from heat/sparks/open flames/.../hot surfaces. ..... No smoking.
• P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
• P272: Contaminated work clothing should not be allowed out of the workplace.
• P201: Obtain special instructions before use.
• P202: Do not handle until all safety precautions have been read and understood.
• P281: Use personal protective equipment as required.
• P280: Wear protective gloves/protective clothing/eye protection/face protection.
• P260: Do not breathe dust/fume/gas/mist/vapors/spray.
• P271: Use only outdoors or in a well-ventilated area.
• P264: Wash hands thoroughly after handling.
• P270: Do not eat, drink or smoke when using this product.
• P273: Avoid release to the environment.
Response
• P370+378: In case of fire: Use water for extinction.
• P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
• P330: Rinse mouth. • P302+352: IF ON SKIN: Wash with plenty of soap and water.
• P312: Call a POISON CENTER or doctor/physician if you feel unwell.
• P361: Remove/Take off immediately all contaminated clothing.
• P363: Wash contaminated clothing before reuse.
• P301+330+331 : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
• P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
• P310: Immediately call a POISON CENTER or doctor/physician.
• P333+313: If skin irritation or a rash occurs: Get medical advice/attention.
• P305+351+338: IF IN EYES: Rinse continuously with water for several minutes.
Remove contact lenses if present and easy to do continue
rinsing.
• P308+313: IF exposed or concerned: Get medical advice/attention.
• P307+311 : IF exposed: Call a POISON CENTER or doctor/physician.
• P310: Immediately call a POISON CENTER or doctor/physician.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a
position comfortable for breathing.

Storage
• P405: Store locked up.
• P403+ P233: Store in a well-ventilated place. Keep container tightly closed.
• P403+235: Store in a well-ventilated place. Keep cool.
Disposal • P501: Dispose of contents/container to local/regional/national/international regulations.

4. First Aid Measures

4.1 DESCRIPTION OF FIRST AID MEASURES
• Eyes: If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seekimmediate medical attention.
• Skin: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. • Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell. • Ingestion: If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek prompt/immediate medical attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACCUTE AND DELAYED
Acute effects: • It is Toxic if swallowed & if inhaled and toxic in contact with skin.It causes severe skin burns and eye damage. It may cause an allergic skin reaction and suspected of causing cancer. It causes damage to organs. Formaldehyde is a sensitizing agent that can cause an immune system response upon initial exposure. It is also a cancer hazard. Acute exposure is highly irritating to the eyes, nose, and throat and can make anyone exposed cough and wheeze. Subsequent exposure may cause severe allergic reactions of the skin, eyes and respiratory tract. Ingestion of formaldehyde can be fatal, and long-term exposure to low levels in the air or on the skin can cause asthma- like respiratory problems and skin irritation such as dermatitis and itching. Concentrations of 100 ppm are immediately dangerous to life and health (IDLH). • Note: The National Institute for Occupational Safety and Health (NIOSH) considers 20 ppm of formaldehyde to be IDLH.
Chronic effects: • Chronic exposure to formaldehyde was related to episodes of aphonia and pharyngeal irritation (laryngeal mucosa and vocal cords were swollen) that disappeared when occupants were away from work ... Neurobehavioral effects, such as headache, dizziness, nausea, memory loss, and sleeping problems were also observed among histology technicians exposed to concentrations from 0.2 to 1.9 ppm.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED
No data available and respiratory tract. Ingestion of formaldehyde can be fatal, and long-term exposure to low levels in the air or on the skin can cause asthma- like respiratory problems and skin irritation such as dermatitis and itching. Concentrations of 100 ppm are immediately dangerous to life and health (IDLH). • Note: The National Institute for Occupational Safety and Health (NIOSH) considers 20 ppm of formaldehyde to be IDLH.

Chronic effects: • Chronic exposure to formaldehyde was related to episodes of aphonia and pharyngeal irritation (laryngeal mucosa and vocal cords were swollen) that disappeared when occupants were away from work ... Neurobehavioral effects, such as headache, dizziness, nausea, memory loss, and sleeping problems were also observed among histology technicians exposed to concentrations from 0.2 to 1.9 ppm.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED
No data available

5. Fire-fighting Measures

5.1 EXTINGUISHING MEDIA
Appropriate extinguishing media' Water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher. Water may be ineffective. Use water spray to keep fire exposed containers cool. Do NOT use water jets. Major fires may be extinguished with flooding amounts of water from a distance. Water spray may be used to knock down vapors. Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide '

5.2 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTER
• Evacuate the area and fight fires from a safe distance. • If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures. • Fire fighters must wear Self Contained Breathing Apparatus (SCBA) and full protective clothing.

