

SAFETY DATA SHEET

1. Identification

Product identifier Total Hardness Reagent

Product code R-0854

Recommended useUse as directed by manufacturer for purposes directly related to water testing.

Recommended restrictions None known

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Taylor Technologies, Inc.

Address 31 Loveton Circle

Sparks, MD 21152

United States

Telephone (410) 472-4340 Monday–Friday, 8:00 a.m.–4:30 p.m.

Website www.taylortechnologies.com

E-mail Not available
Emergency phone number (800) 837-8548

2. Hazard(s) identification

Physical hazardsFlammable liquidsCategory 3Health hazardsEye damage/irritationCategory 2A

Specific target organ toxicity, single exposure Category 3 narcotic effects

Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

Environmental hazards

Label elements

Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS.





Signal word Warning

Hazard statement Flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation. May

cause drowsiness or dizziness.

Precautionary statement

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/eye protection/face protection. Wash skin thoroughly after handling. Avoid

breathing mist or vapor. 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/shower.

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

 $\label{eq:interpolation} \textbf{IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if}$

present and easy to do. Continue rinsing.

IF EYE IRRITATION PERSISTS: Get medical advice/attention.

Call a physician or poison control center if you feel unwell.

IN CASE OF FIRE: Use alcohol-resistant foam. Water fog. Carbon dioxide (CO₂). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Storage Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.

Material name: Total Hardness Reagent; R-0854

Disposal Dispose of contents/container in accordance with local/regional/national/international

regulations.

Hazard(s) not otherwise classified None Supplemental information None

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Triethanolamine	2,2',2"-Nitrilotriethanol;	102-71-6	75–80
Themanolamine	Tris(2-hydroxyethyl)amine	102-7 1-0	
	Dimethyl carbinol;		
Isopropanol	2-Propanol;	67-63-0	20–25
	Isopropyl alcohol		
Other components below reportable			0.1–5
levels			0.1-0

4. First-aid measures

Inhalation Move to fresh air. Give oxygen or artificial respiration if needed. Get medical attention if you feel

unwell.

Skin contact Immediately flush skin with running water for at least 20 minutes. Immediately take off all

contaminated clothing. Get medical attention if you feel unwell. Wash contaminated clothing

before reuse.

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. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. 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.

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 slight or mild transient irritation. 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 effects.

Ingestion may cause gastrointestinal irritation, nausea, vomiting, diarrhea, as well as depression

of the central nervous system.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

This product is a CNS depressant.

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

themselves.

5. Firefighting measures

Suitable extinguishing media

Alcohol-resistant foam. Water fog. Carbon dioxide. Dry chemical powder, carbon dioxide, sand or

earth may be used for small fires only.

Unsuitable extinguishing media

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

Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. 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. 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.

Firefighting equipment/instructions

Firefighters should wear full protective gear. Evacuate the area promptly. Fight fire from upwind to avoid exposure to combustion products. Cool containers/tanks with water spray. Do not get water inside container. Move containers from fire area if it can be done without risk. Prevent fire-extinguishing water from contaminating surface water or the ground water system.

Specific methods
General fire hazards

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

Flammable liquid and vapor. 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. Vapors may travel considerable distance to a source of ignition and flash back.

Hazardous combustion products

Carbon oxides. Nitrogen oxides. Peroxides. Other irritating fumes and smoke.

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.

Methods and materials 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.

Large Spills: 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, sewer, basements, or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb spillage with noncombustible, absorbent material. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for reuse. For waste disposal, refer to section 13 of the SDS. 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.

