



FORMALDEHYDE
Potassium Reagent

Safety Data Sheet

According to Regulation (EC) No. 1907/2006
OSHA Regulation 29 CFR 1910.1200
Canadian Regulation SOR/88-66

Revision Date: 2012-10-01

Reason for Revision: Updated flashpoint and pH

SECTION 1: IDENTIFICATION OF THE PRODUCT AND COMPANY

Product Name: Potassium Reagent

Application: Determination of Potassium in Water Samples

Company Information (USA):

Hanna Instruments, Inc.
584 Park East Dr, Woonsocket, Rhode Island, USA 02895

Technical Service Contact Information:

1-800-426-6287 (8:30AM - 5:00PM ET)
+1-401-766-4260 (8:30AM - 5:00PM ET)

USA Emergency Contact Information:

1-800-424-9300 (Chemtrec 24Hr. Emergency)

International Emergency Contact Information:

+1-703-527-3887 (Chemtrec 24Hr. Emergency)

E-mail Address:

tech@hannainst.com

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SECTION 2: HAZARD IDENTIFICATION

Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.

According to Regulation (EC) No. 1272/2008:

Classification: Carcinogen (Category 2)
Acute Toxicity, Oral (Category 3)
Acute Toxicity, Dermal (Category 3)
Acute Toxicity, Inhalation (Category 3)
Flammable Liquids (Category 3)
Skin Corrosion (Category 1B)
Skin Sensitizer (Category 1)
Specific Target Organ Toxicity, Single Exposure (Category 1)

Signal Word: **Danger**

Pictograms:



Hazard Statements:
H226: Flammable liquid and vapour.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H331: Toxic if inhaled.
H351: Suspected of causing cancer.
H370: Causes damage to organs.

Precaution Statements:
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405: Store locked up.

According to Directives 67/548/EEC and 1999/45/EC:

Symbol: T: Toxic

R-phrases: 11-23/24/25-34-39/23/24/25-40-43: Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.

S-phrases: 26-36/37/39-45-51: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Use only in well-ventilated areas.

SECTION 3: COMPOSITION AND COMPONENT INFORMATION

Component:	EC No:	CAS No:	Hazard Class:	Phrases:	Concentration:
Formaldehyde	200-001-8	50-00-0	Carc. 2 Acute Tox. 3 Skin Corr. 1B Skin Sens. 1 T, Carc. Cat 3	H311, H314, H317, H331, H351 R: 23/24/25-34-40-43	> 25% - < 37%
Methanol	200-659-6	67-56-1	Flam. Liq. 2 Acute Tox. 3 STOT SE 1	H225, H301, H311, H331, H370 R: 11-23/24/25- 39/23/24/25	> 10% - < 15%

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SECTION 4: FIRST AID MEASURES

- After Inhalation:** Remove to fresh air. Apply mouth to mouth resuscitation or mechanical ventilation if necessary. Call in physician.
- After Skin Contact:** Wash affected area with plenty of water. Remove contaminated clothing.
- After Eye Contact:** Rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.
- After Swallowing:** Make victim drink water, avoid vomiting. Immediately call in physician. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry). Immediately call in physician. Indications for the doctor: Gastric Washout. Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Mention methanol.
- General Information:** Not available

SECTION 5: FIRE-FIGHTING MEASURES

- Suitable Extinguishing Media:**
Powder, Foam
- Special Risks:**
Formaldehyde vapors: Combustible. Keep away from sources of ignition. Formation of explosive mixtures possible with air.
- Special Protective Equipment:**
Do not stay in dangerous zone without suitable chemical protection clothing and self-contained breathing apparatus.
- Additional Information:**
Contain escaping vapors with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- Personal Precautions:**
Do not inhale vapors/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.
- Environmental Precautions:**
Do not discharge into the drains, surface waters, or groundwaters.
- Additional Notes:**
Take up with sand or vermiculite and place in closed containers for disposal. Clean up and ventilate affected area and dispose according to local regulation.