5.3 UNUSUAL FIRE AND EXPLOSTION HAZARD • Consider isolating the fire when it involves the material and permitting it to burn itself out. Move all personnel out of the fire area. Move away in event of any explosion. Keep at safe distance. • Do not allow water to enter container, because of exothermic reaction. • Flashback along vapor trail may occur. Closed container exposed to heat may explode. Irritating vapors and toxic fumes of carbon monoxide, carbon di-oxide, oxide of nitrogen may be released in fire conditions.

6. Accidental Release Measures

Minor Spills
• Clean up all spills immediately following relevant Standard Operating Procedures
• Avoid breathing vapors and contact with skin and eyes.
• Shut off leak source if possible.
• Shut off all possible sources of ignition.
• Wear protective clothing, boots, impervious gloves and safety glasses.
• Wipe up.
• Decontaminate all equipment.
• Use non-sparking tools.

• Alert Emergency Responders and tell them location and nature of hazard.
• Shut off all possible sources of ignition and increase ventilation.
• Wear protective clothing, full boots, impervious gloves, safety glasses and Self-Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
• Clear area of personnel and move upwind.
• Stop leaks if possible.
• Prevent, by any means available, spillage from entering drains or water and watercourses.

7. Handling and Storage

7.1 PRECAUTIONS FOR SAFE HANDLING

• Do not breathe vapor or mist.

• Wear protective gloves/clothing and eye/face protection.

• Ground and secure containers when dispensing or pouring product.

• Avoid contact with incompatible materials.
• When handling, DO NOT eat, drink or smoke.
• Launder contaminated clothing before re-use.
• If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.
• Use in a well-ventilated place/Use protective clothing commensurate with exposure levels.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES
• Store in a cool, well ventilated place.
• Store in a flame proof area.
• Store away from incompatible materials.
• Keep only in original container.
• Keep securely closed when not in use.
• Formaldehyde can be stored and transported in containers made of stainless steel, aluminum, enamel, or polyester resin. Iron containers lined with epoxide resin or plastic may also be used

7.3 SPECIFIC END USE(S)
• Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls and personal protection

8.2 EXPOSURE CONTROLS
Appropriate Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is additionally to be used where exposure is possible Ensure that eyewash stations and safety showers are close to the workstation location.

8.3 PERSONAL PROTECTION
• Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier. Liquid is volatile and causes mild irritation on uncovered skin and it may be harmful in contact with skin. However, causes severe burns when clothing is wet with the chemical or if it enters gloves or shoes.

• Eyes: Safety goggles/ Chemical Safety glasses and Face shield. Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
• Hands: 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.

Full contact:
• Material: butyl-rubber
• Minimum layer thickness: 0.3 mm
• Break through time: 480 min
• Material tested: Burakia% (KCL 897 / Aldrich Z677647, Size M)
Splash contact:
• Material: butyl-rubber
• Minimum layer thickness: 0.3 mm
• Break through time: 480 min
• Material tested: Burakia@ (KCL 897 / Aldrich Z677647, Size M)
• Clothing: Boots and clothing to prevent contact.
• Chemical suit: May be required in certain conditions such as spills. Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, and the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
• Respirator: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary. Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If

the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. Physical and chemical properties

Sr.No.	Parameter	Typical value
01	Appearance	Clear Colorless or nearly colorless liquid Pungent.
02	Odor	Sukhwinder Singh
03	Odor Threshold	Not Available
04	Melting Point	Not Available
05	Boiling Point	-19.1°C
06	Flash Point	64°C (147°F) – Closed Cup
07	Evaporation rate (n-BuAc=1)	Not Available
08	Explosive Limits	Lower explosion limit 7 %(V) Upper explosion limit 73 %(V)
09	Viscosity	Not Available
10	Surface Tension	Not Available
11	Molecular Weight	Not available
12	Flammability	Combustible liquid
13	Corrosive Material	Yes
14	Not available	Explosive Material

10. Stability and reactivity

10.1 REACTIVITY
• No Data Available.

10.2 CHEMICAL STABILITY
• Stable under recommended storage condition. On standing, especially in the cold, may become cloudy, and on exposure to very low temperature ppt of trioxymethylene formed; in air it slowly oxidizes to formic acid /40% solution/.
10.3 POSSIBILITY OF HAZARDOUS REACTIONS
• Hazardous Polymerization: May occur.

