

## Material Safety Data Sheet

# Chromakool EG Solution



PF461-3  
161-302441-001  
January, 2020


## SECTION 1. IDENTIFICATION

|                               |   |
|-------------------------------|---|
| GHS Product Identifier        | Chromakool EG Solution  |
| Product Code Chemical Name    | Aqueous Ethylene Glycol Solution  |
| Other Means of Identification | ethanediol and distilled water  |
| Product Type                  | ethylene glycol; ethane-1, 2-diol; etilenglicol; 1, 2-Ethanediol; Glycol; Monoethylene glycol; 1,2-Ethanediol (ethylene glycol); Glycol alcohol; 1, 2-Dihydroxyethane; Ethylene glycol, aerosol |
| Manufacturer's Details:       | Chromalox, Inc.<br>103 Gamma Drive<br>Pittsburgh, PA 15238<br>1-800-443-2640  |
| Supplier's Details            | Protrace Engineering, a division of Chromalox, Inc.<br>6204 6a St., SE., Suite 205<br>Calgary, AB T2H 2B7 1-800-443-2640  |
| Emergency Telephone Number    | CHEMTREC (800) 424-9300 (AVAILABLE 24 HOURS A DAY)  |

## SECTION 2. HAZARDS IDENTIFICATION

|  |  |
|--|--|
| OSHA/HCS Status                            | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  |
| Classification of the Substance or Mixture | ACUTE TOXICITY (oral) - Category 4 EYE IRRITATION - Category 2B SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys) (oral) -Category 2. |

### GHS Label Elements

|                   |  |
|-------------------|--|
| Hazard Pictograms |   |
| Signal word       | Warning  |
| Hazard Statements | Harmful if swallowed. Causes eye irritation. May cause damage to organs through prolonged or repeated exposure if swallowed. (kidneys) |

### Precautionary Statements

|                                  |  |
|----------------------------------|--|
| General                          | Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.  |
| Prevention                       | Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.  |
| Response                         | Get medical attention if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. |
| Storage                          | Not applicable.  |
| Disposal                         | Dispose of contents and container in accordance with all local, regional, national and international regulations.  |
| Hazards not Otherwise Classified | None known.  |

## SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

| Cas Number/Other Identifiers |                       |                   |
|------------------------------|-----------------------|-------------------|
| CAS Number                   | N/A (Mixture)         |                   |
| <u>Ingredient Name:</u>      | <u>Percentage (%)</u> | <u>CAS Number</u> |
| Ethenediol                   | 49-56                 | 107-21-1          |
| Distilled Water              | 44-51                 | 7732-18-5         |

The Specific percentage of composition is being withheld as a trade secret. Further information is available as required by 29 CFR 1910.1200(i). Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4. FIRST AID MEASURES

### Description of Necessary First Aid Measures

|              |  |
|--------------|--|
| Eye Contact  | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell.  |
| Inhalation   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.   |
| Skin Contact | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. Wash clothing before reuse. Clean shoes thoroughly before reuse.   |
| Ingestion    | Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

### Most Important Symptoms/Effects, Acute and Delayed Potential Acute Health Effects

|              |   |
|--------------|---|
| Eye contact  | Causes eye irritation.                            |
| Inhalation   | No known significant effects or critical hazards. |
| Skin contact | No known significant effects or critical hazards. |
| Ingestion    | Harmful if swallowed.                             |

### Over-Exposure Signs/Symptoms

|              |  |
|--------------|--|
| Eye Contact  | Adverse symptoms may include the following:<br>Irritation<br>Watering<br>Redness |
| Inhalation   | No specific data.  |
| Skin Contact | No specific data.  |
| Ingestion    | No specific data.  |

### Indication of Immediate Medical Attention and Special Treatment Needed, if Necessary

|                            |  |
|----------------------------|--|
| Notes to Physician         | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.  |
| Specific Treatments        | No specific treatment.   |
| Protection of First-Aiders | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

See toxicological information (Section 11)

## SECTION 5. FIRE-FIGHTING MEASURES

### Extinguishing Media

|  |   |
|--|---|
| Suitable Extinguishing Media                   | Use an extinguishing agent suitable for the surrounding fire.   |
| Unsuitable Extinguishing Media                 | None known.   |
| Specific Hazards Arising from the Chemical     | In a fire or if heated, a pressure increase will occur and the container may burst.   |
| Hazardous Thermal Decomposition Products       | Decomposition products may include the following materials:<br>carbon dioxide, carbon monoxide  |
| Special Protective Actions for Fire-Fighters   | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special Protective Equipment for Fire-Fighters | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.                         |

