



Be Right™

SAFETY DATA SHEET

Issue Date 22-Sep-2016

Revision Date 31-Oct-2016

Version 8

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1. IDENTIFICATION

Product identifier

Product Name Potassium 2 Reagent Solution Pillows

Other means of identification

Product Code(s) 1432298

Safety data sheet number M00281

UN/ID no UN1198

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent.

Uses advised against None.

Restrictions on use For Research and Development Only.

Details of the supplier of the safety data sheet

Manufacturer Address

Hach Company
P.O.Box 389 Loveland, CO 80539 USA
(970) 669-3050

Emergency telephone number

(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 4
Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Danger



Hazard statements

H227 - Combustible liquid
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure
H335 - May cause respiratory irritation

Precautionary statements

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
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P235 - Keep cool
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 - Wash contaminated clothing before reuse
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P331 - Do NOT induce vomiting
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P405 - Store locked up
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Information

Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

Chemical Name	CAS No	Percent Range	HMRIC #
Formaldehyde	50-00-0	30 - 40%	-
Methyl alcohol	67-56-1	10 - 20%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice

See section 8 for PPE that may be required during handling. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If no local exhaust use approved fume hood or self-contained breathing apparatus. IF exposed: Call a POISON CENTER or doctor/physician. Immediate medical attention is required. Remove from exposure, lie down. IF IN EYES: Flush eyes for at least 15 minutes. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. May cause allergic skin reaction. Repeated contact may cause allergic reactions in very susceptible persons.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Skin contact

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately. Wash hands thoroughly after handling.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician immediately.

Ingestion

IF SWALLOWED: Rinse Mouth. Call a physician immediately. Do NOT induce vomiting.

Self-protection of the first aider

First aider: Pay attention to self-protection. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. 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.

Most important symptoms and effects, both acute and delayed

Symptoms

See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Causes sensitization.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties

Combustible liquid. Combustion generates toxic fumes. This material does NOT sustain combustion when tested according to the UN Recommendation's "Methods of Testing for Combustibility". Can burn in fire, releasing toxic vapors. Classified as flammable according to GHS criteria. Combustible material: may burn but does not ignite readily. Can become flammable in use. May be ignited by friction, heat, sparks or flames. Heating may cause a fire or explosion.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products

Formaldehyde. Carbon monoxide, Carbon dioxide.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Remove all sources of ignition. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders

Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions

Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Take necessary precautions in observance of pertinent physical hazards. Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number

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7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep out of the reach of children. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class

Class IIIA

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde 30 - 40%	Ceiling: 0.3 ppm	TWA: 0.75 ppm (vacated) TWA: 3 ppm (vacated) STEL: 10 ppm (vacated) Ceiling: 5 ppm STEL: 2 ppm	IDLH: 20 ppm Ceiling: 0.1 ppm 15 min TWA: 0.016 ppm
Methyl alcohol 10 - 20%	STEL: 250 ppm TWA: 200 ppm S*	TWA: 200 ppm TWA: 260 mg/m ³ (vacated) TWA: 200 ppm (vacated) TWA: 260 mg/m ³ (vacated) STEL: 250 ppm (vacated) STEL: 325 mg/m ³ (vacated) SKN*	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 325 mg/m ³

Chemical Name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
Formaldehyde 30 - 40%	Ceiling: 1 ppm Ceiling: 1.3 mg/m ³ TWA: 0.75 ppm TWA: 0.9 mg/m ³	TWA: 0.3 ppm Ceiling: 1 ppm SKN+	Ceiling: 0.3 ppm	TWA: 0.5 ppm STEL: 1.5 ppm	RSP+ Ceiling: 0.3 ppm SKN+
Methyl alcohol 10 - 20%	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ SKN*	TWA: 200 ppm STEL: 250 ppm SKN*	TWA: 200 ppm STEL: 250 ppm SKN*	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ SKN*	TWA: 200 ppm STEL: 250 ppm SKN*

Chemical Name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
Formaldehyde 30 - 40%	Ceiling: 0.3 ppm SKN+	RSP+ Ceiling: 0.3 ppm SKN+	Ceiling: 0.3 ppm	STEL: 1 ppm Ceiling: 1.5 ppm	Ceiling: 0.3 ppm
Methyl alcohol 10 - 20%	TWA: 200 ppm STEL: 250 ppm SKN*	STEL: 250 ppm TWA: 200 ppm SKN*	TWA: 200 ppm STEL: 250 ppm SKN*	TWA: 200 ppm STEL: 250 ppm SKN*	STEL: 250 ppm TWA: 200 ppm

Chemical Name	Quebec OEL	Saskatchewan OEL	Yukon OEL
Formaldehyde 30 - 40%	Ceiling: 2 ppm Ceiling: 3 mg/m ³	Ceiling: 0.3 ppm SKN+	Ceiling: 2 ppm Ceiling: 3 mg/m ³

Methyl alcohol 10 - 20%	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ SKN*	TWA: 200 ppm STEL: 250 ppm SKN*	STEL: 250 ppm STEL: 310 mg/m ³ TWA: 200 ppm TWA: 260 mg/m ³ SKN*
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Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls If no local exhaust use approved fume hood or self-contained breathing apparatus
 Showers
 Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/face protection Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Wear protective gloves and protective clothing.

