

## Section 1 Chemical Product and Company Identification

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**HOME SCIENCE TOOLS**

665 Carbon Street  
Billings, MT 59102  
800-860-6272  
www.homesciencetools.com

**CHEMTREC 24 Hour Emergency USA**  
**Phone Number (800) 424-9300**  
**1 703-741-5500 (from anywhere in the world).**  
For laboratory and industrial use only.  
Not for drug, food or household use.

**Product** BENEDICT'S QUALITATIVE SOLUTION**Synonyms** Benedict's Sugar Test Reagent ; Benedict's Solution ; Benedict's Qualitative Reagent

## Section 2 Hazards Identification

**Signal word:** WARNING**Pictograms:** GHS07 / GHS09**Target organs:** Liver, kidneys.**GHS Classification:**

Skin irritation (Category 3)

Eye irritation (Category 2B)

Acute toxicity, oral (Category 4)

Acute toxicity, dermal (Category 5)

Acute toxicity, inhalation (Category 4)

Aquatic toxicity (Category 1)

**GHS Label information: Hazard statement(s):**

H302: Harmful if swallowed.

H313: May be harmful in contact with skin.

H316: Causes mild skin irritation.

H320: Causes eye irritation.

H332: Harmful if inhaled.

H410: Very toxic to aquatic life with long lasting effects.

**Precautionary statement(s):**

P261: Avoid breathing mist/vapours/spray.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P332+P313: If skin irritation occurs: Get medical attention.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical attention.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

## Section 3 Composition / Information on Ingredients

| Chemical Name                | CAS #     | %     | EINECS                |
|------------------------------|-----------|-------|-----------------------|
| Water                        | 7732-18-5 | 77.9% | 231-791-2             |
| Sodium citrate               | 68-04-2   | 13.7% | 200-675-3             |
| Sodium carbonate             | 497-19-8  | 6.9%  | 207-838-8             |
| Cupric sulfate, pentahydrate | 7758-99-8 | 1.5%  | 231-847-6 (anhydrous) |

## Section 4 First Aid Measures

**INGESTION:** Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.**EYE CONTACT:** Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.**SKIN ABSORPTION:** Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

## Section 5 Fire Fighting Measures

**Suitable Extinguishing Media:** Use any media suitable for extinguishing supporting fire.**Protective Actions for Fire-fighters:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.**Specific Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

## Section 6 Accidental Release Measures

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.**Containment and Cleanup:** Remove all sources of ignition. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

**Section 7 Handling & Storage**

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Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

**Handling:** Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale vapors, spray or mist. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Storage:** Store in a cool, well-ventilated area away from incompatible substances.

**Section 8 Exposure Controls / Personal Protection**

| Exposure Limits: | Chemical Name  | ACGIH (TLV)                                  | OSHA (PEL)        | NIOSH (REL)       |
|------------------|----------------|--|-------------------|-------------------|
|                  | Cupric sulfate | TWA: 0.2 mg/m <sup>3</sup> copper fume as Cu | None established. | None established. |

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

**Section 9 Physical & Chemical Properties**

|  |  |  |
|--|--|--|
| <b>Appearance:</b> Clear, pale blue liquid.<br><b>Odor:</b> No odor.<br><b>Odor threshold:</b> N/A<br><b>pH:</b> N/A<br><b>Melting / Freezing point:</b> ~ 0°C (~ 32°F) [water]<br><b>Boiling point:</b> ~ 100°C (212°F) [water]<br><b>Flash point:</b> Not flammable. | <b>Evaporation rate ( = 1):</b> < 1<br><b>Flammability (solid/gas):</b> N/A<br><b>Explosion limits: Upper:</b> N/A <b>Lower:</b> N/A<br><b>Vapor pressure (mm Hg):</b> 14 [water]<br><b>Vapor density (Air = 1):</b> 0.7 [water]<br><b>Relative density (Specific gravity):</b> 1.0 [water]<br><b>Solubility(ies):</b> Complete. | <b>Partition coefficient:</b> (n-octanol / water): N/A<br><b>Auto-ignition temperature:</b> N/A<br><b>Decomposition temperature:</b> N/A<br><b>Viscosity:</b> N/A<br><b>Molecular formula:</b> Mixture.<br><b>Molecular weight:</b> Mixture. |
|--|--|--|

**Section 10 Stability & Reactivity**

**Chemical stability:** Stable **Hazardous polymerization:** Will not occur.

**Conditions to avoid:** Excessive temperatures which cause evaporation.

**Incompatibilities with other materials:** Acids and strong oxidizers.

**Hazardous decomposition products:** Carbon oxides.

**Section 11 Toxicological Information**

**Acute toxicity:** Oral-rat LD50: 300 mg/kg (Copper sulfate) - Dermal-rat LD50: >1000 mg/kg (Copper sulfate) - Inhalation-rat LC50: 2.3 mg/l 2 hour (Sodium carbonate)

**Skin corrosion/irritation:** Slightly irritating

**Serious eye damage/irritation:** Slightly irritating

**Respiratory or skin sensitization:** Not a sensitizer

**Germ cell mutagenicity:** Data not available

**Carcinogenicity:** Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Data not available

**STOT-single exposure:** Data not available

**STOT-repeated exposure:** Data not available

**Aspiration hazard:** Data not available

**Potential health effects:**

Inhalation: May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

Skin: Contact may cause irritation.

Eyes: Contact may cause irritation.

**Signs and symptoms of exposure:** To the best of our knowledge the chemical, physical and toxicological properties have not been thoroughly investigated. Specific data is not available. Exercise appropriate procedures to minimize potential hazards.

**Additional information:** RTECS #: Not available for this mixture.

**Section 12 Ecological Information**

**Toxicity to fish:** Salmo gairdneri (Fish, estuary, fresh water) LC50: < .75-.84 mg/l

**Toxicity to daphnia and other aquatic invertebrates:** No data available

**Toxicity to algae:** No data available

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**Section 13 Disposal Considerations**

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

**Section 14 Transport Information (US DOT / CANADA TDG)**

**UN/NA number:** Not applicable

**Shipping name:** Not Regulated

**Hazard class:** Not applicable

**Packing group:** Not applicable

**Reportable Quantity:** No

**Marine pollutant:** No

**Exceptions:** Not applicable

**2016 ERG Guide #** Not applicable

**Section 15 Regulatory Information**

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

| Component                        | TSCA | CERCLA (RQ) | RCRA code | DSL | NDSL | CA Prop 65   |
|----------------------------------|------|-------------|-----------|-----|------|--|
| All components listed with TSCA. |      |             |           |     |      | This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. |

**Section 16 Other Information**

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

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For laboratory and industrial use only.  
Not for drug, food or household use.

**Product** COPPER(II) SULFATE, PENTAHYDRATE**Synonyms** Cupric Sulfate, 5-Hydrate

## Section 2 Hazards Identification

**Signal word:** WARNING**Pictograms:** GHS07 / GHS09**Target organs:** Liver, Kidneys, Lungs, Spleen.**GHS Classification:**

Acute toxicity-oral (Category 4)

Skin irritation (Category 2)

Eye irritation (Category 2A)

Aquatic acute toxicity (Category 1)

Aquatic chronic toxicity (Category 1)

**GHS Label information: Hazard statement:**

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H410: Very toxic to aquatic life with long lasting effects.

