

Safety Data Sheet

Chemical Oxygen Demand (COD) Vials

OI Analytical
 SDS Nos. **253111, 253113, 253121, 253123, 253133**
 Version No. **1.0**
 Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Print Date: December 2, 2015
 Initial date: October 26, 2015

SECTION 1. SUBSTANCE IDENTITY AND COMPANY CONTACT INFORMATION

Product Identifier	
Product Name	Chemical Oxygen Demand (COD) Vials Kit 25 – 150 ct., 0 – 15,000 mg/LI
Trade name	Chemical Oxygen Demand (COD) Vials Kit
OI Analytical Product Part numbers	253111, 253113, 253121, 253123, 253133
Proper shipping name	Sulfuric acid with more than 51 percent acid
Chemical formula	Not applicable
Other means of identification	Not applicable
CAS number	Not applicable

Company contact information

Registered company name	OI Analytics
Address	P.O. Box 9010, College Station, TX 77842-9010
Telephone	1-979-690-1711
Fax	1-979-690-0440
Website	http://www.oico.com/
E-mail	OI-Mail@Xyleminc.com

Emergency telephone number

Association / Organization	ChemTel, Inc.
Emergency telephone number	1-800-255-3924
	Use only in event of chemical emergencies involving spill, leaks, fire, exposure, or accidents involving chemicals.

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Component of water analysis test kits 253111, 253113, 253121, 253123, 253133
Uses advised against	None

SECTION 2. HAZARDS IDENTIFICATION

Label elements

GHS pictograms



HAZARD STATEMENTS

GHS label elements	Corrosive • Aquatic toxicity • Acute toxicity
Signal word	DANGER
Hazard statements	Toxic. Corrosive. Causes severe burns
Precautionary statements	Causes severe burns, may cause abdominal pain, nausea, vomiting, rapid pulse
Target organ(s)	Central nervous system, kidneys, teeth, lungs
Potential health effects	Eye May cause irritation Skin May cause severe burns Ingestion May cause nausea, vomiting, burns Inhalation May cause tooth erosion and soreness in the mouth

H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H340	May cause genetic defects
H350	May cause cancer
H360	May damage fertility or unborn child
H412	Harmful to aquatic life with long-lasting effects

Precautionary statements, Prevention

P101	If medical advice is needed, have product container or label at hand
P102	Keep out of reach of children
P103	Read label before use
P201	Obtain special instructions before use
P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking
P221	Take any precaution to avoid mixing with combustibles/organic matter
P260	Do not breathe dust/fume/gas/mist/vapors/spray
P271	Use only outdoors or in well-ventilated area

Precautionary statements, Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353	IF ON SKIN or hair: Immediately remove all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh and keep comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical attention

Precautionary statements, Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement, Disposal

P501	Dispose of contents/container in authorized chemical landfill or, if organic, using high-temperature incineration.
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SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See table below for composition of mixtures

MIXTURES

CAS No.	%weight	Name
7664-93-9	65–87	sulfuric acid
7732-18-5	10–34	water
10294-26-5	<1	silver sulfate
7778-50-9	<1	potassium dichromate

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye contact	<ul style="list-style-type: none"> ◆ Immediately hold eyelids apart and flush the eye cautiously with running water. ◆ Ensure complete irrigation of the eye by keeping eyelids apart and away from the eye and moving the eyelids by occasionally lifting the upper and lower lids. ◆ Continue flushing until advised to stop by the Poison Control Center or a medical professional. ◆ Transport to a hospital or to physician for treatment ◆ Removal of contact lenses after an eye injury should be undertaken by skilled personnel.
Skin or hair contact	<ul style="list-style-type: none"> ◆ Immediately flush body and clothes with large amounts of water, using safety shower, if available. ◆ Quickly remove all contaminated clothing, including footwear. ◆ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poison Control Center or a medical professional. ◆ Transport to hospital or to physician for treatment.
Inhalation	<ul style="list-style-type: none"> ◆ If fumes or combustible products are inhaled, remove victim from contaminated area. ◆ Lay patient down. Keep warm and quiet. ◆ Prostheses, such as dentures, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ◆ Start artificial respiration if victim is not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. ◆ Perform CPR if necessary. ◆ Transport to hospital, or doctor, without delay. ◆ Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. ◆ Corrosive substances may cause lung damage (e.g., lung edema, fluid in the lungs). ◆ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. ◆ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. <p>This must definitely be left to a doctor or person authorized by him/her. (ICSC13719)</p>
Ingestion	<ul style="list-style-type: none"> ◆ For advice, contact Poison Control Center, hospital, or a physician. ◆ Urgent hospital treatment is likely to be needed. ◆ If swallowed do NOT induce vomiting. ◆ If vomiting occurs, lean patient forward or place on left side (head-down, if possible) to maintain open airway and prevent aspiration.

- ◆ Observe patient carefully.
- ◆ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e., becoming unconscious.
- ◆ Give water to rinse out the mouth, then provide liquid slowly and as much as victim can comfortably drink.
- ◆ Transport to hospital or physician without delay.