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

|                             |  |
|-----------------------------|--|
| For Non-Emergency Personnel | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For Emergency Responders    | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel.   |
| Environmental Precautions   | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).  |

## Methods and Materials for Containment and Cleaning Up

|             |   |
|-------------|---|
| Small Spill | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.   |
| Large Spill | Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. |

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

|  |  |
|--|--|
| Protective Measures  | Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.   |
| Advice on General Occupational Hygiene                       | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.  |
| Conditions for Safe Storage, Including Any Incompatibilities | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. |

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

#### Occupational Exposure Limits

| Ingredient Name                  | Exposure Limits   |
|----------------------------------|---|
| Ethanediol                       | <p><b>OSHA PEL 1989 (United States, 3/1989).</b><br/>                     CEIL: 50 ppm<br/>                     CEIL: 125 mg/m<sup>3</sup></p> <p><b>ACGIH TLV (United States, 3/2016).</b><br/>                     C: 100 mg/m<sup>3</sup> Form: Aerosol</p> <p><b>ACGIH TLV (United States, 1/2017).</b><br/>                     TWA: 25 ppm<br/>                     STEL: 50 ppm<br/>                     STEL: 10 mg/m<sup>3</sup></p> |
| Appropriate Engineering Controls | If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.  |
| Environmental Exposure Controls  | Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.  |

### Individual Protection Measures

|                                 |  |
|---------------------------------|--|
| Hygiene Measures                | Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.  |
| Eye/Face Protection             | Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.   |
| Skin Protection/Hand Protection | Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. |
| Body Protection                 | Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  |
| Other Skin Protection           | Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  |
| Respiratory Protection          | Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training and other important aspects of use.  |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

|  |   |
|--|---|
| Physical State                               | Liquid. [Viscous liquid. Hygroscopic.]                                      |
| Color  | Colorless. Clear.   |
| Odor   | Odorless.   |
| Odor Threshold                               | Not available.  |
| pH   | Not applicable.   |
| Melting Point                                | -13°C (8.6°F)   |
| Boiling Point                                | 197.4°C (387.3°F)   |
| Flash Point                                  | Closed cup: 111°C (231.8°F).  |
| Evaporation Rate                             | 0.01 compared with butyl acetate  |
| Flammability (solid, gas)                    | Not available.  |
| Lower and Upper Explosive (Flammable) Limits | Lower: 3.2% Upper: 15.3%  |
| Vapor Pressure                               | 0.01 kPa (0.09 mm Hg) (at 20°C)   |
| Vapor Density                                | 2.1 (Air = 1)   |
| Relative Density                             | 1.1 (Water = 1)   |
| Solubility                                   | Easily soluble in the following materials: cold water, hot water, methanol. |
| Soluble in the Following Materials           | acetone   |
| Solubility in Water                          | 1000 g/l  |
| Partition Coefficient n-Octanol/Water        | -1.36   |
| Auto-Ignition Temperature                    | 398°C (748.4°F)   |
| Decomposition Temperature                    | Not available.  |
| Viscosity                                    | Dynamic: 16.1 cP  |
| Kinematic: 18.9 cSt                          |   |
| Flow time (ISO 2431)                         | Not available.  |
| Molecular Weight                             | 62.07 g/mole  |
| Aerosol Product Heat of Combustion           | -16.88 kJ/g.  |

## SECTION 10. STABILITY AND REACTIVITY

|                                    |  |
|------------------------------------|--|
| Reactivity                         | No specific test data related to reactivity available for this product or its ingredients            |
| Chemical Stability                 | The product is stable.   |
| Possibility of Hazardous Reactions | Under normal conditions of storage and use, hazardous reactions will not occur.                      |
| Conditions to Avoid                | No specific data.  |
| Incompatible Materials             | No specific data.  |
| Hazardous Decomposition Products   | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

## SECTION 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

| Product/Ingredient Name | Result    | Species | Dose       | Exposure |
|-------------------------|-----------|---------|------------|----------|
| Ethanediol              | LD50 Oral | Rat     | 4700 mg/kg | -        |

### Irritation/Corrosion

| Product/Ingredient Name | Result                   | Species | Score | Exposure                | Observation |
|-------------------------|--------------------------|---------|-------|-------------------------|-------------|
| Ethanediol              | Eyes - Mild irritant     | Rabbit  | -     | 24 hours 500 milligrams | -           |
|                         | Eyes - Mild irritant     | Rabbit  | -     | 1 hours 100 milligrams  | -           |
|                         | Eyes - Moderate irritant | Rabbit  | -     | 6 hours 1440 milligrams | -           |
|                         | Skin - Mild irritant     | Rabbit  | -     | 555 milligrams          | -           |

|  |                |
|--|----------------|
| Sensitization                                    | Not available. |
| Mutagenicity                                     | Not available. |
| Carcinogenicity                                  | Not available. |
| Reproductive Toxicity                            | Not available. |
| Teratogenicity                                   | Not available. |
| Specific Target Organ Toxicity (Single Exposure) | Not available. |