**Precautionary statement:**

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P312: IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.

P302+P352: IF ON SKIN: Wash with plenty of water and soap.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313: If skin irritation occurs: Get medical attention.

P337+P313: If eye irritation persists: Get medical attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

## Section 3 Composition / Information on Ingredients

| Chemical Name  | CAS #     | %    | EINECS                |
|----------------|-----------|------|-----------------------|
| Cupric sulfate | 7758-99-8 | >99% | 231-847-6 (anhydrous) |

## Section 4 First Aid Measures

**INGESTION:** HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.**INHALATION:** HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.**EYE CONTACT:** CAUSES SEVERE EYE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.**SKIN ABSORPTION:** CAUSES SKIN IRRITATION. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

## Section 5 Fire Fighting Measures

**Suitable Extinguishing Media:** Use any media suitable for extinguishing supporting fire**Protective Actions for Fire-fighters:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.**Specific Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

## Section 6 Accidental Release Measures

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.**Containment and Cleanup:** Sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.

**Precautions for Safe Handling:** Read label on container before using. Do not wear contact lenses when working with chemicals. Keep out of reach of children. Avoid contact with eyes, skin and clothing. Do not inhale dusts. Use with adequate ventilation. Avoid ingestion. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Conditions for Safe Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 Exposure Controls / Personal Protection

| Exposure Limits: | Chemical Name                  | ACGIH (TLV)              | OSHA (PEL)               | NIOSH (REL)              |
|------------------|--------------------------------|--------------------------|--------------------------|--------------------------|
|                  | Copper, dusts and mists, as Cu | TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> |

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If dusty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

## Section 9 Physical &amp; Chemical Properties

|  |  |  |
|--|--|--|
| <b>Appearance:</b> Solid. Blue powder          | <b>Evaporation rate ( = 1):</b> Not applicable         | <b>Partition coefficient:</b> Data not available               |
| <b>Odor:</b> Odorless                          | <b>Flammability (solid/gas):</b> Not applicable        | <b>Auto-ignition temperature:</b> Data not available           |
| <b>Odor threshold:</b> Data not available      | <b>Explosion limits: Lower / Upper:</b> Not applicable | <b>Decomposition temperature:</b> 560°C (1040°F)               |
| <b>pH:</b> 3.7-4.2 (10% solution)              | <b>Vapor pressure (mm Hg):</b> 20 torr @ 22.5°C        | <b>Viscosity:</b> Data not available.                          |
| <b>Melting / Freezing point:</b> 150°C (302°F) | <b>Vapor density (Air = 1):</b> Data not available     | <b>Molecular formula:</b> CuSO <sub>4</sub> •5H <sub>2</sub> O |
| <b>Boiling point:</b> Decomposes               | <b>Relative density (Specific gravity):</b> 2.284      | <b>Molecular weight:</b> 249.68                                |
| <b>Flash point:</b> Non-flammable              | <b>Solubility(ies):</b> 31.6 g/100 ml water @ 0°C      |  |

## Section 10 Stability &amp; Reactivity

**Chemical stability:** Stable

**Hazardous polymerization:** Will not occur.

**Conditions to avoid:** Hygroscopic material. Stable when kept dry, under normal temperature and pressure. Avoid high temperatures, exposure to air and incompatible materials.

**Incompatible materials:** Reducing agents, acetylene or nitromethane, magnesium, strong bases, alkalines, phosphates, hydrazine, zirconium. Can corrode aluminum, steel and iron.

**Hazardous decomposition products:** Oxides of sulfur and copper fumes.

## Section 11 Toxicological Information

**Acute toxicity:** Oral-rat LD50: 300 mg/kg [Copper sulfate anhydrous]

**Skin corrosion/irritation:** Data not available

**Serious eye damage/irritation:** Data not available

**Respiratory or skin sensitization:** Data not available

**Germ cell mutagenicity:** Data not available

**Carcinogenicity:** Data not available

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Data not available

**STOT-single exposure:** Data not available

**STOT-repeated exposure:** Data not available

**Aspiration hazard:** Data not available

**Potential health effects:**

Inhalation: May cause irritation to the mucous membranes and upper respiratory tract.

Ingestion: Ingestion can cause irritation to the digestive tract and abdominal pain.

Skin: Contact with skin causes slight irritation. Excessive exposure may cause allergic dermatitis. May cause irritation or burns on wet skin.

Eyes: Can cause severe irritation and may result in irreversible eye damage.

**Signs and symptoms of exposure:** *Note to physician:* Probable mucosal damage may contradict the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, gastrointestinal pain, diarrhea, dizziness, jaundice, and general debility.

**Additional information:** RTECS #: GL8900000

## Section 12 Ecological Information

**Toxicity to fish:** Salmo gairdneri (fish, estuary, fresh water), LC50 = < 0.75-0.84 mg/L [Copper sulfate anhydrous]

**Toxicity to daphnia and other aquatic invertebrates:** No data available

**Toxicity to algae:** No data available

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

## Section 14 Transport Information (US DOT / CANADA TDG)

**UN/NA number:** UN3077

**Shipping name:** Environmentally hazardous substances, solid, n.o.s., (Cupric sulfate)

**Hazard class:** 9

**Packing group:** III

**Reportable Quantity:** 10 lbs (4.54 kg)

**Marine pollutant:** Yes

**Exceptions:** Not regulated equal to or less than 4.539 Kg ; Reportable quantity equal to or more than 4.54 Kg

**2016 ERG Guide #** 171

## Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

| Component      | TSCA   | CERLCA (RQ)      | RCRA code  | DSL        | NDSL       | CA Prop 65   |
|----------------|--------|------------------|------------|------------|------------|--|
| Cupric sulfate | Listed | 10 lbs (4.54 kg) | Not listed | Not listed | Not listed | This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. |

## Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

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**Product** IODINE-POTASSIUM IODIDE SOLUTION**Synonyms** Iodine-Iodide / Iodine Solution / Iodine / Iodine Lugol's Dilute / Gram's Iodine Solution / Dilute Lugol's Solution

## Section 2 Hazards Identification

**Signal word:** WARNING**Pictograms:** GHS07 / GHS09**Target organs:** Thyroid, kidneys, endocrine system, skin, eyes, reproductive system, central nervous system.**GHS Classification:**

Acute toxicity, dermal (Category 4)

Acute toxicity, inhalation (Category 4)

Aquatic toxicity, acute (Category 1)

**GHS Label information: Hazard statement(s):**

H312: Harmful in contact with skin.

H332: Harmful if inhaled.

H400: Very toxic to aquatic life.

**Precautionary statement(s):**

P261: Avoid breathing mist/vapours/spray.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352: IF ON SKIN: Wash with plenty of water and soap.

P312: Call a POISON CENTER or doctor if you feel unwell.

P362+P364: Take off contaminated clothing and wash it before reuse.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312: Call a POISON CENTER or doctor if you feel unwell.

P391: Collect spillage.

P501: Dispose of contents/container to a licensed chemical disposal agency in accordance with local/regional/national regulations.