Indication of any immediate medical attention and special treatment needed

TREAT SYMPTOMATICALLY

For acute or short-term repeated exposures to strong acids—

- ◆ Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- ◆ Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling.
- ◆ Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- ◆ Strong acids produce a coagulation necrosis characterized by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues.

INGESTION

- ◆ Immediate dilution (milk or water) within 30 minutes post-ingestion is recommended.
- ◆ DO NOT attempt to neutralize the acid, since exothermic reaction may extend the corrosive injury.
- ◆ Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to two glasses in an adult.
- ◆ Charcoal has no place in acid management.
- ◆ Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN

- ◆ Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- ◆ Deep second-degree burns may benefit from topical silver sulfadiazine.

EYE

- ◆ Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20–30 minutes. DO NOT use neutralizing agents or any other additives. Several liters of saline are required.
- ◆ Cycloplegic drops (1% cyclopentolate for short-term use or 5% homatropine for longer use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
- ◆ Steroid eye drops should only be administered with the approval of a consulting ophthalmologist.

Ref: Ellenhorn and Barceloux: *Medical Toxicology*, 1998

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

- ◆ Water spray or fog
- ◆ Foam
- ◆ Dry chemical powder
- ◆ BCF (Halon 1211) (where regulations permit)
- ◆ Carbon dioxide

Special hazards arising from the substrate or mixture

Fire incompatibility | None known

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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none">◆ Alert fire department or first responders to the location and nature of hazard◆ May be violently or explosively reactive◆ Wear full body protective clothing with breathing apparatus◆ Prevent, by any means available, spillage from entering drains or water courses◆ Consider evacuation (or protect in place)
Fire/Explosion Hazard	<ul style="list-style-type: none">◆ Noncombustible◆ Not considered to be a significant fire risk◆ Acids may react with metals to produce hydrogen, a highly flammable and explosive gas◆ Heating may cause expansion or decomposition, leading to violent rupture of containers◆ May emit corrosive, poisonous fumes

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

Minor spills	<ul style="list-style-type: none">◆ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material◆ Check regularly for spills and leaks◆ Clean up all spills immediately◆ Avoid breathing vapors and contact with skin and eyes◆ Control personal contact with the substance by wearing protective equipment
Major spills	<ul style="list-style-type: none">◆ Clear area of personnel and move personnel upwind of spill◆ Alert fire department to the location and nature of the hazard◆ May be violently or explosively reactive◆ Wear full body protective clothing with breathing apparatus◆ Prevent, by any means available, spillage from entering drains or water courses
PPE	Personal protective equipment advice is contained in Section 8 of this SDS

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none">◆ DO NOT allow clothing wet with material to stay in contact with skin◆ Avoid all personal contact, including inhalation◆ Wear protective clothing when risk of exposure occurs◆ Use in a well-ventilated area◆ WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material◆ Avoid smoking, naked lights, or ignition sources <p>Wear impact- and splash-resistant eyewear</p>
Other Information	<ul style="list-style-type: none">◆ Store in original containers◆ Keep containers securely sealed◆ Store in a cool, dry, well-ventilated area◆ Store away from incompatible materials and foodstuff containers◆ Protect containers from physical damage and check regularly for leaks <p>For optimum analytical performance, store in the dark and at room temperature</p>

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ◆ DO NOT use aluminum or galvanized containers ◆ Check regularly for spills and leaks ◆ Lined metal can, lined metal pail/can ◆ Plastic pail ◆ Polyliner drum ◆ Packing as recommended by manufacturer ◆ Ensure that all containers are clearly labeled ◆ Ensure that all containers are free from leaks
Storage incompatibility	<ul style="list-style-type: none"> ◆ Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have a pH less than 7.0 ◆ Inorganic acids neutralize chemical bases (for example: amines and inorganic hydroxides) to form salts. Neutralization, though, can generate dangerously large amounts of heat in small spaces. ◆ The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat ◆ The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively.

Package material incompatibilities: Not available.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters/Occupational exposure limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
OSHA Permissible Exposure Levels (PELs), Table Z1	sulfuric acid	Sulfuric acid	1 mg/m ³	Not available	Not available	Not available
ACGIH Threshold Limit Values (TLV)	sulfuric acid	Sulfuric acid	0.2 mg/m ³	Not available	Not available	TLV® Basis: Pulm. Func.
NIOSH Recommended Exposure Limits (RELs)	sulfuric acid	Battery acid, hydrogen sulfate, oil of vitriol, sulfuric acid (aqueous)	1 mg/m ³	Not available	Not available	Not available
OSHA Permissible Exposure Levels (PELs) Table Z1	silver sulfate	Silver, metal and soluble compounds	0.01 mg/m ³	Not available	Not available	(as Ag)
ACGIH Threshold Limit Values (TLV)	silver sulfate	Silver and compounds (metal, dust, and fumes)	0.1 mg/m ³	Not available	Not available	TLV® Basis: Argyria
ACGIH Threshold Limit Values (TLV)	silver sulfate	Silver and compounds (soluble compounds, as Ag)	0.01 mg/m ³	Not available	Not available	TLV® Basis: Argyria
OSHA Permissible Exposure Levels (PELs), Table Z1	potassium dichromate	Chromium (VI) compounds	0.005 mg/m ³	Not available	Not available	See 1910, 1026; see table Z-2 for the exposure limit for any operations or sector where the exposure limit in §1910.1026 is stayed or is otherwise otherwise not in effect