### Specific Target Organ Toxicity (repeated exposure)

| Name       | Category   | Route of Exposure | Name    |
|------------|------------|-------------------|---------|
| Ethanediol | Category 2 | Oral              | kidneys |

|  |               |
|--|---------------|
| Aspiration Hazard                            | Not available |
| Information on the likely routes of exposure | Not available |

### Potential Acute Health Effects

|              |   |
|--------------|---|
| Eye Contact  | Causes eye irritation.                            |
| Inhalation   | No known significant effects or critical hazards. |
| Skin Contact | No known significant effects or critical hazards. |
| Ingestion    | Harmful if swallowed.                             |

### Symptoms Related to the Physical, Chemical and Toxicological Characteristics

|              |  |
|--------------|--|
| Eye Contact  | Adverse symptoms may include the following:<br>Irritation<br>Watering<br>Redness |
| Inhalation   | No specific data.  |
| Skin Contact | No specific data.  |
| Ingestion    | No specific data.  |



### Symptoms Related to the Physical, Chemical and Toxicological Characteristics

|              |  |
|--------------|--|
| Eye contact  | Adverse symptoms may include the following:<br>Irritation<br>Watering<br>Redness |
| Inhalation   | No specific data.  |
| Skin Contact | No specific data.  |
| Ingestion    | No specific data.  |

### Delayed and immediate effects and also chronic effects from short and long term exposure Short term exposure

#### Short Term Exposure

|                             |                |
|-----------------------------|----------------|
| Potential immediate effects | Not available. |
| Potential delayed effects   | Not available. |
| Long term exposure          |                |
| Potential immediate effects | Not available. |
| Potential delayed effects   | Not available. |

### Potential Chronic Health Effects

|                       |   |
|-----------------------|---|
| General               | May cause damage to organs through prolonged or repeated exposure if swallowed. |
| Carcinogenicity       | No known significant effects or critical hazards.                               |
| Mutagenicity          | No known significant effects or critical hazards.                               |
| Teratogenicity        | No known significant effects or critical hazards.                               |
| Developmental effects | No known significant effects or critical hazards.                               |
| Fertility effects     | No known significant effects or critical hazards.                               |

### Numerical Measures of Toxicity

|                          |                |
|--------------------------|----------------|
| Acute Toxicity Estimates | Not available. |
|--------------------------|----------------|

## SECTION 12. ECOLOGICAL INFORMATION

### Toxicity

| Product/Ingredient Name | Result                                    | Species                                    | Exposure |
|-------------------------|---|--|----------|
| Ethanediol              | Acute LC50 6900000 µg/l Fresh water Acute | Crustaceans - Ceriodaphnia dubia - Neonate | 48 hours |
|                         | LC50 41000000 µg/l Fresh water            | Daphnia - Daphnia magna - Neonate          | 48 hours |
|                         | Acute LC50 8050000 µg/l Fresh water       | Fish - Pimephales promelas                 | 96 hours |

Persistence and Degradability Not available.

| Product/Ingredient Name | LogP <sub>ow</sub> | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| Ethanediol              | -1.36              | -   | low       |

### Mobility in Soil

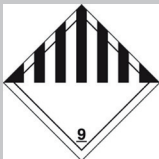
|  |   |
|--|---|
| Soil/water partition coefficient (KOC) | Not available.                                    |
| Other adverse effects                  | No known significant effects or critical hazards. |

## SECTION 13. DISPOSAL CONSIDERATIONS

|                  |  |
|------------------|--|
| Disposal Methods | The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. |
|------------------|--|

## SECTION 14. TRANSPORT INFORMATION

### DOT Classification

|                            |  |
|----------------------------|--|
| UN Number                  | UN3082   |
| Un Proper Shipping Name    | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ethanediol)                   |
| Transport Hazard Class(es) |  |
| Packing Group              | III  |
| Environmental Hazards      | Yes.   |

|                        |  |
|------------------------|--|
| Additional Information | <p>Non-bulk packages of this product are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by inland waterway.</p> <p>The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg.</p> <p><b>Reportable quantity</b><br/>5000 lbs / 2270 kg [540.24 gal / 2045 L]</p> <p>Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> |
|------------------------|--|

|                              |  |
|------------------------------|--|
| Special Precautions for User | Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage. |
|------------------------------|--|

|  |                |
|--|----------------|
| Transport in bulk according to Annex II of MARPOL and the IBC Code | Not available. |
|--|----------------|

