SAFETY DATA SHEET

According to 29 CFR 1910.1200 Hazard Communication Standard 2012 (HazCom 2012)

SECTION 1: Identification

Product identifier

Product name	Total Hardness Reagent
Product number	R-0854; R-0854-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548

SECTION 2: Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Eye damage/irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 Respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 Narcotic effects
Environmental hazards	Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS.	

Label elements

Hazard pictograms

Signal word	Danger
Hazard statements	Highly flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.
Precautionary statements	
Prevention	Keep away from heat/sparks/open flames. -No smoking. Keep container tightly closed. Ground or bond container and receiving equipment. Use explosion-proof electrical/ventilating equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection if contact is likely to occur. Wash skin thoroughly after handling. Avoid breathing mist or vapors. Use only outdoors or in a well-ventilated area.
Response	IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician or poison control center if you feel unwell. 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 advice/attention. IN CASE OF FIRE: Use alcohol-resistant foam, carbon dioxide, dry chemical powder, or water fog to extinguish.
Storage	Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store in a well-ventilated place. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazards not otherwise classified	Not applicable

SECTION 3: Composition/information on ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	% w/w
Triethanolamine	2,2′,2″-Nitrilotris(ethanol); Ethanol, 2,2′,2″-nitrilotris-	102-71-6	75–85
Isopropanol	Isopropyl alcohol; 2-Propanol	67-63-0	15–25
Other components below reportable levels	Not applicable	Not applicable	0.1–1

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical advice/attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice.

If swallowed

Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide, dry chemical powder, or water fog
Unsuitable extinguishing media	Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Specific hazards arising from the substance or mixture

Fire hazard	Flammable liquid and vapor. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can be electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential static discharge, use proper bonding and grounding procedures. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Vapors are heavier than air and may spread along floors.
Explosion hazard	Vapors may form explosive mixtures with air. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Vapors are heavier than air and may spread along floors.
Reactivity	Hazardous reactions will not occur under normal conditions.
Hazardous combustion products	Carbon oxides, nitrogen oxides, peroxides. Other irritating fumes and smoke.

Advice for firefighters

Precautionary measures	Exercise caution when fighting any chemical fire; hazardous fumes will be present.
Firefighting equipment/instructions	Use water spray or fog for cooling exposed containers.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. 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 protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Ventilate the contaminated area. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Vapors may form explosive mixtures with air. Keep away from sources of ignition. NO SMOKING. Do not handle, store, or open near an open flame, sources of heat, or sources of ignition. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Keep tightly capped. Store out of direct sunlight between 36°F–85°F. Store in a well-ventilated place. Store locked up. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

US ACGIH Threshold Limit Values

Components	Type	Value
Isopropanol (CAS 67-63-0)	STEL	980 mg/m^3
	TWA	492 mg/m^3
Triethanolamine (CAS 102-71-6)	TWA	5 mg/m^3

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Isopropanol (CAS 67-63-0)	ST	1225 mg/m^3
	TWA	980 mg/m^3
	IDLH	4920 mg/m^3

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

Components	Type	Value
Isopropanol (CAS 67-63-0)	PEL	980 mg/m^3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Isopropanol (CAS 67-63-0)	40 mg/L	Acetone	Urine	Not available

Exposure controls

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. Eyewash facilities and emergency shower must be available when handling this product.
Personal protective equipment	
Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing.

Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Form	Liquid
Color	Dark purple to dark blue
Odor	Alcohol
Odor threshold	No data available
pH	10.3
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	500°F–600°F (260°C–315.56°C)
Flash point	64°F (17.8°C) Closed cup
Specific gravity	1.04
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Flammable
Upper Flammability Limit	UEL 12%
Lower Flammability Limit	LEL 2%
Vapor pressure	No data available
Relative vapor density	2
Solubility	Soluble in all proportions
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	Not applicable
Percent volatile	99%

SECTION 10: Stability and reactivity

Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS)
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use
Conditions to avoid	Heat, sparks, open flames, and other ignition sources. Temperatures exceeding the flash point. Direct sunlight. Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Alkalis, chlorinated compounds, chlorine, metals, oxidizing agents, strong acids
Hazardous decomposition products	No hazardous decomposition under conditions of normal use. In the event of fire, see section 5 of the SDS.