**Hazards not otherwise classified:**

Health hazards not otherwise classified (HHNOC) - Not Known

Physical hazards not otherwise classified (PHNOC) - Not Known

## Section 3 Composition / Information on Ingredients

| Chemical Name    | CAS #     | %      | EINECS    |
|------------------|-----------|--------|-----------|
| Water            | 7732-18-5 | 95.10% | 231-791-2 |
| Potassium iodide | 7681-11-0 | 3.05%  | 231-659-4 |
| Iodine           | 7553-56-2 | 1.85%  | 231-442-4 |

## Section 4 First Aid Measures

**INGESTION:** MAY BE HARMFUL IF SWALLOWED. Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.**INHALATION:** HARMFUL IF INHALED. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Harmful if inhaled.**EYE CONTACT:** MAY CAUSE IRRITATION. Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.**SKIN ABSORPTION:** HARMFUL IN CONTACT WITH SKIN. Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention. Harmful in contact with skin.

## Section 5 Fire Fighting Measures

**Extinguishing Media:** Use any media suitable for extinguishing supporting fire.**General information:** In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. Use water spray to keep fire-exposed containers cool.**Specific Hazards:** In fire conditions, water may evaporate from this solution which may cause hazardous decomposition products to be formed as dust or fume.

## Section 6 Accidental Release Measures

**Personal Precautions:** Evacuate personnel to safe area. Use proper personal protective equipment as indicated in Section 8. Provide adequate ventilation.**Environmental Precautions:** Avoid runoff into storm sewers and ditches which lead to waterways.**Containment and Cleanup:** Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water.



Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. Keep out of reach of children. Use with adequate ventilation. Wash thoroughly after handling.

**Handling:** Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale vapors, mist or spray. Wash thoroughly after handling. Remove and wash clothing before reuse.

**Storage:** Store in a cool, well-ventilated area away from incompatible substances.

## Section 8 Exposure Controls / Personal Protection

| Exposure Limits: | Chemical Name          | ACGIH (TLV)   | OSHA (PEL)                            | NIOSH (REL)                           |
|------------------|------------------------|---|---------------------------------------|---------------------------------------|
|                  | Iodine CAS # 7553-56-2 | TWA: 0.01 ppm <sup>(1FV)</sup> / STEL: 0.1 ppm <sup>(V)</sup> | STEL: C 0.1 ppm/C 1 mg/m <sup>3</sup> | STEL: C 0.1 ppm/C 1 mg/m <sup>3</sup> |

**Engineering controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory protection:** None should be needed in normal laboratory handling at room temperatures. If misty conditions prevail, work in fume hood or wear a NIOSH/MSHA-approved respirator.

## Section 9 Physical &amp; Chemical Properties

|  |  |  |
|--|--|--|
| <b>Appearance:</b> Deep amber liquid.<br><b>Odor:</b> Characteristic odor.<br><b>Odor threshold:</b> Not applicable.<br><b>pH:</b> Data not available.<br><b>Melting / Freezing point:</b> ~ 0°C (~ 32°F) [water]<br><b>Boiling point:</b> ~ 100°C (212°F) [water]<br><b>Flash point:</b> Not flammable. | <b>Evaporation rate ( Water = 1):</b> < 1<br><b>Flammability (solid/gas):</b> Not applicable.<br><b>Explosion limits: Lower / Upper:</b> Not applicable<br><b>Vapor pressure (mm Hg):</b> 14 [water]<br><b>Vapor density (Air = 1):</b> 0.7 [water]<br><b>Relative density (Specific gravity):</b> 1.0 [water]<br><b>Solubility(ies):</b> Complete in water. | <b>Partition coefficient: (n-octanol / water):</b> Not applicable<br><b>Auto-ignition temperature:</b> Not applicable<br><b>Decomposition temperature:</b> Data not available.<br><b>Viscosity:</b> Data not available.<br><b>Molecular formula:</b> Mixture<br><b>Molecular weight:</b> Mixture |
|--|--|--|

## Section 10 Stability &amp; Reactivity

**Chemical stability:** Stable

**Hazardous polymerization:** Will not occur.

**Conditions to avoid:** Stable under recommended storage conditions. Excessive temperatures which cause evaporation.

**Incompatibilities with other materials:** Metals or unsaturated organic compounds, ammonia solutions or alkaline solutions of ammonia salts. Will form explosive nitrogen iodides when reacted with gaseous ammonia.

**Hazardous decomposition products:** Toxic iodide fumes.

## Section 11 Toxicological Information

**Acute toxicity:** Oral-Rat LD50: 14,000 mg/kg [Iodine CAS # 7553-56-2]

**Skin corrosion/irritation:** Data not available

**Serious eye damage/irritation:** Data not available

**Respiratory or skin sensitization:** Inhalation-rat 3.1 mg/m<sup>3</sup> / 24 hour / 13 weeks - continuous [Iodine CAS # 7553-56-2]

**Germ cell mutagenicity:** Data not available

**Carcinogenicity:** Data not available

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** Data not available

**STOT-single exposure:** Data not available

**STOT-repeated exposure:** Data not available

**Aspiration hazard:** Data not available

**Potential health effects:**

Inhalation: Symptoms include cough, wheezing, and labored breathing. Symptoms may be delayed.

Ingestion: Causes abdominal pain, diarrhea, nausea, and vomiting. Ingestion of levels of 2-3 grams of iodine may cause death.

Skin: Contact may cause redness and pain.

Eyes: Contact causes watering of the eyes, redness and pain.

**Signs and symptoms of exposure:** Effects of short-term exposure: Lachrymator. The substance is severely irritating to the eyes and the respiratory tract, and is irritating to the skin. Inhalation of the vapor may cause asthma-like reactions. Inhalation of the vapor may cause lung edema. The effects may be delayed. Effects of long-term exposure: Repeated or prolonged contact may cause skin sensitization in rate cases. Repeated or prolonged inhalation exposure may cause asthma-like syndrome. The substance may have effects on the thyroid. Specific data not available for this mixture. Exercise appropriate procedures to minimize potential hazards..

**Additional information:** RTECS #: NN1575000 [Iodine CAS # 7553-56-2]

## Section 12 Ecological Information

**Toxicity to fish:** Very toxic to aquatic life.

**Toxicity to daphnia and other aquatic invertebrates:** No data available

**Toxicity to algae:** No data available

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

## Section 14 Transport Information (US DOT / CANADA TDG)

**UN/NA number:** Not applicable

**Shipping name:** Not Regulated

**Hazard class:** Not applicable

**Packing group:** Not applicable

**Reportable Quantity:** No

**Marine pollutant:** No

**Exceptions:** Not applicable

**2016 ERG Guide #** Not applicable

## Section 15 Regulatory Information

A chemical is considered to be listed if the CAS number for the anhydrous form is on the Inventory list.

| Component        | TSCA   | CERCLA (RQ) | RCRA code  | DSL    | NDSL       | CA Prop 65   |
|------------------|--------|-------------|------------|--------|------------|--|
| Iodine           | Listed | Not listed  | Not listed | Listed | Not listed | This product does not contain any chemicals known to the State of California to cause cancer or reproductive toxicity. |
| Potassium iodide | Listed | Not listed  | Not listed | Listed | Not listed |  |

## Section 16 Other Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. NTP: National Toxicology Program, IARC: International Agency for Research on Cancer, OSHA: Occupational Safety and Health Administration, STOT: Specific Target Organ Toxicity, SE: Single Exposure, RE: Repeated Exposure, ERG: Emergency Response Guidebook.