Respiratory protection Do not breathe gas/fumes/vapor/spray. If no local exhaust use approved fume hood or self-contained breathing apparatus. Ensure adequate ventilation, especially in confined areas.

General Hygiene Considerations Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

Environmental exposure controls

Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid

Gas Under Pressure Not classified according to GHS criteria

Appearance aqueous solution **Color** colorless

Odor Pungent **Odor threshold** No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	Not applicable	
pH	> 2.8	
Melting point/freezing point	-15 °C / 5 °F	

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Boiling point / boiling range	96 °C / 205 °F	
Evaporation rate	0.5 (water = 1)	Estimation based on theoretical calculation
Vapor pressure	12.976 mm Hg / 1.73 kPa at 60 °C / 140 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	1.04	
Specific gravity (water = 1 / air = 1)	1.08	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	420 °C / 788 °F	
Decomposition temperature	No data available	
Dynamic viscosity	79 cP (mPa s)	
Kinematic viscosity	73.148 cSt (mm ² /s)	

Solubility(ies)

Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
None reported	No information available	No data available	No information available

Other Information

Metal Corrosivity	Not classified as corrosive to metal according to GHS criteria
Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available
Volatile Organic Compounds (VOC) Content	See ingredients information below.
Bulk density	Not applicable
Explosive properties	Not classified according to GHS criteria.
Explosion data	Vaporizes easily at normal temperatures.
Upper explosion limit	70%
Lower explosion limit	7%
Flammable properties	Combustible liquid. Combustion generates toxic fumes. This material does NOT sustain combustion when tested according to the UN Recommendation's "Methods of Testing for Combustibility". Can burn in fire, releasing toxic vapors.

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Classified as flammable according to GHS criteria. Combustible material: may burn but does not ignite readily. Can become flammable in use. May be ignited by friction, heat, sparks or flames. Heating may cause a fire or explosion.

GHS Flammability Classification

Liquid - Category 4, H227

Flammability Limit in Air

Upper flammability limit:

No data available

Lower flammability limit:

No data available

Flash point

= 85 °C / 185 °F

Method

OC (open cup)

Oxidizing properties

Not classified according to GHS criteria.

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

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10. STABILITY AND REACTIVITY

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Contact with heat, sparks, open flames or other ignition sources.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Explosive properties

Not classified according to GHS criteria. Vaporizes easily at normal temperatures.

Upper explosion limit

70%

Lower explosion limit

7%

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Autoignition temperature

420 °C / 788 °F

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number None reported

Information on Likely Routes of Exposure

Product Information	Toxic by ingestion. Toxic in contact with skin. Toxic if inhaled. Corrosive to skin. Corrosive to eyes. May cause respiratory irritation. Skin sensitizer.
Inhalation	Avoid breathing dust/fume/gas/mist/vapors/spray. Toxic by inhalation. Immediate medical attention is required. Causes burns. Corrosive by inhalation. Inhalation of dust in high concentration may cause irritation of respiratory system. May cause irritation of respiratory tract.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness. Causes burns. Corrosive to eyes.
Skin contact	Toxic in contact with skin. Cause severe skin burns and eye damage. Causes burns. May cause sensitization by skin contact.
Ingestion	Toxic if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts. Causes burns.
Aggravated Medical Conditions	Eye disorders. Skin disorders. Respiratory disorders.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.

Chemical Name	Toxicokinetics, metabolism and distribution
Formaldehyde (30 - 40%) CAS#: 50-00-0	Readily Absorbed via the respiratory and gastrointestinal routes. Absorbed formaldehyde can be oxidized to formate and carbon dioxide. Half-life of formaldehyde is 1 min in rat plasma.
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Metabolism of methanol appears to be similar regardless of administrative route. Methanol is converted to formaldehyde, which is converted to formate which is oxidized to carbon dioxide in primates.