SECTION 11: Toxicological information

Information on toxicological effects

Inhalation	May cause respiratory irritation. May cause drowsiness or dizziness.
Skin contact	May cause slight or mild transient irritation
Eye contact	Causes serious eye irritation
Ingestion	May cause irritation, nausea, vomiting, and diarrhea

Most important symptoms/effects, acute and delayed	Direct skin contact may cause slight or mild transient irritation. Symptoms may include redness and itching. Direct eye contact may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Inhalation of mists can cause respiratory irritation. Symptoms may include coughing and breathing difficulties. May cause drowsiness or dizziness. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness, and other central nervous system problems. Ingestion may cause gastrointestinal irritation, nausea, vomiting, diarrhea, as well as depression of the central nervous system.
Acute toxicity	This product is not classified as an acute toxicity hazard. See below for product and individual ingredient acute toxicity data.

Product	**Species**	**Acute Toxicity Estimate (ATE)**
Total Hardness Reagent (CAS Mixture)		
Acute		
Dermal		
LD_{50}	Rabbit	>5000 mg/kg
Inhalation		
LC_{50}	Rat	>20 mg/L
Oral		
LD_{50}	Rat	>5000 mg/kg

Components	**Species**	**Test Results**
Isopropanol (CAS 67-63-0)		
Acute		
Dermal		
LD_{50}	Rabbit	12,870 mg/kg
Inhalation		
LC_{50}	Rat	72.6 mg/L
Oral		
LD_{50}	Rat	5500 mg/kg
Triethanolamine (CAS 102-71-6)		
Acute		
Dermal		
LD_{50}	Rabbit	>20, 000 mg/kg
Inhalation		
LC_{50}	Rat	No data available
Oral		
LD_{50}	Rat	8000 mg/kg

Skin corrosion/irritation	May cause slight or mild transient irritation
Serious eye damage/eye irritation	Causes serious eye irritation
Respiratory sensitization	No data available
Skin sensitization	No data available
Germ cell mutagenicity	No data available

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Not classifiable

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

US National Toxicology Program (NTP) Report on Carcinogens

Not regulated

Reproductive toxicity	No data available

Specific target organ toxicity (single exposure)	May cause drowsiness or dizziness. May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	No data available
Aspiration hazard	No data available

SECTION 12: Ecological information

Ecotoxicity	This product is not classified as environmentally hazardous.
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Other adverse effects	Large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT

UN number	UN1993
UN proper shipping name	Flammable liquids, N.O.S. (Isopropanol)
Transport hazard class(es)	
Class	3
Subsidiary risk	Not listed
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging, non-bulk	202
Packaging, bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquids, N.O.S. (Isopropanol)
Transport hazard class(es)	
Class	3
Subsidiary risk	Not listed
Packing group	II
Environmental hazards	
Marine pollutant	Not listed
Special provisions	Not listed
ERG code	8L
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed
Cargo aircraft only	Allowed

IMDG

UN number	UN1993
UN proper shipping name	Flammable liquids, N.O.S. (Isopropanol)
Transport hazard class(es)	
Class	3
Subsidiary risk	Not listed

Packing group	II
Environmental hazards	
Marine pollutant	Not listed
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This substance/mixture is not intended to be transported in bulk.

DOT

IATA; IMDG

SECTION 15: Regulatory information

US federal regulations

CERCLA Hazardous Substance (40 CFR 302.4)

Not regulated

OSHA Hazard Communication Standard (29 CFR 1910.1200)

Chemical name	CAS number
Isopropanol	67-63-0
Triethanolamine	102-71-6

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

SARA 302 Extremely Hazardous Substance (40 CFR 355 Appendices A / B)

Not regulated

SARA 304 Emergency Release Notification

Not regulated

SARA 311/312 Hazardous Chemical

Chemical name	CAS number
Isopropanol	67-63-0
Triethanolamine	102-71-6

SARA 313 (TRI reporting)

Not regulated

TSCA Section 8(b) Chemical Inventory

All components are on the U.S. EPA TSCA Inventory list.

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

Not regulated

Other federal regulations

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

Not regulated

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

Not regulated

Safe Drinking Water Act (SDWA)

Not regulated

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (California Proposition 65)

Not regulated

Massachusetts Right-to-Know Act

Not regulated

New Jersey Worker and Community Right-to-Know Act

Chemical name	CAS number
Isopropanol	67-63-0
Triethanolamine	102-71-6

Pennsylvania Worker and Community Right-to-Know Act

Chemical name	CAS number
Isopropanol	67-63-0
Triethanolamine	102-71-6

Rhode Island Right-to-Know Act

Chemical name	CAS number
Isopropanol	67-63-0
Triethanolamine	102-71-6

SECTION 16: Other information

NFPA Rating

Health hazard	1
Fire hazard	3
Reactivity	1
Specific	N/A

Disclaimer

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