Environmental precautions

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

7. Handling and storage

Precautions for safe handling

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. 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

Store locked up. Store in vented containers. Keep away from heat, sparks, and open flames. This material can accumulate static charge which may cause a spark and become an ignition source. Prevent electrostatic charge buildup by using common bonding and grounding techniques. Store in a well-ventilated place. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (refer to section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Туре	Value	Form
Isopropanol (CAS 67-63-0)	PEL	980 mg/m ³	Not applicable
		400 ppm	Not applicable
U.S. ACGIH Threshold Limit Values			
Components	Type	Value	Form
	. , , , ,		
Isopropanol (CAS 67-63-0)	STEL	400 ppm	Not applicable
		400 ppm 200 ppm	

U.S. NIOSH: Pocket Guide to Chemical Hazards

Components	Туре	Value	Form
Isopropanol (CAS 67-63-0)	STEL	1225 mg/m ³	Not applicable
		500 ppm	Not applicable
	TWA	980 mg/m ³	Not applicable
		400 ppm	Not applicable

Biological limit values

U.S. ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Isopropanol (CAS 67-63-0)	40 mg/L	Acetone	Urine	Not available
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Vent should be matched to conditions. If applicable, use process enclosures, local exh or other engineering controls to maintain airborne levels below recommended exp exposure limits have not been established, maintain airborne levels to an accepta		enclosures, local exhaust ventilation, ow recommended exposure limits. If	

Individual protection measures, such as personal protective equipment

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

eyewash fountain and quick-drench shower in the immediate work area.

Skin protection

Hand protection Wear appropriate chemical-resistant gloves. Advice should be sought from glove suppliers.

Other Wear appropriate chemical-resistant clothing.

In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA Respiratory protection

approved respirator if there is a risk of exposure to fumes at levels exceeding the exposure

limits. Advice should be sought from respiratory protection suppliers.

Thermal hazards When necessary, wear appropriate thermal protective clothing.

General hygiene Always observe good personal hygiene measures, such as washing after handling the material considerations

and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contamination. Avoid breathing mist or vapor.

9. Physical and chemical properties

Appearance

Physical state Liquid Form Liquid Color Dark blue Odor Ammonical Odor threshold Not available

Ηq 10.3

Melting point/freezing point Not available

500-600°F (260-315.56°C) Initial boiling point and boiling

range

Flash point 66.0°F (18.9°C) Closed cup

Evaporation rate Not available Flammability (solid, gas) Flammable

Upper/lower flammability or explosive limits

Flammability limit, Not available lower (%)

Flammability limit,

Not available

upper (%)

Explosive limit, 2%

lower (%)

Explosive limit, 12%

upper (%)

Vapor pressure Not available

Vapor density 2 Relative density 1.02 g/cm³

Solubility(ies)

Solubility (water) Soluble in all proportions

Partition coefficient (n-octanol/water)

Not available

Auto-ignition temperatureNot availableDecomposition temperatureNot availableViscosityNot available

Other information

Explosive properties Not applicable

Oxidizing properties Not applicable

Percent volatile 99% Specific gravity 1.02

10. Stability and reactivity

ReactivityThis product is stable and nonreactive under normal conditions of use, storage, and transport.

Chemical stability Material is stable under normal conditions.

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

Hazardous decomposition

products

Alkali metals. Aluminum. Oxidizing agents. Potassium t-butoxide. Some plastics. Strong acids. None known. For hazardous combustion products, refer to section 5 of the SDS.

11. Toxicological information

Information on likely routes of exposure

Inhalation May cause drowsiness and dizziness. May cause irritation to the respiratory system.

Skin contact May cause slight or mild transient irritation

Eye contact May cause severe 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 slight or mild transient irritation. 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 effects. 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 individual ingredient

acute toxicity data.