Product Acute Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	242.00 mg/kg
ATEmix (dermal)	667.00 mg/kg
ATEmix (inhalation-vapor)	7.00 mg/L

Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rat LD ₅₀	100 mg/kg	None reported	None reported	No information available
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Human LD ₅₀	300 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Rat LD ₅₀	5628 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Human LD _{Lo}	70 mg/kg	None reported	Gastrointestinal Ulcerated stomach Liver Other changes Kidney, Ureter, or Bladder Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Human LD _{Lo}	143 mg/kg	None reported	Lungs, Thorax, or Respiration Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Human TD _{Lo}	643 mg/kg	None reported	Lungs, Thorax, or Respiration Respiratory obstruction Gastrointestinal Ulcerated stomach Nausea or vomiting	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Man LD _{Lo}	3.571 mg/kg	None reported	Lungs, Thorax, or Respiration Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rabbit LD ₅₀	270 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Human LD ₅₀	1000 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Rabbit LD ₅₀	15800 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde	Rat	250 mg/L	4 hours	None reported	RTECS (Registry of Toxic

(30 - 40%) CAS#: 50-00-0	LC ₅₀				Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Human LC ₅₀	10 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Rat LC ₅₀	64000 mg/L	6 hours	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Human TC _{Lo}	300 mg/L	None reported	Lungs, Thorax, or Respiration Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route

No data available

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Standard Draize Test	Human	0.150 mg	72 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Standard Draize Test	Rabbit	20 mg	24 hours	Skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Standard Draize Test	Rabbit	2 mg	24 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rinse Test	Human	1 ppm	6 minutes	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Standard Draize Test	Rabbit	40 mg	None reported	Eye irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde	Standard Draize	Rabbit	0.750 mg	24 hours	Corrosive to eyes	RTECS (Registry of

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(30 - 40%) CAS#: 50-00-0	Test					Toxic Effects of Chemical Substances)
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Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route No data available.

Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Patch test	Human	Confirmed to be a skin sensitizer	ERMA (New Zealand's Environmental Risk Management Authority)

Respiratory Sensitization Exposure Route If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	IgE Specific Immune Response Test	Guinea pig	Confirmed to be a respiratory sensitizer	CICAD (Concise International Chemical Assessment Documents)

Chronic Toxicity Information

Product Repeat Dose Toxicity Data

Oral Exposure Route No data available.

Dermal Exposure Route No data available.

Inhalation (Dust/Mist) Exposure Route No data available.

Inhalation (Vapor) Exposure Route No data available.

Inhalation (Gas) Exposure Route No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Human TC _{Lo}	0.017 mg/L	0.5 days	Eye Lacrimation Lungs, Thorax, or Respiration Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Human TC _{Lo}	2 mg/L	40 minutes	Lungs, Thorax, or Respiration Other changes Respiratory depression	RTECS (Registry of Toxic Effects of Chemical Substances)

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Inhalation (Gas) Exposure Route

No data available

Chemical Name	CAS No	ACGIH	IARC	NTP	OSHA
Formaldehyde	50-00-0	A2	Group 1	Known	X
Methyl alcohol	67-56-1	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	A2 - Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)	Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)	Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Product Carcinogenicity Data

No data available

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Carcinogenicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rat	15 mg/L	78 weeks	Olfaction Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route

No data available

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

If available, see data below

Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	DNA inhibition	Human lymphocyte	300 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Oral Exposure Route

No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *in vivo* Data

Oral Exposure Route If available, see data below

Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	DNA damage	Rat	0.405 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Cytogenetic analysis	Mouse	1000 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	DNA damage	Rat	0.000035 mg/L	8 weeks	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Micronucleus test	Human	.000985 mg/L	8.5 years	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Micronucleus test	Human	2 mg/L	15 minutes	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route No data available

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Rat TD _{Lo}	4118 mg/kg	10 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus) Specific Developmental Abnormalities Ear Eye Urogenital System	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Rat TC _{Lo}	0.0026 mg/L	22 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rat TC _{Lo}	40 mg/L	14 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rat TC _{Lo}	.001 mg/L	24 weeks	Effects on Embryo or Fetus Cytological changes (including somatic cell genetic material)	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	Mouse TC _{Lo}	1500 mg/L	7-9 days	Specific Developmental Abnormalities Central Nervous System	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	Rat TC _{Lo}	.0005 mg/L	19 days	Specific Developmental Abnormalities Musculoskeletal system	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route

No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life.

Product Ecological Data

Aquatic toxicity

Fish

No data available

Crustacea

No data available

Algae No data available

Terrestrial toxicity

Soil No data available

Vertebrates No data available

Invertebrates No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	96 hours	<i>Morone saxatilis</i>	LC ₅₀	6.7 mg/L	PEEN (Pan European Ecological Network)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	96 hours	<i>Pimephales promelas</i>	LC ₅₀	15000 mg/L	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	96 hours	None reported	LC ₅₀	52.5 mg/L	PEEN (Pan European Ecological Network)

Crustacea If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	48 Hours	<i>Daphnia pulex</i>	EC ₅₀	5.8 mg/L	PEEN (Pan European Ecological Network)
Methyl alcohol (10 - 20%) CAS#: 67-56-1	48 Hours	<i>Daphnia magna</i>	EC ₅₀ LC ₅₀	2500 mg/L	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (30 - 40%) CAS#: 50-00-0	48 hours	<i>Daphnia magna</i>	EC ₅₀	29 mg/L	PEEN (Pan European Ecological Network)

Algae No data available

Terrestrial toxicity

Soil No data available

Vertebrates No data available

Invertebrates No data available

Other Information

Persistence and degradability

None known.