## SAFETY DATA SHEET

### FORMALIN FIXED GRASSFROGS AND BULLFROGS IN PRESERVED HOLDING SOLUTION



www.ranaco.com

#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Formalin Fixed Grassfrogs and Bullfrogs In Preserved Holding Solution  
**Recommended Use:** Science education applications  
**Synonyms:** None  
**Manufacturer/Supplier:** Ranaco Corporation, 4345 E Irvington Road, Tucson, AZ 85714  
**General Information:** 800-528-7023  
**Transportation Emergency Number:** 800-424-9300 Chemtrec – 24 hours assistance

#### SECTION 2: HAZARD IDENTIFICATION

### DANGER



**Targeted organs:**

Eyes, Skin, Central Nervous System,  
Respiratory Tract

**GHS Classification:**

Acute Toxicity, oral (Category 4)  
Acute Toxicity, dermal (Category 4)  
Skin Irritation (Category 2)  
Eye irritation (Category 2A)  
Skin sensitization (Category 1)  
Acute toxicity, inhalation (Category 4)  
Carcinogenicity (Category 2)

**Hazard Statements:**

Maybe harmful if swallowed.  
Causes skin irritation.  
Causes eye irritation.  
May cause an allergic skin reaction.  
May cause respiratory irritation.  
May cause cancer.

**Precautionary Statements:**

Obtain special instructions before use.  
Wear protective gloves and eye protection.  
Do not eat, drink or smoke when using this product.  
Wash hands thoroughly after handling.  
IF ON SKIN: Wash with plenty of soap and water.  
IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF SWALLOWED: Immediately call a POISON CENTER or physician  
IF exposed or concerned: Get medical advice/attention.  
Store in a well-ventilated place. Keep container tightly closed.  
Dispose of contents/container in accordance with local/regional/national regulations.

 **WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

#### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component                        | CAS #     | %  |
|----------------------------------|-----------|--|
| Formaldehyde                     | 50-00-0   | All concentrations are withheld<br>due to Trade Secret |
| Methanol                         | 67-56-1   |  |
| Propylene Glycol                 | 57-55-6   |  |
| Ethylene Glycol Monophenyl Ether | 122-99-6  |  |
| Acetone                          | 67-64-1   |  |
| Glutaraldehyde                   | 111-30-8  |  |
| BHT Butylated Hydroxytoluene     | 128-37-0  |  |
| Polysorbate 80                   | 9005-65-6 |  |
| Water                            | 7732-18-5 | Balance  |

---

## SECTION 4: FIRST AID MEASURES

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**SKIN CONTACT:** Wash affected area with soap and water. Seek medical attention if symptoms develop.

**EYE CONTACT:** Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Seek medical attention if irritation persists.

**INHALATION:** Remove to fresh air. Get medical treatment if symptoms persist.

**INGESTION:** Immediately call a POISON CENTER or physician. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

**SIGNS AND SYMPTOMS OF EXPOSURE:** Irritation of skin, eyes, respiratory tract. Repeated exposure may cause dermatitis or other allergic reactions.

---

## SECTION 5: FIRE FIGHTING MEASURES

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**EXTINGUISHING MEDIA:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or alcohol foam.

**FIRE FIGHTING METHODS AND PROTECTION:** Firefighters should wear self-contained breathing apparatus and wear full protective equipment.

**FIRE AND/OR EXPLOSION HAZARDS:** During a fire, smoke generated can be irritating or toxic.

**HAZARDOUS COMBUSTION PRODUCTS:** Products of combustion include but are not limited to carbon monoxide and carbon dioxide.

---

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**PERSONAL PRECAUTIONS:** Avoid breathing vapors. Use gloves and eye protection to clean up spills.

**EMERGENCY PROCEDURES:** Ventilate area of spill. Eliminate all sources of ignition. Remove non-essential personnel.

**ENVIRONMENTAL PRECAUTIONS:** No special hazards. Follow applicable federal, state, provincial and local regulations regarding releases.

**METHODS FOR CONTAINMENT AND CLEAN-UP:** Absorb with liquid binding material and place in a sealed container. Dispose of waste in accordance with federal, state, provincial and local regulations.

---

## SECTION 7: HANDLING AND STORAGE

---

**PRECAUTIONS FOR SAFE HANDLING:** Do not eat, drink or smoke when using this product. Avoid breathing vapors. Avoid direct skin or eye contact with liquids. Do not ingest. Wash hands with soap and water after use or handling of product.

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Store at room temperature in a dry well ventilated area. Keep specimen container tightly closed when not in use.

---

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Exposure Limits:

| Chemical Name                    | ACGIH (TLV)                          | OSHA (PEL)                        | NIOSH (REL)                         |
|----------------------------------|--------------------------------------|-----------------------------------|-------------------------------------|
| Formaldehyde                     | C 0.3 ppm / C 0.37 mg/m <sup>3</sup> | TWA: 0.75 ppm / STEL: 2ppm        | TWA: 0.016 ppm / STEL: 0.1 ppm      |
| Methanol                         | TWA: 200 ppm / STEL: 250 ppm         | TWA: 200 ppm / STEL: 260 ppm      | TWA: 200 ppm / STEL: 250 ppm        |
| Ethylene Glycol Monophenyl Ether | Not available                        | Not available                     | Not available                       |
| Glutaraldehyde                   | C 0.05 ppm / C 0.2 mg/m <sup>3</sup> | Not available                     | C 0.2 ppm / C 0.8 mg/m <sup>3</sup> |
| Acetone                          | TWA: 250 ppm / STEL: 500 ppm         | TWA: 1000 ppm                     | TWA: 250 ppm                        |
| BHT Butylated Hydroxytoluene     | 2 mg/m <sup>3</sup> Vapor            | 5 mg/m <sup>3</sup> Nuisance Dust | TWA 10 mg/m <sup>3</sup>            |
| Polysorbate 80                   | None                                 | None                              | None                                |
|                                  | <b>WEEL</b>                          |                                   |                                     |
| Propylene Glycol                 | TWA 10 mg/m <sup>3</sup> Aerosol     | Not available                     | Not available                       |

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility, a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles or face shield, apron and appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory Protection:** None should be needed in normal handling and room temperatures. If use conditions generate fumes above the OSHA regulations, use of a NIOSH/MSHA approved respirator is required.

ACGIH: American Conference of Industrial Hygienists, OSHA: U.S. Occupational Safety and Health Administration, NIOSH: U.S. National Institute for Occupational Safety and Health, PEL: Permissible Exposure Limit, TWA: Time Weighted Average, STEL: Short Term Exposure Limit, REL: Recommended Exposure Limit, WEEL: Workplace Environmental Exposure Limit



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## SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

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**Appearance:** Specimen with/without clear colorless liquid

**Odor:** Mild pungent or sweet odor

**Odor Threshold:** Data not available

**pH:** Data not available

**Melting/Freezing Point:** Data not available

**Boiling Point:** Data not available

**Flash Point:** Data not available

**Evaporation Rate** (Water = 1) : >1

**Flammability (solid/gas):** Data not available

**Explosion Limits: Lower/Upper:** Data not available

**Vapor Pressure (mmHg):** Data not available

**Vapor Density:** Data not available

**Relative Density (Specific Gravity):** >1

**Solubility(ies):** Complete in water

**Partition Coefficient:** Data not available

**Auto-ignition Temperature:** Data not available

**Decomposition Temperature:** Data not available

**Viscosity:** Data not available

**Molecular Formula:** Mixture

**Molecular Weight:** Mixture

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## SECTION 10: STABILITY & REACTIVITY

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**Reactivity:** None under normal conditions.