10.4 CONDITIONS TO AVOID
• Keep away from heat, sparks and flame. Keep away from sources of ignition. Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep away from incompatible chemicals.

10.5 INCOMPATIBLE MATERIALS
• Aniline, Phenol, Isocyanates, Acid anhydrides, Acids, Strong bases, Strong oxidizing agents, Amines, Peroxides.

10.6 HAZARDOUS DEOMPOSITION PRODUCTS
• Under Combustion: gives off irritating fumes and oxides of carbon and hydrogen.

11. Toxicological information

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS
a) Acute Toxicity: • It is Toxic if swallowed & if inhaled and toxic in contact with skin. It causes severe skin burns and eye damage. It may cause an allergic
skin reaction and suspected of causing cancer. It causes damage to organs. • Formaldehyde is a sensitizing agent that can cause an immune system response upon initial exposure. It is also a cancer hazard.
Acute exposure is highly irritating to the eyes, nose, and throat and can make anyone exposed cough and wheeze. Subsequent exposure may cause severe allergic reactions of the skin, eyes and respiratory tract. Ingestion of formaldehyde can be fatal, and long-
term exposure to low levels in the air or on the skin can cause asthma-like respiratory problems and skin irritation such as dermatitis and itching. Concentrations of 100 ppm are immediately dangerous to life and health (IDLH). • Note: The National Institute for Occupational Safety and Health (NIOSH) considers 20 ppm of formaldehyde to be IDLH.

RTECS # : LP8925000

NO.	PARAMETER	DATA	REFERENCE
01	Acute Oral Toxicity	Oral LD50 Rodent Rat 100 mg/kg LD50	RTECS
02	Acute Skin Toxicity	LD50 - Rodent — rabbit 270 pL/kg	RTECS
03	Acute Inhalation	Inhalation LC50 Rodent Rat 203 mg/m3	RTECS

b) Skin Corrosion/Irritation;
• Toxic in contact with skin.
c) Serious Eye Damage/Irritation;
• Causes serious eye damage.
d) Respiratory Or Skin Sensitization;
• Causes damage to organs..
e) Germ Cell Mutagenicity;
• No data is available.
f) Carcinogenicity;
• IARC: 1 - Group 1: Carcinogenic to humans (Formaldehyde).
• NTP: Known to be human carcinogen (Formaldehyde).
• NTP: Known to be human carcinogen (Formaldehyde).
• OSHA: OSHA specifically regulated carcinogen (Formaldehyde)
(g) Reproductive Toxicity;
• No data is available
(h) STOT-single exposure
• Causes damage to organs
(i) STOT- repeated exposure
• No data is available..
(j) Aspiration Hazard.
• No data is available

12. Ecological information

12.1 ECO TOXICITY
Fish ChV= 3.6 mg/l
Formaldehyde is chronically toxic to fish.

12.2 PERSISTANCE AND DEGRADABILITY
• Formaldehyde is estimated not to be persistent in the environment.
12.3 BIO ACCUMULATIVE POTENTIAL

FORMALDEHYDE (50-00-0)	
Bio concentration factor	3.2
Log Kow	0.35

Based on the Log Kow and Bio concentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms
relative to its surroundings.

12.4 MOBILITY IN SOIL

FORMALDEHYDE (50-00-0)	
Koc	1
Henry’s Law Constant	0.00000034 atm/m3 mole at 25 degrees.
Log Kow	Formaldehyde is not expected to bio accumulate in the food chain because it does not exceed the BCF criteria.

It is expected to have high mobility in soil.

12.5 OTHER ADVERSE EFFECTS
• Environment Fate:
Based on the environmental modeling, this material has classified as toxic to aquatic life. It is expected to be biodegradable e in aerobic and anaerobic conditions and have high mobility in soil. Since this is an estimated result it is recommended that the material should be disposed into the environment. The material should never be disposed into the sewage.

13. Disposal considerations

13.1 WASTE TREATMENT METHODS
• Burn in a chemical incinerator equipped with an afterburner and scrubber.
• Exert extra care in igniting, as this material is Combustible.
• Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment rinsates.