SECTION 7: HANDLING AND STORAGE

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| Handling:

Work under hood. Do not inhale substance. Avoid generation of vapors/aerosols. | Storage:

Cannot be stored indefinitely. Keep container closed and protected from direct sunlight. Store at room temperature (+15°C to +25°C). |
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SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Type	Value	Source	Type	Value	Source
Formaldehyde					
Ceiling	0.38 mg/m ³	Belgium	Ceiling	1.5 mg/m ³	Canada (Ontario)
Ceiling	3 mg/m ³	Canada (Quebec)	TWA (8hr)	0.5 ppm	France
TWA (8hr)	2.5 mg/m ³	Greece	TWA (8hr)	0.6 mg/m ³	Hungary
TWA (8hr)	0.15 mg/m ³	Netherlands	TWA (8hr)	0.5 mg/m ³	Poland
Ceiling	0.3 ppm	Portugal	TWA (8hr)	1.2 mg/m ³	Romania
Ceiling	0.37 mg/m ³	Spain	TWA (8hr)	2.5 mg/m ³	UK
TWA (8hr)	0.30 ppm	USA (ACGIH)	TWA (8hr)	0.75 ppm	USA (OSHA)

Engineering:

Maintain general industrial hygiene practice.

Personal Protective Equipment:

As appropriate to quantity handled.

Respiratory Protection:

Required when vapors/aerosols are generated.

Protective Gloves:

Rubber or plastic

Eye Protection:

Goggles or face mask

Industrial Hygiene:

Immediately change contaminated clothing. Apply skin protective barrier cream. Wash hands and face after working with substance. Work under hood. Do not inhale substance.

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Appearance:	Colorless liquid	Odor:	Pungent	Density at 20°C:	1.09 g/cm ³
Melting Point:	< -15 °C	Boiling Point:	~ 94 °C	Solubility:	Soluble
pH at 20°C:	8.2	Explosion Limit:	Lower 7 Vol% Upper 73 Vol%	Flash Point:	50°C
Thermal Decomp.:	NA				

SECTION 10: STABILITY AND REACTIVITY

Conditions to be Avoided:

Heating

Hazardous Polymerization:

Tends to polymerize.

Further Information:

Stabilizer: Methanol. Incompatible with various metals and various alloys. Explosive with air in a vaporous/gaseous state when heated.

Hazardous Decomposition Products:

Carbon monoxide and carbon dioxide. In the event of fire: See section 5.

Substances to be Avoided:

Polymerization initiators (eg alkali metals), acids, nitrogen oxides, hydrogen peroxide, oxidizing agent, performic acid, phenol.

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Acute toxicity
LC50 (inhalation, rat): 0.578 mg/L /4 h (Formaldehyde).
LD50 (dermal, rabbit): 270 mg/kg (Formaldehyde).
LD50 (oral, rat): 100 mg/kg (Formaldehyde).
Specific symptoms in animal studies:
Eye irritation test (rabbit): burns (Formaldehyde).
Skin irritation test (rabbit): burns (Formaldehyde).
Subacute to chronic toxicity
Applicable to partial component(s):
Sensitization:
Sensitization test (guinea pig): positive.
The carcinogenic potential requires further clarification.
No impairment of reproductive performance in animal experiments.

Potential Health Effects:

Inhalation: Irritations of the mucous membranes, coughing, and dyspnoea. Inhalation may lead to the formation of edemas in the respiratory tract.

Skin Contact: Burns. Risk of skin sensitization. Danger of skin absorption.

Eye Contact: Burns. Lachrymal irritation due to vapors.

Ingestion: Burns of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract. Risk of perforation in the esophagus and stomach.

