

SAFETY DATA SHEET

1. Identification

Product identifier Acid Demand Reagent (ADR)

Product code R-0005

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 hazardsCorrosive to metalsCategory 1Health hazardsEye damage/irritationCategory 1

Skin corrosion/irritation Category 1C

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

Not currently regulated by OSHA; refer to section 12 of the SDS for additional information.

Environmental hazards

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory

irritation.

Precautionary statement

Prevention Keep only in original container. Do not breathe mist or vapor. Wash skin thoroughly after

handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective

clothing/eye protection/face protection.

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.

Wash contaminated clothing before reuse.

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if

present and easy to do. Continue rinsing.

Immediately call a physician or poison control center.

Storage Store locked up. Store in a corrosive-resistant container with a corrosive-resistant liner.

Material name: Acid Demand Reagent (ADR); R-0005

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

regulations.

Hazard(s) not otherwise classified May cause pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest

pain, shortness of breath) may be delayed. Ingestion may produce burns to the lips, oral

cavity, upper airway, esophagus, and possibly the digestive tract.

Supplemental information None

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%	
Deionized water	Dihydrogen oxide	7732-18-5	95–99	
Sulfuric acid	Hydrogen sulfate; Oil of vitriol	7664-93-9	0.1–5	

4. First-aid measures

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

immediately.

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

contaminated clothing. Call a physician or poison control center immediately. Chemical burns

must be treated by a physician. Wash contaminated clothing before reuse.

Immediately flush eves with plenty of water for at least 20 minutes. Remove contact lenses if Eye contact

present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

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 corrosive skin burns, deep ulcerations, and possibly permanent scarring. Direct contact with concentrated solutions may be corrosive to the eyes and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling,

and blurred vision.

Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.

Indication of immediate special treatment needed

Provide general supportive measures and treat symptomatically. medical attention and

Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep

person under observation. Symptoms may be delayed.

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

themselves.

5. Firefighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical 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.

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 fireextinguishing 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. Not combustible; however, the product can react with metals to form flammable and explosive

hydrogen gas.

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

This product is miscible in water.

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. Dilute acid with water and neutralize with dilute base. If not recoverable, dilute with water or flush to holding area and neutralize. 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

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 metals and other incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in corrosive-resistant container with a corrosive-resistant inner liner. Store in original tightly closed container. Keep only in the original container. 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
Sulfuric acid (CAS 7664-93-9)	PEL	1 mg/m ³	Not applicable
U.S. ACGIH Threshold Limit Values			
Components	Type	Value	Form
Sulfuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Thoracic fraction
U.S. NIOSH: Pocket Guide to Chemi	cal Hazards		
Components	Туре	Value	Form
Sulfuric acid (CAS 7664-93-9)	TWA	1 mg/m ³	Not applicable

Biological limit values

No biological exposure limits noted for the ingredient(s)

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.

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.

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.

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.

9. Physical and chemical properties

Appearance

Physical state Liquid **Form** Liquid

Color Clear, colorless, or nearly colorless

Odor Odorless **Odor threshold** Not available

1.3 pН

Melting point/freezing point Not available Initial boiling point and boiling 212°F (100°C)

range

Flash point

Not applicable (does not burn)

Evaporation rate Not available Flammability (solid, gas) Not applicable

Upper/lower flammability or

explosive limits

Flammability limit,

lower (%)

Not applicable

Flammability limit, Not applicable

upper (%)

Explosive limit,

lower (%)

Not applicable

Explosive limit, Not applicable

upper (%)

Vapor pressure 17 mm Hg 0.6 Vapor density

Relative density 1.00 g/cm³

Solubility(ies)

Solubility (water) Soluble in all proportions

Partition coefficient Not available

(n-octanol/water)

Auto-ignition temperature Not applicable **Decomposition temperature** Not available Viscosity Not available

Other information

Explosive properties Not applicable Oxidizing properties Not applicable

Percent volatile 100% Specific gravity 1.00

10. Stability and reactivity

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

Chemical stability Material is stable under normal conditions. Decomposes at ~ 644°F (340°C) to form sulfur

trioxide.

Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use

Conditions to avoid Contact with incompatible materials. Direct sunlight. Do not use in areas without adequate

ventilation.

Incompatible materials

Metal compounds. Nitromethane. Oxidizing agents. Sugars.

Hazardous decomposition products

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 irritation to the respiratory system

Skin contact Causes severe skin burns

Eye contact Causes serious eye damage
Ingestion Causes digestive tract burns

Most important

symptoms/effects, acute

and delayed

Direct skin contact may cause corrosive skin burns, deep ulcerations, and possibly permanent scarring. Direct contact with concentrated solutions may be corrosive to the eyes and may cause severe damage, including blindness. Symptoms may include stinging, tearing, redness, swelling,

and blurred vision.

Inhalation of mists can cause severe respiratory irritation. Symptoms may include coughing, choking, and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding.

Acute toxicity This product is not classified as an acute toxicity hazard. See below for individual ingredient

acute toxicity data.