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Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Chemical Name	Test method	Biodegradation	Exposure time	Results
Formaldehyde (30 - 40%) CAS#: 50-00-0	None reported	99%	28 days	Readily biodegradable

Bioaccumulation

If available, see ingredient data below.

Product Bioaccumulation Data

If available, see ingredient data below.

Ingredient Bioaccumulation Data

No data available

Chemical Name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Formaldehyde (30 - 40%) CAS#: 50-00-0	None reported	None reported	None reported	None reported	Does not have the potential to bioaccumulate

Additional information

Product Information

Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Information

Chemical Name	Partition Coefficient (n-octanol/water)	Method
Formaldehyde (30 - 40%) CAS#: 50-00-0	$\log K_{ow} = 0.35$	No information available
Methyl alcohol (10 - 20%) CAS#: 67-56-1	$\log K_{ow} = -0.7$	No information available

Mobility

Mobility in soil: High mobility. If available, see ingredient data below.

Product Information

Soil Organic Carbon-Water Partition Coefficient

Not applicable

Ingredient Information

Chemical Name	Soil Organic Carbon-Water Partition Coefficient	Method
Formaldehyde (30 - 40%) CAS#: 50-00-0	$\log K_{oc} = 0.89$	No information available

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Methyl alcohol (10 - 20%) CAS#: 67-56-1	log K _{oc} = 0.44	No information available
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Additional information

Water solubility

Product Information

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

Ingredient Information

Chemical Name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
Formaldehyde CAS#: 50-00-0	Completely soluble	> 40000 mg/L	20 °C	68 °F
Methyl alcohol CAS#: 67-56-1	Soluble	> 1000 mg/L	25 °C	77 °F

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging Do not reuse container.

US EPA Waste Number D001, U122

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formaldehyde 50-00-0	U122	Included in waste streams: K009, K010, K038, K040, K156, K157	-	U122
Methyl alcohol 67-56-1	-	Included in waste stream: F039	-	U154

Special instructions for disposal Incinerate material at an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

DOT

UN/ID no UN1198
Proper shipping name Formaldehyde, solutions, flammable
Hazard Class 3
Subsidiary class 8
Packing Group III
Emergency Response Guide Number 132

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TDG

UN/ID no	UN1198
Proper shipping name	Formaldehyde, solutions, flammable
Hazard Class	3
Subsidiary class	8
Packing Group	III

IATA

UN/ID no	UN1198
Proper shipping name	Formaldehyde, solutions, flammable
Hazard Class	3
Subsidiary hazard class	8
Packing Group	III
ERG Code	132

IMDG

UN/ID no	UN1198
Proper shipping name	Formaldehyde, solutions, flammable
Hazard Class	3
Subsidiary hazard class	8
Packing Group	III
Marine pollutant	This material meets the definition of a marine pollutant

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

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

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

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

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

ENCS- Japan Existing and New Chemical Substances

IECSC- China Inventory of Existing Chemical Substances

KECL- Korean Existing and Evaluated Chemical Substances

PICCS- Philippines Inventory of Chemicals and Chemical Substances

TCSI- Taiwan Chemical Substances Inventory

AICS- Australian Inventory of Chemical Substances

NZIoC- New Zealand Inventory of Chemicals

US Federal Regulations

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SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Formaldehyde (CAS #: 50-00-0)	0.1
Methyl alcohol (CAS #: 67-56-1)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formaldehyde 50-00-0	100 lb	-	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formaldehyde 50-00-0	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ
Methyl alcohol 67-56-1	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical Name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Formaldehyde (30 - 40%) CAS#: 50-00-0	Release - Toxic (solution)

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Formaldehyde (CAS #: 50-00-0)	Carcinogen
Methyl alcohol (CAS #: 67-56-1)	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Formaldehyde 50-00-0	X	X	X

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Methyl alcohol 67-56-1	X	X	X
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U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA and HMIS Classifications

NFPA	Health hazards - 3	Flammability - 2	Instability - 1	Physical and Chemical Properties SKN*
HMIS	Health hazards - 3	Flammability - 2	Physical hazards - 1	Personal protection - X - See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH *Immediately Dangerous to Life or Health*
 ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
 NDF *no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

Issue Date 22-Sep-2016

Revision Date 31-Oct-2016

Revision Note None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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End of Safety Data Sheet