Further Data: Systemic effects: narcosis, blindness. The following applies to aldehydes in general: irritations after contact with eyes and skin. Mucosal irritations, coughing, and dyspnoea after inhalation.
The following applies to aliphatic alcohols in general: effect when product is not handled and used properly: mucosal irritations; after absorption of large quantities: narcosis. Further hazardous properties cannot be excluded. The product should be handled with particular care.

Component Toxicity**Acute Toxicity:**

Not Available

Chronic Toxicity:**Formaldehyde**

OSHA: Cancer Hazard

IARC Group 1: Carcinogenic to humans

Additional Data:

Not Available

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SECTION 12: ECOLOGICAL INFORMATION

Abiotic degradation: Rapid degradation. (air, formaldehyde)
Biologic degradation: Biodegradation: 97.4 % /5 d (Formaldehyde). Readily biodegradable.
Behavior in environmental compartments:
Distribution: log p(o/w): 0.00 (Formaldehyde).
No bioaccumulation is to be expected (log P(o/w) <1).
Ecotoxic effects:
Biological effects: Toxic for aquatic organisms. protoplasmatic toxin. Caustic even in diluted form. Disinfectant effect. Toxic effect on fish and plankton.
Sludge decomposition impaired or not possible even in diluted concentration.
Endangers drinking water supplies if allowed to enter soil and/or waters in large quantities.
Fish toxicity: P.promelas LC 50 : 24 mg/L /96 h (Formaldehyde); Br.rerio LC 50 : 41 mg/L /96 h (Formaldehyde);
Daphnia toxicity: Daphnia magna EC 50 : ~2 mg/L /48 h (Formaldehyde);
Bacterial toxicity: Photobacterium phosphoreum EC 50 : 8.5 mg/L /30 min (Formaldehyde).
Maximum permissible toxic concentration: Algeal toxicity: Sc.quadricauda IC 5 : 2.5 mg/L /8 d (Formaldehyde); Bacterial toxicity: M.aeruginosa EC 5 : 0.39 mg/L /8 d (Formaldehyde).

Further ecologic data:
COD: 1.06 g/g (Formaldehyde); TOD: 1.068 g/g (Formaldehyde)

Further Data: Do not allow to enter waters, waste water, or soil!

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Chemical residues are generally classified as special waste and thus covered by local regulations. Contact local authorities or disposal companies for advice. Handle contaminated packaging in the same way as the substance itself.

SECTION 14: TRANSPORTATION INFORMATION

	Land (ADR/RID):	Sea (IMDG):	Air (ICAO/IATA):
UN No.:	1198	1198	1198
Proper Shipping Name:	Formaldehyde solution, flammable	Formaldehyde solution, flammable	Formaldehyde solution, flammable
Class (Sub Risk):	3 (8)	3 (8)	3 (8)
Packing Group:	III	III	III

SECTION 15: REGULATORY INFORMATION

Complies with European Regulations (EC) No. 1907/2006 and No. 1272/2008.
Complies with European Council Directives 67/548/EEC and 1999/45/EC.
Complies with OSHA Regulation 29 CFR 1910.1200.
Complies with Canadian Regulation SOR/88-66

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SECTION 16: OTHER INFORMATION***Text of phrases under Section 3***

R11: Highly flammable.
R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.
R34: Causes burns.
R39/23/24/25: Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R40: Limited evidence of a carcinogenic effect.
R43: May cause sensitization by skin contact.
H225: Highly flammable liquid and vapour.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
H314: Causes severe skin burns and eye damage.
H317: May cause an allergic skin reaction.
H331: Toxic if inhaled.
H351: Suspected of causing cancer.
H370: Causes damage to organs.

Revision Information

Revision Date:	2012-10-01
Supersedes edition of:	2012-05-25
Reason for revision:	Updated flashpoint and pH
Legend	NA: Not Applicable ND: Not Determined

THE INFORMATION CONTAINED HEREIN IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE. IT CHARACTERIZES THE PRODUCT WITH REGARD TO THE APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT A GUARANTEE OF THE PROPERTIES OF THE PRODUCT.