Components Species Test Results

Sulfuric acid (CAS 7664-93-9)

Acute

Dermal

LD₅₀ Rabbit Not available

Inhalation

LC₅₀ Rat 0.375 mg/L, 4 hours (mist)

Oral

 LD_{50} Rat 2140 mg/kg

Deionized water (CAS 7732-18-5)

Acute

Dermal

LD₅₀ Rabbit Not available

Inhalation

LC₅₀ Rat Not available

Oral

LD₅₀ Rat >89840 mg/kg

Skin corrosion/irritation Causes severe skin burns and eye damage

Serious eye damage/eye

irritation

Causes serious eye damage

Respiratory sensitizationNot expected to be a respiratory sensitizer

Skin sensitization Not expected to be a skin sensitizer

Germ cell mutagenicity Not expected to be mutagenic

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

Occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to

humans. The information located is insufficient to conclude that sulfuric acid itself is a

carcinogen. IARC has concluded there is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans (Group 1). ACGIH has designated strong inorganic acid mists containing sulfuric acid as A2 (suspected human carcinogen). NTP has listed strong inorganic acid mists containing sulfuric acid as a known human carcinogen. These classifications are for inorganic acid mists containing sulfuric acid and

do not apply to sulfuric acid or sulfuric acid solutions.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

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

Specific target organ toxicity,

single exposure

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 defat and dry the skin, leading to discomfort and dermatitis.

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.

Components Species Test Results

Sulfuric acid

(CAS 7664-93-9) - Aquatic

Acute

Algae

EC₅₀ Green algae (Pseudokirchneriella >100 mg/L, 72 hours

subcapitata)

Crustacea

EC₅₀ Water flea (*Daphnia magna*) 29 mg/L, 24 hours

Fish

LC₅₀ Bluegill (Lepomis macrochirus) 16–28 mg/L, 96 hours

Persistence and degradability Not available
Bioaccumulative potential Not available

Mobility in soil High water solubility indicates a high mobility in soil.

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 instructionsCollect and reclaim or dispose of in sealed containers at licensed waste disposal site. Dispose of

contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose of 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 UN3264

UN proper shipping name Transport hazard class(es) Corrosive liquid, acidic, inorganic, N.O.S. (Sulphuric acid)

Class

8

Subsidiary risk Not listed Label(s) 8

Packing group

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

Special provisions IB3, T7, TP1, TP28

Packaging exceptions 154
Packaging, non-bulk 203
Packaging, bulk 241

IATA

UN number UN3264

UN proper shipping name Corrosive liquid, acidic, inorganic, N.O.S. (Sulphuric acid)

Transport hazard class(es)

Class 8

Subsidiary risk Not listed Packing group

Environmental hazards Not listed ERG code 8L

Special precautions for user

Other information

Passenger and cargo Allowed

aircraft

Cargo aircraft only Allowed

IMDG

UN number UN3264

UN proper shipping name Corrosive liquid, acidic, inorganic, N.O.S. (Sulphuric acid)
Transport hazard class(es)

Class 8

Subsidiary risk Not listed

Packing group III

Environmental hazards

Marine pollutant Not listed EmS F-A. S-B

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 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.

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

Not regulated

CERCLA Hazardous Substance (40 CFR 302.4)

Sulfuric acid (CAS 7664-93-9)

SARA 304 Emergency Release Notification

Sulfuric acid (CAS 7664-93-9) 1000 lb.

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 – no Pressure hazard – no Reactivity hazard – yes

SARA 302 Extremely Hazardous Substance

Chemical name	CAS number	Reportable quantity (lb.)	Threshold planning quantity (lb.)	Threshold planning quantity lower value	Threshold planning quantity upper value	
Sulfuric acid	7664-93-9	1000	1000	Not applicable	Not applicable	

SARA 311/312 Hazardous Chemical

Not regulated

SARA 313 (TRI reporting)

o, and to to (i.e. roporting)		
CAS number	CAS number % by weigh	
7664-93-9	7664-93-9 0.1–5	
	(

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)

Sulfuric acid (CAS 7664-93-9)

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Sulfuric acid (CAS 7664-93-9) 6552

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Sulfuric acid (CAS 7664-93-9) 20% W/V

DEA Exempt Chemical Mixtures Code Number

Sulfuric acid (CAS 7664-93-9) 6552

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

Sulfuric acid (CAS 7664-93-9)

New Jersey Worker and Community Right-to-Know Act

Sulfuric acid (CAS 7664-93-9)

Pennsylvania Worker and Community Right-to-Know Act

Sulfuric acid (CAS 7664-93-9)

Rhode Island Right-to-Know Act

Sulfuric acid (CAS 7664-93-9)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

California Proposition 65 - CRT: Listed date/carcinogenic substance

Sulfuric acid (CAS 7664-93-9) This product is not an inorganic acid mist containing sulfuric acid; therefore, the Proposition 65 statement does not apply.

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 Chemicals (NZIoC)	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
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

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).

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

The information in the Safety Data Sheet is offered for your consideration and guidance for safe

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