**Chemical Stability:** Stable

**Conditions to Avoid:** Excessive temperatures which cause evaporation.

**Incompatible Materials:** Strong acids, phenol, strong oxidizers, strong bases, hydrochloric acid, ammonia, iodine, alkalies, tannin, iron products, gelatin, bisulfate

**Hazardous Polymerization:** None under normal conditions.

**Hazardous Decomposition Products:** May include, but are not limited to Carbon oxides, gaseous formaldehyde, aldehydes, ketones, alcohols, ethers and organic acids

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## SECTION 11: TOXICOLOGICAL INFORMATION

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**Acute Toxicity:** Formalin Fixed Grassfrogs and Bullfrogs in Preserved Holding Solution have not been tested as a mixture. Information about individual components is supplied.

Formaldehyde – Oral-rat LD50: 100 mg/kg; Inhalation-rat LC50: 250 ppm/4 hours; Dermal-rat: 270 mg/kg

Methanol - Oral-rat LD50: 5,600 mg/kg; Inhalation-rat LC50: 6,400 ppm/4 hours, 145,000 ppm/ 1 hour; Dermal-rat: 15,800 mg/kg

Propylene Glycol – Ingestion-rat LD50: > 20,000 mg/kg, Skin absorption-rabbit LD50: > 20,000 mg/kg

Ethylene Glycol Monophenyl Ether- Oral-rat LD50: 1,840 mg/kg; Dermal-rabbit: >2,214 mg/kg

Glutaraldehyde - Oral-rat LD50:200mg/kg; Dermal-rabbit LD50: 1,749 mg/kg

Acetone - Oral-rat LD50: 5,800 mg/kg; Inhalation-rat LC50: 50,100 mg/m<sup>3</sup>; Irritation eye-rabbit: standard draize, 20 mg

BHT Butylated Hydroxytoluene - Oral-rat LD50: >2,930 mg/kg; Dermal-rat: >2,000 mg/kg

**Chronic Effects:** Data not available.

**Skin Corrosion/Irritation:**

Causes skin irritation. May cause an allergic skin reaction.

**Serious Eye Damage/Irritation:**

Causes eye irritation or damage.

**Respiratory or Skin Sensitization:**

May cause sensitization by skin contact

**Germ Cell Mutagenicity:** Data not available.

**Carcinogenicity:** Data not available. Information about individual components is supplied.

Formaldehyde – Classified as a carcinogen by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) and OSHA. CA Prop 65: Formaldehyde is known to the State of California to cause cancer.

**Reproductive Toxicity:** Data not available. Information about individual components is supplied.

Methanol - CA Prop 65: This chemical is known to the State of California to cause birth defects or other reproductive harm.

**Specific Target Organ Toxicity – Single exposure:** Data not available.

**Specific Target Organ Toxicity– Repeated exposure:** Data not available.

**Aspiration Hazard:** Data not available.

**Potential Health Effects:**

**Inhalation:** May cause respiratory irritation.

**Ingestion:** May be harmful if swallowed.

**Skin:** May cause skin irritation. May cause an allergic skin reaction.

**Eyes:** May cause eye irritation or damage.

**Signs and Symptoms of Exposure:**

The chemical, physical and toxicological properties have not been thoroughly investigated for this product/mixture. Specific data is not available. Exercise appropriate procedures to minimize hazards.

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**SECTION 12: ECOLOGICAL INFORMATION**

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**Toxicity to fish:** No data available.

**Toxicity to daphnia and other aquatic invertebrates:** No data available.

**Toxicity to algae:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**PBT and vPvB assessment:** No data available.

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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Dispose of contents/container in accordance with local/regional/national regulations.

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**SECTION 14: TRANSPORTATION INFORMATION (US DOT / CANADA TDG)**

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**UN/NA Number:** Not applicable

**Shipping Name:** Not regulated

**Hazard Class:** Not applicable

**Packing Group:** Not applicable

**Reportable Quantity:** No

**Marine Pollutant:** No

**Exceptions:** Not applicable

**2012 ERG Guide#:** Not applicable

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**SECTION 15: REGULATORY INFORMATION**

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Toxic Substances Control Act (TSCA): All components of this product are included on the TSCA inventory.

| Component                        | TSCA   | CERLCA (RQ)          | RCRA CODE | DSL    | NDSL       | WHMIS CLASSIFICATION |
|----------------------------------|--------|----------------------|-----------|--------|------------|----------------------|
| Formaldehyde                     | Listed | 100 lbs (45.4 kg)    | U122      | Listed | Not Listed | D1A; D2A; D2B        |
| Methanol                         | Listed | 5,000 lbs (2,270 kg) | U154      | Listed | Not Listed | B2; D1B; D2A; D2B    |
| Propylene Glycol                 | Listed | None                 | None      | Listed | Not Listed | None                 |
| Ethylene Glycol Monophenyl Ether | Listed | None                 | None      | Listed | Not Listed | B3                   |
| Acetone                          | Listed | 5,000 lbs            | U002      | Listed | Not Listed | B2, D2B              |
| Glutaraldehyde                   | Listed | None                 | None      | Listed | Not Listed | D1A, D2B, E          |
| BHT Butylated Hydroxytoluene     | Listed | None                 | None      | Listed | Not Listed | None                 |
| Polysorbate 80                   | Listed | None                 | None      | Listed | Not Listed | None                 |

California Proposition 65 Information:

**⚠WARNING:** This product can expose you to chemicals including formaldehyde, which is known to the State of California to cause cancer, and methanol, which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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**SECTION 16: OTHER INFORMATION**

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**Date Prepared:** July 23, 2018

**Supersedes:** April 24, 2018

**RANACO** disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein. All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, **RANACO** makes no representations as to its accuracy or sufficiency. Conditions of use are beyond **RANACO**'s control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling and disposal of the product or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

## SAFETY DATA SHEET

### SPECIMENS IN PRESERVED HOLDING SOLUTION – INSECTS AND OTHER INVERTEBRATES



www.ranaco.com

#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Specimens In Preserved Holding Solution – Insects and Other Invertebrates  
**Recommended Use:** Science education applications  
**Synonyms:** None  
**Manufacturer/Supplier:** Ranaco Corporation, 4345 E Irvington Road, Tucson, AZ 85714  
**General Information:** 800-528-7023  
**Transportation Emergency Number:** 800-424-9300 Chemtrec – 24 hours assistance

#### SECTION 2: HAZARD IDENTIFICATION

##### WARNING



##### Targeted organs:

Eyes, Skin, Respiratory Tract

##### GHS Classification:

Acute Toxicity, oral (Category 4)  
Acute Toxicity, dermal (Category 4)  
Skin Irritation (Category 2)  
Eye irritation (Category 2B)  
Acute toxicity, inhalation (Category 4)

##### Hazard Statements:

Maybe harmful if swallowed.  
May be harmful in contact with skin.  
Causes eye irritation.  
May cause respiratory irritation.