Components Species Test Results

Isopropanol (CAS 67-63-0)

Acute

Dermal

LD₅₀ Rabbit 12890 mg/kg

Inhalation

LC₅₀ Rat 17000 ppm, 4 hours (vapor)

41.8 mg/L, 4 hours (vapor)

Oral

 LD_{50} Rat 4720 ma/ka

Triethanolamine (CAS 102-71-6)

Acute

Dermal

 LD_{50} Rabbit >19870 mg/kg

Inhalation

LC₅₀ Rat Not available

Oral

Rat LD₅₀ 6110 mg/kg

Deionized water (CAS 7732-18-5)

Acute

Dermal

 LD_{50} Rabbit Not available

Inhalation

LC50 Rat Not available

Oral

Rat LD_{50} >89840 mg/kg

Skin corrosion/irritation Causes skin irritation

Serious eye damage/eye Causes severe eve irritation

irritation

Respiratory sensitization Not expected to be a respiratory sensitizer Not expected to be a skin sensitizer Skin sensitization

Not expected to be mutagenic Germ cell mutagenicity

This product is not considered to be a carcinogen by IARC, NTP, OSHA, or U.S. ACGIH. Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Triethanolamine 3 Not classifiable as to carcinogenicity to humans

(CAS 102-71-6)

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

This product is not expected to cause reproductive or developmental effects. Reproductive toxicity

Specific target organ toxicity,

single exposure

May cause drowsiness or dizziness. May cause respiratory irritation.

Specific target organ toxicity,

repeated exposure

Not classified as a specific target organ toxicity – repeated exposure

Aspiration toxicity Not expected to be an aspiration hazard

Chronic effects Frequent or prolonged contact may dry the skin, leading to discomfort and dermatitis. Frequent or

prolonged inhalation of fumes or vapors may cause chronic lung conditions such as bronchitis.

Frequent or prolonged overexposure may affect the kidneys.

12. Ecological information

Ecotoxicity This product is not classified as environmentally hazardous; however, this does not exclude the

possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Species Components **Test Results**

Isopropanol (CAS 67-63-0) - Aquatic

Acute

Crustacea

 EC_{50} Water flea (Daphnia magna) 1400 mg/L, 48 hours LC_{50} Fathead minnow (Pimephales promelas) 9640 mg/L, 96 hours

Chronic

Crustacea

NOEC Water flea (Daphnia magna) 30 mg/L, 21 days Triethanolamine

(CAS 102-71-6) - Aquatic

Acute

Algae

EC50 Green algae (Desmodesmus subspicatus) 512 mg/L, 72 hours

Crustacea

EC50 Water flea (Ceriodaphnia affnis) 609.88 mg/L, 48 hours

Chronic Crustacea

NOEC Water flea (Daphnia magna) 16 mg/L, 21 days

Persistence and degradability Not available

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

0.05 Isopropanol

(CAS 67-63-0)

Triethanolamine -1

(CAS 102-71-6)

Bioconcentration factor (BCF)

Isopropanol

(CAS 67-63-0)

Mobility in soil Not available

Other adverse effects No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation

potential, endocrine disruption, global warming potential) are expected from this component.

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 with the user, the producer, and the waste

disposal company.

Waste from residues/unused

products

Empty containers or liners may retain some product residues. This material and its container

must be disposed of in a safe manner (refer to Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste-handling site for recycling or disposal.

Since emptied containers may retain product residue, follow label warnings even after container

is emptied.

14. Transportation 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 Ш

Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.

Special provisions IB2, T7, TP8, TP28

Packaging exceptions 150 Packaging, non-bulk 202 Packaging, bulk 242

IATA

UN number

UN proper shipping name Flammable liquids, N.O.S. (Isopropanol)

Transport hazard class(es)

Class 3

Not listed Subsidiary risk

Packing group

Not listed **Environmental hazards**

ERG code

3H

Special precautions for user

Other information

Passenger and cargo Allowed

aircraft

Cargo aircraft only Allowed

IMDG

UN number UN1993

UN proper shipping name

Flammable liquids, N.O.S. (Isopropanol)

Transport hazard class(es)

Class

Subsidiary risk Not listed

Packing group Ш

Environmental hazards

Marine pollutant No

F-E, S-E **EmS**

Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.

This substance/mixture is not intended to be transported in bulk.

