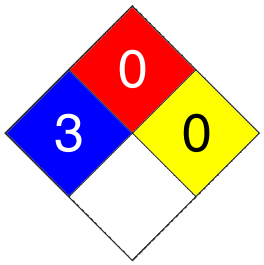
# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

| | |
|---|---|
| **Product Name** | **Hardness Solution #1** |
| **CAS #** | Mixture |
| **Product use** | Water Testing Solution |
| **Manufacturer** | Pro Products LLC<br>7201 Engle Road<br>Fort Wayne, IN 46804-5875 US<br>Phone 260-483-2519<br>Emergency Phone: 1-800-424-9300 (CHEMTREC) |

| LEGEND HMIS/NFPA | |
|---|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |

| | | |
|---|---|---|
| Health | / | 3 |
| Flammability | | 0 |
| Physical Hazard | | 0 |
| Personal Protection | | B |




## 2. Hazards Identification

| | |
|---|---|
| **Emergency overview** | DANGER -- CORROSIVE |
| **Potential short term health effects** | |
| **Routes of exposure** | Eye, Skin contact, Skin absorption, Inhalation, Ingestion. |
| **Eyes** | May cause chemical burns. May cause blindness. |
| **Skin** | May cause chemical burns. This product may be harmful if it is absorbed through the skin. |
| **Inhalation** | May cause respiratory tract irritation. |
| **Ingestion** | Harmful if swallowed. May cause chemical burns to mouth, throat and stomach. |
| **Target organs** | Eyes. Skin. Respiratory system. Mucous membranes. |
| **Chronic effects** | Prolonged or repeated exposure can cause drying, defatting and dermatitis. |
| **Signs and symptoms** | The product may cause burns to eyes, skin and mucous membranes. |

## 3. Composition / Information on Ingredients

| Ingredient(s) | CAS # | Percent |
|---|---|---|
| Monoethanolamine | 141-43-5 | 15 - 40 |
| Hydrogen chloride | 7647-01-0 | 1 - 5 |

## 4. First Aid Measures

| | |
|---|---|
| **First aid procedures** | |
| **Eye contact** | Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately. |
| **Skin contact** | Immediately flush with water. Wash with soap and water. Obtain medical attention if irritation persists. |
| **Inhalation** | If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention. |
| **Ingestion** | Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention. |
| **General advice** | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children. |

## 5. Fire Fighting Measures

| | |
|---|---|
| **Flammable properties** | Not flammable by WHMIS/OSHA criteria. |
| **Extinguishing media** | |
| **Suitable extinguishing media** | Dry chemical. Water spray. Carbon dioxide. Foam. |
| **Unsuitable extinguishing media** | Not available |
| **Protection of firefighters** | |
| **Specific hazards arising from the chemical** | Not available |
| **Protective equipment for firefighters** | Firefighters should wear full protective clothing including self contained breathing apparatus. |
| **Hazardous combustion products** | May include and are not limited to: Oxides of carbon. Oxides of nitrogen. |
| **Explosion data** | |
| **Sensitivity to mechanical impact** | Not available |
| **Sensitivity to static discharge** | Not available |

## 6. Accidental Release Measures

| | |
|---|---|
| **Personal precautions** | Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. |
| **Methods for containment** | Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. Use water spray to reduce vapors or divert vapor cloud drift. |
| **Methods for cleaning up** | Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use. Large Spills: Wet down with water and dike for later disposal. After removal flush contaminated area thoroughly with water. |

## 7. Handling and Storage

| | |
|---|---|
| **Handling** | Use good industrial hygiene practices in handling this material. Do not get this material in your eyes, on your skin, or on your clothing. |
| **Storage** | Keep out of the reach of children. Store in a closed container away from incompatible materials. |