##### Precautionary Statements:

Obtain special instructions before use.  
Wear protective gloves and eye protection.  
Do not eat, drink or smoke when using this product.  
Wash hands thoroughly after handling.  
IF ON SKIN: Wash with plenty of soap and water.  
IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF SWALLOWED: Immediately call a POISON CENTER or physician  
IF exposed or concerned: Get medical advice/attention.  
Store in a well-ventilated place. Keep container tightly closed.  
Dispose of contents/container in accordance with local/regional/national regulations.

#### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component                        | CAS #     | %       |
|----------------------------------|-----------|---------|
| Propylene Glycol                 | 57-55-6   | 9%      |
| Ethylene Glycol Monophenyl Ether | 122-99-6  | 1%      |
| Water                            | 7732-18-5 | Balance |

Specimens may contain traces of isopropyl alcohol.

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## SECTION 4: FIRST AID MEASURES

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**SKIN CONTACT:** Wash affected area with soap and water. Seek medical attention if symptoms develop.

**EYE CONTACT:** Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Seek medical attention if irritation persists.

**INHALATION:** Remove to fresh air. Get medical treatment if symptoms persist.

**INGESTION:** Immediately call a POISON CENTER or physician. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

**SIGNS AND SYMPTOMS OF EXPOSURE:** Irritation of skin, eyes, respiratory tract.

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## SECTION 5: FIRE FIGHTING MEASURES

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**EXTINGUISHING MEDIA:** Use dry chemical, CO<sub>2</sub>, water spray (fog) or alcohol foam.

**FIRE FIGHTING METHODS AND PROTECTION:** Firefighters should wear self-contained breathing apparatus and wear full protective equipment.

**FIRE AND/OR EXPLOSION HAZARDS:** During a fire, smoke generated can be irritating or toxic.

**HAZARDOUS COMBUSTION PRODUCTS:** Products of combustion include but are not limited to carbon monoxide and carbon dioxide.

---

## SECTION 6: ACCIDENTAL RELEASE MEASURES

---

**PERSONAL PRECAUTIONS:** Avoid breathing vapors. Use gloves and eye protection to clean up spills.

**EMERGENCY PROCEDURES:** Ventilate area of spill. Eliminate all sources of ignition. Remove non-essential personnel.

**ENVIRONMENTAL PRECAUTIONS:** No special hazards. Follow applicable federal, state, provincial and local regulations regarding releases.

**METHODS FOR CONTAINMENT AND CLEAN-UP:** Absorb with liquid binding material and place in a sealed container. Dispose of waste in accordance with federal, state, provincial and local regulations.

---

## SECTION 7: HANDLING AND STORAGE

---

**PRECAUTIONS FOR SAFE HANDLING:** Do not eat, drink or smoke when using this product. Avoid breathing vapors. Avoid direct skin or eye contact with liquids. Do not ingest. Wash hands with soap and water after use or handling of product.

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Store at room temperature in a dry well ventilated area. Keep container tightly closed when not in use.

---

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

---

### Exposure Limits:

| Chemical Name                    | ACGIH (TLV)                      | OSHA (PEL)    | NIOSH (REL)   |
|----------------------------------|----------------------------------|---------------|---------------|
| Ethylene Glycol Monophenyl Ether | Not available                    | Not available | Not available |
|                                  | <b>WEEL</b>                      |               |               |
| Propylene Glycol                 | TWA 10 mg/m <sup>3</sup> Aerosol | Not available | Not available |

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility, a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles or face shield, apron and appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory Protection:** None should be needed in normal handling and room temperatures. If use conditions generate fumes above the OSHA regulations, use of a NIOSH/MSHA approved respirator is required.

ACGIH: American Conference of Industrial Hygienists, OSHA: U.S. Occupational Safety and Health Administration, NIOSH: U.S. National Institute for Occupational Safety and Health, PEL: Permissible Exposure Limit, TWA: Time Weighted Average, STEL: Short Term Exposure Limit, REL: Recommended Exposure Limit, WEEL: Workplace Environmental Exposure Limit

---

## SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

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|  |  |
|--|--|
| <b>Appearance:</b> Clear colorless liquid                | <b>Vapor Pressure (mmHg):</b> Data not available     |
| <b>Odor:</b> Mild odor                                   | <b>Vapor Density:</b> Data not available             |
| <b>Odor Threshold:</b> Data not available                | <b>Relative Density (Specific Gravity):</b> >1       |
| <b>pH:</b> Data not available                            | <b>Solubility(ies):</b> Complete in water            |
| <b>Melting/Freezing Point:</b> Data not available        | <b>Partition Coefficient:</b> Data not available     |
| <b>Boiling Point:</b> Data not available                 | <b>Auto-ignition Temperature:</b> Data not available |
| <b>Flash Point:</b> Data not available                   | <b>Decomposition Temperature:</b> Data not available |
| <b>Evaporation Rate (Water = 1) :</b> >1                 | <b>Viscosity:</b> Data not available                 |
| <b>Flammability (solid/gas):</b> Data not available      | <b>Molecular Formula:</b> Mixture                    |
| <b>Explosion Limits: Lower/Upper:</b> Data not available | <b>Molecular Weight:</b> Mixture                     |

---

## SECTION 10: STABILITY & REACTIVITY

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**Reactivity:** None under normal conditions.

**Chemical Stability:** Stable

**Conditions to Avoid:** Excessive temperatures which cause evaporation.

**Incompatible Materials:** Avoid contact with strong acids, strong oxidizers, and strong bases.

**Hazardous Polymerization:** None under normal conditions.

**Hazardous Decomposition Products:** Products of combustion include but are not limited to carbon monoxide and carbon dioxide.

---

## SECTION 11: TOXICOLOGICAL INFORMATION

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**Acute Toxicity:** Specimens in Preserved Holding Solution have not been tested as a mixture. Information about individual components is supplied.

Propylene Glycol – Ingestion-rat LD50: > 20,000 mg/kg; Skin absorption-rabbit LD50: > 20,000 mg/kg

Ethylene Glycol Monophenyl Ether- Oral-rat LD50: 1,840 mg/kg; Dermal-rabbit: >2,214 mg/kg

**Chronic Effects:** Data not available.

**Skin Corrosion/Irritation:**

May cause skin irritation.

**Serious Eye Damage/Irritation:**

May cause eye irritation.

**Respiratory or Skin Sensitization:**

Data not available.

**Germ Cell Mutagenicity:**

Data not available.

**Carcinogenicity:** Data not available. Information about individual components is supplied.

No components of this mixture are classified as a carcinogen by the International Agency for Research on Cancer (IARC), National Toxicology Program (NTP) or OSHA.

**Reproductive Toxicity:** Data not available.

**Specific Target Organ Toxicity – Single exposure:** Data not available.

**Specific Target Organ Toxicity– Repeated exposure:** Data not available.

**Aspiration Hazard:** Data not available.



**Potential Health Effects:**

**Inhalation:** May cause respiratory irritation.

**Ingestion:** May be harmful if swallowed.

**Skin:** May cause skin irritation.

**Eyes:** May cause eye irritation.

**Signs and Symptoms of Exposure:**

The chemical, physical and toxicological properties have not been thoroughly investigated for this product/mixture. Specific data is not available. Exercise appropriate procedures to minimize hazards.