Read safety instructions, SDS, and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and

the IBC Code

DOT



IATA; IMDG



15. Regulatory information

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

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

Not regulated

CERCLA Hazardous Substance (40 CFR 302.4)

Isopropanol (CAS 67-63-0)

SARA 304 Emergency Release Notification

Not regulated

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate hazard – yes

Delayed hazard - no Fire hazard – yes Pressure hazard - no Reactivity hazard - no

SARA 302 Extremely Hazardous Substance

Not regulated

SARA 311/312 Hazardous Chemical

SARA 313 (TRI reporting)

Chemical name	CAS number	% by weight
Isopropanol	67-63-0	23

Other federal regulations

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

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

U.S. state regulations

California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not regulated

Massachusetts Right-to-Know Act

Isopropanol (CAS 67-63-0)

Triethanolamine (CAS 102-71-6)

New Jersey Worker and Community Right-to-Know Act

Isopropanol (CAS 67-63-0)

Triethanolamine (CAS 102-71-6)

Pennsylvania Worker and Community Right-to-Know Act

Isopropanol (CAS 67-63-0)

Triethanolamine (CAS 102-71-6)

Rhode Island Right-to-Know Act

Isopropanol (CAS 67-63-0)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material contains a chemical known to cause cancer.

International inventories

Country(ies) or region	Inventory name	On inventory
		(yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	yes
Canada	Domestic Substances List (DSL)	yes
Canada	Non-Domestic Substances List (NDSL)	no
China	Inventory of Existing Chemical Substances Produced or Imported in China (IECSC)	yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	yes
Europe	European List of Notified Chemical Substances (ELINCS)	no
Japan	Existing and New Chemical Substances (ENCS)	yes
Korea	Existing Chemicals List (ECL)	yes
New Zealand	New Zealand Inventory of Chemical (NZloC)	yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA)	yes

^{*}A "yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(ies).

16. Other information, including date of preparation or last revision

List of abbreviations ACGIH: American Conference of Governmental Industrial Hygienists

AICS: Australian Inventory of Chemical Substances

CAA: Clean Air Act

CAS: Chemical Abstract Services

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

CFR: Code of Federal Regulations
CSA: Canadian Standards Association
DEA: Drug Enforcement Agency
DOT: Department of Transportation

A "no" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(ies).

DSL: Domestic Substances List EC: effective concentration ECL: Existing Chemicals List

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

ENCS: Existing and New Chemical Substances

EPA: Environmental Protection Agency

HAP: hazardous air pollutants

HMIS: Hazardous Materials Identification System

HNOC: hazards not otherwise classified

HPA: Hazardous Products Act

HSDB: Hazardous Substances Data Bank

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous

Chemicals in Bulk

ICAO: International Civil Aviation Organization

IECSC: Inventory of Existing Chemical Substances Produced or Imported in China

IMDG: International Maritime Dangerous Goods

IUCLID: International Uniform Chemical Information Database

LC: lethal concentration

LD: lethal dose

MARPOL: marine pollution

MSHA: Mine Safety and Health Administration

NDSL: Non-Domestic Substances List NFPA: National Fire Protection Association

NIOSH: National Institute of Occupational Safety and Health

NOEC: no observable effect concentration

NTP: National Toxicology Program

NZIoC: New Zealand Inventory of Chemicals

OECD: Organisation for Economic Co-operation and Development

OEL: occupational exposure limits

OSHA: Occupational Safety and Health Administration

PEL: permissible exposure limits

PICCS: Philippine Inventory of Chemicals and Chemical Substances

PPE: personal protective equipment

RCRA: Resource Conservation and Recovery Act

RQ: reportable quantity

RTECS: Registry of Toxic Effects of Chemical Substances

RTK: right to know

SARA: Superfund Amendments and Reauthorization Act

SDS: Safety Data Sheet SDWA: Safe Drinking Water Act STEL: short-term exposure limit TLV: threshold limit values

TSCA: Toxic Substances Control Act

TWA: time-weighted average VOC: volatile organic compounds WEL: workplace exposure limit

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the most current data available.

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