## 8. Exposure Controls / Personal Protection

**Exposure limits**

| Ingredient(s) | Exposure Limits |
|---|---|
| Hydrogen chloride | **ACGIH-TLV**<br>Ceiling: 2 ppm<br>**OSHA-PEL**<br>Ceiling: 5 ppm |
| Monoethanolamine | **ACGIH-TLV**<br>TWA: 3 ppm<br>STEL: 6 ppm<br>**OSHA-PEL**<br>TWA: 3 ppm |

| | |
|---|---|
| **Engineering controls** | Use only under good ventilation conditions or with respiratory protection. |
| **Personal protective equipment** | |
| **Eye / face protection** | Wear chemical goggles. |
| **Hand protection** | Rubber gloves. Confirm with a reputable supplier first. |
| **Skin and body protection** | As required by employer code. |
| **Respiratory protection** | Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. |

| | |
|---|---|
| **General hygiene considerations** | Use good industrial hygiene practices in handling this material. When using do not eat or drink. Wash hands before breaks and immediately after handling the product. |

## 9. Physical and Chemical Properties

| | |
|---|---|
| **Appearance** | Slightly hazy |
| **Color** | Colorless |
| **Form** | Liquid |
| **Odor** | Mild ammonia |
| **Odor threshold** | Not available |
| **Physical state** | Liquid |
| **pH** | 10 |
| **Melting point** | Not available |
| **Freezing point** | Not available |
| **Boiling point** | Not available |
| **Pour point** | Not available |
| **Evaporation rate** | Not available |
| **Flash point** | Not available |
| **Auto-ignition temperature** | Not available |
| **Flammability limits in air, lower, % by volume** | Not available |
| **Flammability limits in air, upper, % by volume** | Not available |
| **Vapor pressure** | Not available |
| **Vapor density** | Not available |
| **Specific gravity** | Not available |
| **Octanol/water coefficient** | Not available |
| **Percent volatile** | Not available |

## 10. Stability and Reactivity

| | |
|---|---|
| **Chemical stability** | Stable under recommended storage conditions. |
| **Conditions to avoid** | Do not mix with other chemicals. |
| **Incompatible materials** | Oxidizers. Reducing agents. |
| **Hazardous decomposition products** | May include and are not limited to: Oxides of carbon. Oxides of nitrogen. |
| **Possibility of hazardous reactions** | Hazardous polymerization does not occur. |

## 11. Toxicological Information

**Component analysis - LC50**

| **Ingredient(s)** | **LC50** |
|---|---|
| Hydrogen chloride | 935 ppm mouse; 3124 mg/l/4h rat |
| Monoethanolamine | 1210 mg/m3 mouse |

**Component analysis - Oral LD50**

| **Ingredient(s)** | **LD50** |
|---|---|
| Hydrogen chloride | 900 mg/kg rabbit; 700 mg/kg rat |
| Monoethanolamine | 1720 mg/kg rat; 700 mg/kg mouse |

**Effects of acute exposure**

| | |
|---|---|
| **Eye** | May cause chemical burns. May cause blindness. |
| **Skin** | May cause chemical burns. This product may be harmful if it is absorbed through the skin. |
| **Inhalation** | May cause respiratory tract irritation. |
| **Ingestion** | Harmful if swallowed. May cause chemical burns to mouth, throat and stomach. |
| **Sensitization** | Non-hazardous by WHMIS/OSHA criteria. |

**Chronic effects** Based on published data, if contact is repeated and prolonged, monoethanolamine may cause liver and kidney damage. These effects have not been observed in humans.

**Carcinogenicity** Not classified or listed by IARC, NTP, OSHA and ACGIH.

**ACGIH - Threshold Limit Values - Carcinogens**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | A4 - Not Classifiable as a Human Carcinogen |

**IARC - Group 3 (Not Classifiable)**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Monograph 54 [1992] |

**Mutagenicity** Non-hazardous by WHMIS/OSHA criteria.

**Reproductive effects** Non-hazardous by WHMIS/OSHA criteria.

**Teratogenicity** Non-hazardous by WHMIS/OSHA criteria.

**Synergistic Materials** Not available

## 12. Ecological Information

**Ecotoxicity** Components of this product have been identified as having potential environmental concerns.

**Ecotoxicity - Freshwater Algae - Acute Toxicity Data**

| | | |
|---|---|---|
| Monoethanolamine | 141-43-5 | 72 Hr EC50 Desmodesmus subspicatus: 15 mg/L |

**Ecotoxicity - Freshwater Fish - Acute Toxicity Data**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 96 Hr LC50 Gambusia affinis: 282 mg/L [static] |
| Monoethanolamine | 141-43-5 | 96 Hr LC50 Pimephales promelas: 227 mg/L [flow-through]; 96 Hr LC50 Brachydanio rerio: 3684 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 300-1000 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 114-196 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: >200 mg/L [flow-through] |