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**SECTION 12: ECOLOGICAL INFORMATION**

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**Toxicity to fish:** No data available.

**Toxicity to daphnia and other aquatic invertebrates:** No data available.

**Toxicity to algae:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**PBT and vPvB assessment:** No data available.

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

---

**SECTION 13: DISPOSAL CONSIDERATIONS**

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Dispose of contents/container in accordance with local/regional/national regulations.

---

**SECTION 14: TRANSPORTATION INFORMATION (US DOT / CANADA TDG)**

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**UN/NA Number:** Not applicable      **Shipping Name:** Not regulated

**Hazard Class:** Not applicable

**Packing Group:** Not applicable

**Reportable Quantity:** No

**Marine Pollutant:** No

**Exceptions:** Not applicable

**2012 ERG Guide#:** Not applicable

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**SECTION 15: REGULATORY INFORMATION**

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Toxic Substances Control Act (TSCA): All components of this product are included on the TSCA inventory.

| Component                        | TSCA   | CERLCA (RQ) | RCRA CODE | DSL    | NDSL       | WHMIS CLASSIFICATION |
|----------------------------------|--------|-------------|-----------|--------|------------|----------------------|
| Propylene Glycol                 | Listed | None        | None      | Listed | Not Listed | None                 |
| Ethylene Glycol Monophenyl Ether | Listed | None        | None      | Listed | Not Listed | B3                   |

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**SECTION 16: OTHER INFORMATION**

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**Date Prepared:** July 23, 2018

**Supersedes:** April 24, 2018

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## SAFETY DATA SHEET

### FAA FIXED EARTHWORMS, WORMS, BOTANICALS AND OTHER SPECIMENS IN PRESERVED HOLDING SOLUTION



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#### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** FAA Fixed Earthworms, Worms, Botanicals And Other Specimens In Preserved Holding Solution  
**Recommended Use:** Science education applications  
**Synonyms:** None  
**Manufacturer/Supplier:** Ranaco Corporation, 4345 E Irvington Road, Tucson, AZ 85714  
**General Information:** 800-528-7023  
**Transportation Emergency Number:** 800-424-9300 Chemtrec – 24 hours assistance

#### SECTION 2: HAZARD IDENTIFICATION

##### DANGER



**Targeted organs:**

Eyes, Skin, Central Nervous System,  
Respiratory Tract

**GHS Classification:**


Acute Toxicity, oral (Category 4)  
Acute Toxicity, dermal (Category 4)  
Skin Irritation (Category 2)  
Eye irritation (Category 2A)  
Skin sensitization (Category 1)  
Acute toxicity, inhalation (Category 4)  
Carcinogenicity (Category 2)

**Hazard Statements:**

Maybe harmful if swallowed.  
Causes skin irritation.  
Causes eye irritation.  
May cause an allergic skin reaction.  
May cause respiratory irritation.  
May cause cancer.

**Precautionary Statements:**

Obtain special instructions before use.  
Wear protective gloves and eye protection.  
Do not eat, drink or smoke when using this product.  
Wash hands thoroughly after handling.  
IF ON SKIN: Wash with plenty of soap and water.  
IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF SWALLOWED: Immediately call a POISON CENTER or physician  
IF exposed or concerned: Get medical advice/attention.  
Store in a well- ventilated place. Keep container tightly closed.  
Dispose of contents/container in accordance with local/regional/national regulations.

 **WARNING:** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

#### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component                        | CAS #     | %       |
|----------------------------------|-----------|---------|
| Formaldehyde                     | 50-00-0   | ≤ 0.1%  |
| Methanol                         | 67-56-1   | ≤ 0.03% |
| Propylene Glycol                 | 57-55-6   | ≤ 9%    |
| Ethylene Glycol Monophenyl Ether | 122-99-6  | ≤ 2%    |
| Isopropyl Alcohol                | 67-63-0   | ≤ 0.5%  |
| Glacial Acetic Acid              | 64-19-7   | ≤ 0.05% |
| Water                            | 7732-18-5 | Balance |

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## SECTION 4: FIRST AID MEASURES

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**SKIN CONTACT:** Wash affected area with soap and water. Seek medical attention if symptoms develop.

**EYE CONTACT:** Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Seek medical attention if irritation persists.

**INHALATION:** Remove to fresh air. Get medical treatment if symptoms persist.

**INGESTION:** Immediately call a POISON CENTER or physician. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

**SIGNS AND SYMPTOMS OF EXPOSURE:** Irritation of skin, eyes, respiratory tract. Repeated exposure may cause dermatitis or other allergic reactions.

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## SECTION 5: FIRE FIGHTING MEASURES

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**EXTINGUISHING MEDIA:** Use dry chemical, CO<sub>2</sub>, dry sand or alcohol foam.

**FIRE FIGHTING METHODS AND PROTECTION:** Firefighters should wear self-contained breathing apparatus and wear full protective equipment.

**FIRE AND/OR EXPLOSION HAZARDS:** During a fire, smoke generated can be irritating or toxic.

**HAZARDOUS COMBUSTION PRODUCTS:** Products of combustion include but are not limited to carbon monoxide and carbon dioxide.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**PERSONAL PRECAUTIONS:** Avoid breathing vapors. Use gloves and eye protection to clean up spills.

**EMERGENCY PROCEDURES:** Ventilate area of spill. Eliminate all sources of ignition. Remove non-essential personnel.

**ENVIRONMENTAL PRECAUTIONS:** No special hazards. Follow applicable federal, state, provincial and local regulations regarding releases.

**METHODS FOR CONTAINMENT AND CLEAN-UP:** Absorb with liquid binding material and place in a sealed container. Dispose of waste in accordance with federal, state, provincial and local regulations.

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## SECTION 7: HANDLING AND STORAGE

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**PRECAUTIONS FOR SAFE HANDLING:** Do not eat, drink or smoke when using this product. Avoid breathing vapors. Avoid direct skin or eye contact with liquids. Do not ingest. Wash hands with soap and water after use or handling of product.

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Store at room temperature in a dry well ventilated area.

Keep specimen container tightly closed when not in use.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Exposure Limits:

| Chemical Name                    | ACGIH (TLV)                          | OSHA (PEL)                         | NIOSH (REL)                        |
|----------------------------------|--------------------------------------|------------------------------------|------------------------------------|
| Formaldehyde                     | C 0.3 ppm / C 0.37 mg/m <sup>3</sup> | TWA: 0.75 ppm / STEL: 2ppm         | TWA: 0.016 ppm / STEL: 0.1 ppm     |
| Methanol                         | TWA: 200 ppm / STEL: 250 ppm         | TWA: 200 ppm / STEL: 260 ppm       | TWA: 200 ppm / STEL: 250 ppm       |
| Ethylene Glycol Monophenyl Ether | Not available                        | Not available                      | Not available                      |
| Isopropyl Alcohol                | TWA: 200 ppm / STEL: 400 ppm         | TWA 400 ppm: 980 mg/m <sup>3</sup> | TWA 400 ppm: 980 mg/m <sup>3</sup> |
| Glacial Acetic Acid              | 2 mg/m <sup>3</sup> Vapor            | 5 mg/m <sup>3</sup> Nuisance Dust  | TWA 10 mg/m <sup>3</sup>           |
|                                  | <b>WEEL</b>                          |                                    |                                    |
| Propylene Glycol                 | TWA 10 mg/m <sup>3</sup> Aerosol     | Not available                      | Not available                      |

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility, a safety shower and fire extinguishing material. Personnel should wear safety glasses, goggles or face shield, apron and appropriate protective gloves. Use adequate ventilation to keep airborne concentrations low.