14. Transport information

S.NO.	AGENCY	UN NUMBER	PROPER SHIPPING NAME	HAZARD CLASS	PACKING GROUP
Land Transport	DOT	UN 2209	Formaldehyde solution with not less than 25% Formaldehyde.	8	III
Maritime Transport	IMDG	UN 2209	Formaldehyde solution with not less than 25% Formaldehyde.	8	III
Hazard Label			Corrosive		

15. Regulatory information

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE
European Union Information
Classification as per CLP Regulation 1272/2008:
• Hazards Class and Category: Acute tox Inhalation/Dermal/Oral, Skin corr-Cat1B, Skin sens. Cat 1: Carc. Cat 2, STOT SE Cat1
• Hazard Statements: H331; H311; H301; H314; H317; H351; H370
Product NameFORMALIN - FormaldehydePart NumberRXSOL-19-1191-025

Chemical Inventory Lists	Status
TSCA:	Present
EINECS:	200-001-8
Canada (DSL/NDSL):	Listed/DSL
Japan:	2-482
Korea:	KE=17074
Australia:	Present
China	Present

US information
OSHA Hazards • Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Corrosive, Carcinogen
SARA 302 Components • The following components are subject to reporting levels established by SARA Title III, Section 302: Formaldehyde.
SARA 313 Components • The following components are subject to reporting levels established by SARA Title III, Section 313: Methanol.
SARA 311/312 Hazards • Fire Hazard, Acute Health Hazard, Chronic Health Hazard.
California Prop. 65 Components • WARNING! This product contains a chemical known to the State of California to cause cancer.
FIFRA Requirements: • Formaldehyde is found on List A, which contains most food use pesticides and consists of the 194 chemical cases (or 350 individual active
ingredients) for which EPA issued registration standards prior to FIFRA, as amended in 1988.New Jersey Right to Know Components
CERCLA Reportable Quantities:
• Formaldehyde is an extremely hazardous substance (EHS) subject to reporting requirements when stored in amounts in excess of its threshold planning quantity (TPQ) of 500 lbs.
Clean Water Act Requirements:
• Formaldehyde is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978.
State Drinking Water Guidelines:
• (CA) CALIFORN IA 100 ug/l
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]
• (FL) FLORIDA 600 ug/l
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]
• (ME) MAINE 140 ug/l
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]
• (MN) MINNESOTA 1000 ug/l
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]
• (NH) NEW HAMPSHIRE 100 ug/L
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]
• (NJ) NEW JERSEY 100 ug/l [USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and
Federal Drinking Water Standards and Guidelines (11/93) To Present]
• WI) WISCONSIN 1000 ug/l
[USEPA/Office of Water; Federal-State Toxicology and Risk Analysis Committee (FSTRAC). Summary of State and Federal Drinking Water Standards and Guidelines (11/93) To Present]

16. Other information

16.1 COMPILATION INFORMATION OF SAFETY DATA SHEET
Date of compilation : June 26, 2017
Chemical : Formaldehyde
CAS # : 50-00-0
File Name : Formaldehyde Material Safety Data Sheet (MSDS)
Revision Number : 2
Date of Revision of SDS : August 05, 2020
Revision Due Date : August 05, 2020
Supersedes Date : June 26, 2017
16.2 A KEY OR LEGEND TO ABBREVIATIONS AND ACRONYMS USED IN THE SAFETY DATA SHEET
• PBT =Persistent Bio accumulative and Toxic.
• vPvB= Very Persistent and Very Bio accumulative.
• SCBA= Self Contained Breathing Apparatus.
• NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
• OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit.
• OELTWA= Occupational Exposure Limit Time Weighted Averages
• RTECS= Registry of Toxic Effects of Chemical Substances.
• NTP=National Toxicology Program.
• IARC= International Agency for Research on Cancer.
• EPA=Environmental Protection Agency.
• TSCA= Toxic Substances Control Act.
• SARA= Superfund Amendments and Reauthorization Act.
• WHIMS= Workplace Hazardous Materials Information System.
• DSL/NDSL= Domestic/Non-Domestic Substances List.
• BCF = Bio Concentration Factor.
• TLV = Threshold Limit Value.
• ACGIH = American Conference of Governmental Industrial Hygienists.
• REACH = Registration, Evaluation .Authorization and Restriction of Chemicals.
• CLP = Classification, Labeling and Packaging.
• LD / LC = Lethal Doses / Lethal Concentration.
• GHS = Globally Harmonized System.
• IMDG-Code = International Maritime Code for Dangerous Goods.
• ICAO = International Civil Aviation Organization.
• IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

16.3 KEY LITERATURE REFERENCE AND SOURCES FOR DATA
Biographical reference and data sources
• CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009.
• Globally Harmonized System of Classification and Labelling of Chemicals.
• RTECS

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages.