SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**Hardness Solution #1**
Other means of identification	Not available
Recommended use	Water Testing Solution
Recommended restrictions	None known.
Manufacturer information	Pro Products LLC 6714 Pointe Inverness Way Suite 200 Fort Wayne, IN 46804-7935 US Phone: 260-483-2519 Emergency Phone: 1-800-424-9300 (CHEMTREC)
Supplier	See above.

2. Hazards Identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

Environmental hazards Not classified.

WHMIS 2015 defined hazards Not classified

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. May cause respiratory irritation.

Precautionary statement

Prevention Keep only in original packaging. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves, protective clothing, eye protection and face protection. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.

Response Absorb spillage to prevent material-damage. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. Specific treatment (see information on this label). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage Store in a corrosion resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of container in accordance with local, regional, national and international regulations.

WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC) None known

WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC) None known

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information 6% of the mixture consists of component(s) of unknown acute oral toxicity. 70% of the mixture consists of component(s) of unknown acute dermal toxicity. 70% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
Ethanol, 2-amino-, hydrochloride		2002-24-6	5-10*
Monoethanolamine		141-43-5	30-60*

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

*CANADA GHS: The exact percentage (concentration) of composition has been withheld as a trade secret.
US GHS: The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

4. First Aid Measures

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

Skin contact

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. Specific treatment (see information on this label). Take off immediately all contaminated clothing and wash it before reuse.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

General information

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

Suitable extinguishing media

Alcohol resistant foam. Powder. Carbon dioxide.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions

Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

Hazardous combustion products

May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Ammonia.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up	Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling	Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash thoroughly after handling. Observe good industrial hygiene practices. Wash contaminated clothing before reuse.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a corrosion resistant container with a resistant inner liner. Store in a cool, dry place out of direct sunlight. Keep only in the original container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure Controls/Personal Protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	15 mg/m3
		6 ppm
	TWA	7.5 mg/m3
		3 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	6 ppm
	TWA	3 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	6 ppm
	TWA	3 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	6 ppm
	TWA	3 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	15 mg/m3
		6 ppm
	TWA	7.5 mg/m3
		3 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	PEL	6 mg/m3
		3 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	6 ppm
	TWA	3 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Monoethanolamine (CAS 141-43-5)	STEL	15 mg/m3
		6 ppm
	TWA	8 mg/m3
		3 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Canada - Alberta OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - British Columbia OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Diethanolamine (CAS 111-42-2) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection Impervious gloves. Confirm with reputable supplier first.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. As required by employer code.

Respiratory protection Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards Not applicable.

General hygiene considerations Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties

Appearance	Slightly hazy
Physical state	Liquid.
Form	Liquid.
Color	Colorless
Odor	Mild ammonia
Odor threshold	Not available.
pH	9.5 - 10.5
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Pour point	Not available.

Specific gravity	Not available.
Partition coefficient (n-octanol/water)	Not available.
Flash point	> 200.0 °F (> 93.3 °C)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and Reactivity

Reactivity	May be corrosive to metals. This product may react with strong oxidizing agents.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid temperatures exceeding the flash point. Do not mix with other chemicals.
Incompatible materials	Strong acids. Strong oxidizing agents. Metals.
Hazardous decomposition products	May include and are not limited to: Ammonia. Oxides of carbon. Oxides of nitrogen.

11. Toxicological Information

Routes of exposure	Eye, Skin contact, Skin absorption, Inhalation, Ingestion.
Information on likely routes of exposure	
Ingestion	Causes digestive tract burns. Harmful if swallowed. May cause stomach distress, nausea or vomiting.
Inhalation	Harmful if inhaled.
Skin contact	Causes severe skin burns. Harmful in contact with skin.
Eye contact	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Information on toxicological effects	
Acute toxicity	In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed. May cause respiratory irritation.

Components	**Species**	**Test Results**
Ethanol, 2-amino-, hydrochloride (CAS 2002-24-6)		
Acute		
Dermal		
LD50	Not available	
Inhalation		
LC50	Not available	

Components	Species	Test Results
Oral		
LD50	Not available	
Monoethanolamine (CAS 141-43-5)		
Acute		
Dermal		
LD50	Rabbit	2881 mg/kg, 24 Hours, ECHA
		2504 mg/kg, 24 Hours
		1018 mg/kg, HMIRA
		1000 mg/kg, CCOHS
		2.5 - 2.8 ml/kg, 24 Hours
Inhalation		
LC50	Mouse	1210 mg/m3, 4 Hours, CCOHS
		484 ppm, 4 Hours, CCOHS
		1.2 mg/L, 4 Hours, CCOHS
	Rat	> 1.3 mg/L, 6 Hours, ECHA
Oral		
LD50	Guinea pig	620 mg/kg, HSDB, CCOHS
	Mouse	1475 mg/kg, CCOHS
		700 mg/kg, SAX, CCOHS
	Rat	1970 mg/kg, CCOHS
		1720 mg/kg, CCOHS, SIGMA
		1515 mg/kg, ECHA
		1089 mg/kg, ECHA
		1.2 ml/kg, ECHA
		1.1 ml/kg, ECHA

Skin corrosion/irritation	Causes severe skin burns and eye damage.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Causes serious eye damage.
Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.
Respiratory or skin sensitization	
Canada - Alberta OELs: Irritant	
Monoethanolamine (CAS 141-43-5)	Irritant
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	See below.
ACGIH Carcinogens	
Diethanolamine (CAS 111-42-2)	A3 Confirmed animal carcinogen with unknown relevance to humans.
Canada - Manitoba OELs: carcinogenicity	
DIETHANOLAMINE, INHALABLE FRACTION AND VAPOR (CAS 111-42-2)	Confirmed animal carcinogen with unknown relevance to humans.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Diethanolamine (CAS 111-42-2)	Volume 77, Volume 101 - 2B Possibly carcinogenic to humans.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Diethanolamine (CAS 111-42-2)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Teratogenicity	Not available.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	May be harmful if absorbed through skin. Prolonged inhalation may be harmful.

12. Ecological Information

Ecotoxicity	Not available.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	
Mobility in soil	
Mobility in general	No data available.
Other adverse effects	Not available. No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation

13. Disposal Considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification	Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the product will appear below.

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number	UN2491
Proper shipping name	Ethanolamine solutions
Hazard class	8
Subsidiary hazard class	Limited Quantity - US
Packing group	III
Special provisions	IB3, T4, TP1
Packaging exceptions	< 1.3 gallons - Limited Quantity
Packaging non bulk	203
Packaging bulk	241

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number	UN2491
Proper shipping name	ETHANOLAMINE SOLUTION
Hazard class	8
Subsidiary hazard class	Limited Quantity - Canada
Packing group	III
Packaging exceptions	<5L - Limited Quantity

DOT

TDG

15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

WHMIS 2015 Exemptions Not applicable

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Diethanolamine (CAS 111-42-2) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

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

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Diethanolamine (CAS 111-42-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

US state regulations See below

US - California Hazardous Substances (Director's): Listed substance

Diethanolamine (CAS 111-42-2)	Listed.
Monoethanolamine (CAS 141-43-5)	Listed.

US - Illinois Chemical Safety Act: Listed substance

Diethanolamine (CAS 111-42-2)

US - Louisiana Spill Reporting: Listed substance

Diethanolamine (CAS 111-42-2)	Listed.

US - Minnesota Haz Subs: Listed substance

Diethanolamine (CAS 111-42-2)	Listed.
Monoethanolamine (CAS 141-43-5)	Listed.

US - New Jersey RTK - Substances: Listed substance

Diethanolamine (CAS 111-42-2)
Monoethanolamine (CAS 141-43-5)

US - Texas Effects Screening Levels: Listed substance

Diethanolamine (CAS 111-42-2)	Listed.
Ethanol, 2-amino-, hydrochloride (CAS 2002-24-6)	Listed.
Monoethanolamine (CAS 141-43-5)	Listed.

US. Massachusetts RTK - Substance List

Diethanolamine (CAS 111-42-2)
Monoethanolamine (CAS 141-43-5)

US. New Jersey Worker and Community Right-to-Know Act

Diethanolamine (CAS 111-42-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Diethanolamine (CAS 111-42-2)
Monoethanolamine (CAS 141-43-5)

US. Rhode Island RTK

Diethanolamine (CAS 111-42-2)
Monoethanolamine (CAS 141-43-5)

US. California Proposition 65

WARNING: This product can expose you to Diethanolamine, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Diethanolamine (CAS 111-42-2)	Listed: June 22, 2012

Inventory status

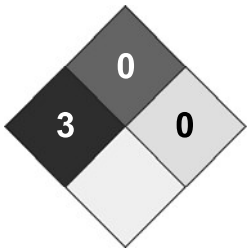
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X



Disclaimer The data contained in this material safety data sheet was obtained from sources that were technically accurate, reliable, and state of the art when this document was prepared. If data was unavailable to complete certain sections, the absence of that data is identified in this document. Because the supplier cannot know the exact circumstances during actual use of this product, other hazards, exposure scenarios, disposal considerations, and regulations may apply and it is the responsibility of the user to read and understand the product label and this document before use. Do not use the product for purposes other than those stated in Section 1.

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Effective date 24-May-2018

Prepared by Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information

For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Redbook revision # 1, 4/7/17