**Respiratory Protection:** None should be needed in normal handling and room temperatures. If use conditions generate fumes above the OSHA regulations, use of a NIOSH/MSHA approved respirator is required.

ACGIH: American Conference of Industrial Hygienists, OSHA: U.S. Occupational Safety and Health Administration, NIOSH: U.S. National Institute for Occupational Safety and Health, PEL: Permissible Exposure Limit, TWA: Time Weighted Average, STEL: Short Term Exposure Limit, REL: Recommended Exposure Limit, WEEL: Workplace Environmental Exposure Limit

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## SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

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**Appearance:** Specimen with/without clear colorless liquid

**Odor:** Mild odor

**Odor Threshold:** Data not available

**pH:** Data not available

**Melting/Freezing Point:** Data not available

**Boiling Point:** Data not available

**Flash Point:** Data not available

**Evaporation Rate (Water = 1) :** >1

**Flammability (solid/gas):** Data not available

**Explosion Limits: Lower/Upper:** Data not available

**Vapor Pressure (mmHg):** Data not available

**Vapor Density:** Data not available

**Relative Density (Specific Gravity):** >1

**Solubility(ies):** Complete in water

**Partition Coefficient:** Data not available

**Auto-ignition Temperature:** Data not available

**Decomposition Temperature:** Data not available

**Viscosity:** Data not available

**Molecular Formula:** Mixture

**Molecular Weight:** Mixture

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## SECTION 10: STABILITY & REACTIVITY

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**Reactivity:** None under normal conditions.

**Chemical Stability:** Stable

**Conditions to Avoid:** Excessive temperatures, heat and sources ignition

**Incompatible Materials:** Inorganic acids, strong oxidizers, and halogens

**Hazardous Polymerization:** None under normal conditions.

**Hazardous Decomposition Products:** May include, but are not limited to Carbon oxides

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## SECTION 11: TOXICOLOGICAL INFORMATION

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**Acute Toxicity:** FAA Fixed Specimens in Preserved Holding Solution have not been tested as a mixture. Information about individual components is supplied.

Formaldehyde – Oral-rat LD50: 100 mg/kg; Inhalation-rat LC50: 250 ppm/4 hour; Dermal-rat: 270 mg/kg

Methanol - Oral-rat LD50: 5,600 mg/kg; Inhalation-rat LC50: 6,400 ppm/4 hours, 145,000 ppm/ 1 hour; Dermal-rat: 15,800 mg/kg

Propylene Glycol – Ingestion-rat LD50: > 20,000 mg/kg; Skin absorption-rabbit LD50: > 20,000 mg/kg

Ethylene Glycol Monophenyl Ether- Oral-rat LD50: 1,840 mg/kg; Dermal-rabbit: >2,214 mg/kg

Isopropyl Alcohol - Oral-rat LD50: 5,000 mg/kg; Dermal-rabbit LD50: 12,800 mg/kg; Inhalation-rat LC50: 16,000 ppm; Irritation eye-rabbit: standard draize, 10 mg

Glacial Acetic Acid - Oral-rat LD50: 3,310 mg/kg; Dermal-rabbit LD50: 1.06 g/kg; Inhalation-mouse LC50: 5,620 ppm/1-hr

**Chronic Effects:** Data not available.

**Skin Corrosion/Irritation:**

Causes skin irritation. May cause an allergic skin reaction.

**Serious Eye Damage/Irritation:**

Causes eye irritation or damage.

**Respiratory or Skin Sensitization:**

May cause sensitization by skin contact

**Germ Cell Mutagenicity:** Data not available.

**Carcinogenicity:** Data not available. Information about individual components is supplied.

Formaldehyde – Classified as a carcinogen by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) and OSHA. CA Prop 65: Formaldehyde is known to the State of California to cause cancer.

**Reproductive Toxicity:** Data not available. Information about individual components is supplied.

Methanol - CA Prop 65: This chemical is known to the State of California to cause birth defects or other reproductive harm.

**Specific Target Organ Toxicity – Single exposure:** Data not available.

**Specific Target Organ Toxicity– Repeated exposure:** Data not available.

**Aspiration Hazard:** Data not available.

**Potential Health Effects:**

**Inhalation:** May cause respiratory irritation.

**Ingestion:** May be harmful if swallowed.

**Skin:** May cause skin irritation. May cause an allergic skin reaction.

**Eyes:** May cause eye irritation or damage.

**Signs and Symptoms of Exposure:**

The chemical, physical and toxicological properties have not been thoroughly investigated for this product/mixture. Specific data is not available. Exercise appropriate procedures to minimize hazards.

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**SECTION 12: ECOLOGICAL INFORMATION**

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**Toxicity to fish:** No data available.

**Toxicity to daphnia and other aquatic invertebrates:** No data available.

**Toxicity to algae:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**PBT and vPvB assessment:** No data available.

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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Dispose of contents/container in accordance with local/regional/national regulations.

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**SECTION 14: TRANSPORTATION INFORMATION (US DOT /CANADA TDG)**

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**UN/NA Number:** Not applicable

**Shipping Name:** Not regulated

**Hazard Class:** Not applicable

**Packing Group:** Not applicable

**Reportable Quantity:** No

**Marine Pollutant:** No

**Exceptions:** Not applicable

**2012 ERG Guide#:** Not applicable

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**SECTION 15: REGULATORY INFORMATION**

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Toxic Substances Control Act (TSCA): All components of this product are included on the TSCA inventory.

| Component                        | TSCA   | CERLCA (RQ)          | RCRA CODE | DSL    | NDSL       | WHMIS CLASSIFICATION |
|----------------------------------|--------|----------------------|-----------|--------|------------|----------------------|
| Formaldehyde                     | Listed | 100 lbs (45.4 kg)    | U122      | Listed | Not Listed | D1A; D2A; D2B        |
| Methanol                         | Listed | 5,000 lbs (2,270 kg) | U154      | Listed | Not Listed | B2; D1B; D2A; D2B    |
| Propylene Glycol                 | Listed | None                 | None      | Listed | Not Listed | None                 |
| Ethylene Glycol Monophenyl Ether | Listed | None                 | None      | Listed | Not Listed | B3                   |
| Isopropyl Alcohol                | Listed | None                 | None      | Listed | Not Listed | B2, D2B              |
| Glacial Acetic Acid              | Listed | 5,000 lbs (2,270 kg) | None      | Listed | Not Listed | B3, E                |

California Proposition 65 Information:

**⚠WARNING:** This product can expose you to chemicals including formaldehyde, which is known to the State of California to cause cancer, and methanol, which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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**SECTION 16: OTHER INFORMATION**

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