## SECTION 15. REGULATORY INFORMATION

|   |  |
|---|--|
| U.S. Federal regulations                                      | TSCA 8(a) CDR Exempt/Partial exemption: Not determined United States inventory (TSCA 8b): This material is listed or exempted. |
| Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) | Listed   |
| Clean Air Act Section 602 Class I Substances                  | Note Listed  |
| Clean Air Act Section 602 Class II Substances                 | Note Listed  |
| DEA List I Chemicals (Precursor Chemicals)                    | Note Listed  |
| DEA List II Chemicals (Essential Chemicals)                   | Note Listed  |

### SARA 302/304

|  |                         |
|--|-------------------------|
| Composition/Information on Ingredients | No products were found. |
| SARA 304 RQ                            | Not applicable          |

### SARA 311/312

|                |   |
|----------------|---|
| Classification | Immediate (acute) health hazard Delayed (chronic) health hazard |
|----------------|---|

### Composition/Information on Ingredients

| Name       | %   | Fire Hazard | Sudden Release of Pressure | Reactive | Immediate (Acute) Health Hazard | Delayed (Chronic) Health Hazard |
|------------|-----|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| Ethanediol | 100 | No          | No                         | No       | Yes                             | Yes                             |

### SARA 313

|                                 | Product Name | CAS Number | %   |
|---------------------------------|--------------|------------|-----|
| Form R - Reporting Requirements | Ethanediol   | 107-21-1   | 100 |
| Supplier Notification           | Ethanediol   | 107-21-1   | 100 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State Regulations

|               |                          |
|---------------|--------------------------|
| Massachusetts | This material is listed. |
| New York      | This material is listed. |
| New Jersey    | This material is listed. |
| Pennsylvania  | This material is listed. |

California Prop. 65

**WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.**

**Composition/Information on Ingredients**

| Ingredient Name | Cancer | Reproductive | No Significant Risk Level | Maximum Acceptable Doseage Level |
|-----------------|--------|--------------|---------------------------|----------------------------------|
| Ethanediol      | No     | Yes          | No                        | No                               |

**International Regulations**

|   |            |
|---|------------|
| Chemical Weapon Convention List Schedules I, II & III Chemicals | Not listed |
| Montreal Protocol (Annexes A, B, C, E)                          | Not listed |
| Stockholm Convention on Persistent Organic Pollutants           | Not listed |
| Rotterdam Convention on Prior Informed Consent (PIC)            | Not listed |
| UNECE Aarhus Protocol on POPs and Heavy Metals                  | Not listed |

**International Lists / National Inventory**

|                   |  |
|-------------------|--|
| Australia         | This material is listed or exempted.   |
| Canada            | This material is listed or exempted.   |
| China             | This material is listed or exempted.   |
| Europe            | This material is listed or exempted.   |
| Japan             | Japan inventory (ENCS): This material is listed or exempted.<br>Japan inventory (ISHL): This material is listed or exempted. |
| Malaysia          | This material is listed or exempted.   |
| New Zealand       | This material is listed or exempted.   |
| Philippines       | This material is listed or exempted.   |
| Republic of Korea | This material is listed or exempted.   |
| Turkey            | This material is listed or exempted.   |
| Malaysia          | This material is listed or exempted.   |
| New Zealand       | This material is listed or exempted.   |

**SECTION 16. OTHER INFORMATION**

**Hazardous Material Information System (U.S.A.)**

|                  |   |   |
|------------------|---|---|
| Health           | * | 2 |
| Flammability     |   | 1 |
| Physical hazards |   | 0 |
|                  |   |   |

**Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.**

**The customer is responsible for determining the PPE code for this material.**

## Hazardous Material Information System (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only.

Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### Procedure Used to Derive the Classification

|  |                 |
|--|-----------------|
| ACUTE TOXICITY (oral) - Category 4   | Expert judgment |
| EYE IRRITATION - Category 2B   | Expert judgment |
| SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys) (oral) - Category 2 | Expert judgment |

### History

|                                |   |
|--------------------------------|---|
| Date of Issue/Date of Revision | 12/13/2019  |
| Date of Previous Issue Version | 4/1/2006  |
| Key to Abbreviations           | ATE = Acute Toxicity Estimate   |
|                                | BCF = Bioconcentration Factor   |
|                                | GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association                          |
|                                | IBC = Intermediate Bulk Container   |
|                                | IMDG = International Maritime Dangerous Goods   |
|                                | LogPow = logarithm of the octanol/water partition coefficient   |
|                                | MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) |
|                                | UN = United Nations   |
| References                     | TLV Information Updated 3/31/2017   |

### NOTICE TO READER

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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