**Ecotoxicity - Water Flea - Acute Toxicity Data**

| | | |
|---|---|---|
| Monoethanolamine | 141-43-5 | 48 Hr EC50 Daphnia magna: 65 mg/L |

**Environmental effects** Not available

**Aquatic toxicity** Not available

**Persistence / degradability** Not available

**Bioaccumulation / accumulation** Not available

**Partition coefficient** Not available

**Mobility in environmental media** Not available

**Chemical fate information** Not available

**Other adverse effects** Not available

## 13. Disposal Considerations

**Waste codes** Not available

**Disposal instructions** Review federal, state/provincial, and local government requirements prior to disposal.

**Waste from residues / unused products** Not available

**Contaminated packaging** Not available

## 14. Transport Information

**U.S. Department of Transportation (DOT)**

**Basic shipping requirements:**

**Proper shipping name** Corrosive liquids, n.o.s. (HYDROCHLORIC ACID, MONOETHANOLAMINE)

**Hazard class** 8

**UN number** UN1760

**Packing group** II

**Additional information:**

**Special provisions** B2, IB2, T11, TP2, TP27

**Packaging exceptions** 154

**ERG number** 154

**Transportation of Dangerous Goods (TDG - Canada)**

**Basic shipping requirements:**

| | |
|---|---|
| **Proper shipping name** | Corrosive liquid, n.o.s. (HYDROCHLORIC ACID, MONOETHANOLAMINE) |
| **Hazard class** | 8 |
| **UN number** | 1760 |
| **Packing group** | II |

## 15. Regulatory Information

**Canadian federal regulations** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**Canada - WHMIS - Ingredient Disclosure List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 1 % |
| Monoethanolamine | 141-43-5 | 1 % |

**US Federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

**U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 5000 Lb final RQ; 2270 kg final RQ |

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 5000 Lb EPCRA RQ (gas only) |

**U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 500 Lb TPQ (gas only) |

**U.S. - CERCLA/SARA - Section 313 - Emission Reporting**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size) |

**Occupational Safety and Health Administration (OSHA)**

**29 CFR 1910.1200 hazardous chemical** Yes

**CERCLA (Superfund) reportable quantity**

Hydrogen chloride: 5000.0000

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

**Section 302 extremely hazardous substance** No

**Section 311 hazardous chemical** Yes

**Clean Air Act (CAA)** Not available

**Clean Water Act (CWA)** Not available

**WHMIS status** Controlled

**WHMIS classification** Class E - Corrosive Material

**WHMIS labeling**

**State regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Present |
| Monoethanolamine | 141-43-5 | Present |

**U.S. - Illinois - Toxic Air Contaminants**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Present (aerosol) |
| Monoethanolamine | 141-43-5 | Present |

**U.S. - Louisiana - Reportable Quantity List for Pollutants**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 5000 Lb RQ (applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period); 1000 lb RQ (applies to unauthorized emissions based on total mass emitted into the atmosphere) |

**U.S. - Massachusetts - Right To Know List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Extraordinarily hazardous |
| Monoethanolamine | 141-43-5 | Present |

**U.S. - Minnesota - Hazardous Substance List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Present |
| Monoethanolamine | 141-43-5 | Present |

**U.S. - New Jersey - Right to Know Hazardous Substance List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | sn 1012 |
| Monoethanolamine | 141-43-5 | sn 0835 |

**U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 5000 Lb RQ (air); 100 lb RQ (land/water) |

**U.S. - North Carolina - Control of Toxic Air Pollutants**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 0.7 mg/m3 (acute irritants) |

**U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | 500 Lb TQ (gas only) |

**U.S. - Pennsylvania - RTK (Right to Know) List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Environmental hazard |
| Monoethanolamine | 141-43-5 | Present |

**U.S. - Rhode Island - Hazardous Substance List**

| | | |
|---|---|---|
| Hydrogen chloride | 7647-01-0 | Toxic; Flammable |
| Monoethanolamine | 141-43-5 | Toxic; Flammable |

**Inventory name**

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## 16. Other Information

**Disclaimer** Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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**Other information** For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.