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ACGIH Threshold Limit Values (TLV)	potassium dichromate	Chromium and inorganic compounds, as Cr and water-soluble CR VI compounds)	0.05 mg/m ³	Not available	Not available	TLV® Basis: URT irr.; cancer, BEI
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EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sulfuric acid	Sulfuric acid	Not available	Not available	Not available
potassium dichromate	Potassium dichromate	0.14 mg/m ³	1.5 mg/m ³	44 mg/m ³

Ingredient	Original IDLH	Revised IDLH
sulfuric acid	80 mg/m ³	15 mg/m ³
water	Not available	Not available
silver sulfate	N.E. mg/m ³ / N.E. ppm	10 mg/m ³
potassium dichromate	Not available	Not available

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and typically will be independent of worker interactions to provide a high level of protection.

The basic types of engineering controls are—

- Process controls, which involve changing the way a job activity or process is done to reduce the risk
- Enclosure and/or isolation of emission source, which keeps a selected hazard “physically” away from the worker and ventilation and that strategically replaces air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly.

Personal protection



Eye and face protection

- ◆ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; prescription-style glasses are not sufficient protection where complete eye protection is needed, such as when handling bulk quantities, where there is a danger of splashing, or if the material may be under pressure.
- ◆ Chemical goggles, whenever there is a danger of the material coming in contact with the eyes. Goggles must be properly fitted.
- ◆ Full face shield (8-inch (20-cm) minimum) may be required for supplementary, but never primary, protection of the eyes. These afford face protection.
- ◆ Alternatively, a gas mask may replace splash goggles and face shields.
- ◆ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin protection

See Hand Protection, below.

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Hands/feet protection	<ul style="list-style-type: none"> ◆ Elbow-length PVC gloves ◆ When handling corrosive liquids, wear trousers or overalls outside of boots to avoid spills entering boots. <p>NOTE: The material may produce skin sensitization in predisposed individual. Take care when removing gloves and other protective equipment to avoid all possible skin contact. Contaminated leather items, such as shoes, belts, and watch bands should be removed and destroyed. The selection of suitable depends not only on the material, but also on further marks of quality, which vary from manufacturer to manufacturer.</p>
Body protection	See Other Protection, below
Respiratory protection	Type E-P filter of sufficient capacity (ANSI Z88 or national equivalent). When the concentration of gas/particulates in the breathing zone approaches or exceeds the exposure standard (ES), respiratory protection is required. Degree of protection varies with both face-piece and class of filter; the nature of protection varies with type of filter.
Other protection	<p>Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full-body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers, and gloves, prior to entering the regulated area.</p> <p>Employees engaged in handling operations involving carcinogens should be provided with, and be required to wear and use, half-face filter-type respirators with filters for dust, mists, and fumes, or air-purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.</p> <p>Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.</p> <p>Prior to exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit. At the last exit of the day, place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal.</p>
Thermal hazards	Not available

RECOMMENDED MATERIALS

Glove selection index

Material	CPI (Forsberg Clothing Performance Index)
Neoprene	A
Butyl	C
Natural rubber	C
Natural + Neoprene	C
Neoprene / Natural	C
Nitrile	C
Polyethylene (PE)	C
Polyvinyl alcohol (PVA)	C
Polyvinyl chloride (PVC)	C
Saranex-23	C
Viton	C

Glove selection based on a modified Forsberg Clothing Performance Index.

A: Best selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to dangerous choice for other than short-term immersion.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Yellow, amber, orange	Relative density (water = 1)	>1
Physical state	Liquid	Partition coefficient n-octanol/ water	Not available
Odor	Characteristic	Auto-ignition temperature (°C)	Not available
Odor threshold	Not available	Decomposition temperature	Not available
pH (as supplied)	<1	Viscosity (cSt)	Not available
Melting point / freezing point (°C)	Not available	Molecular weight (g/mol)	Not available
Initial boiling point and boiling range (°C)	>100	Taste	Not available
Flash point (°C)	Not available	Explosive properties	Not available
Evaporation rate	Not available	Oxidizing properties	Not available
Flammability	Not available	Surface tension (dyn/cm or mH/m)	Not available
Upper explosive limit (%)	Not available	Volatile component (%vol)	Not available
Lower explosive limit (%)	Not available	Gas group	Not available
Vapor pressure (kPa)	Not available	pH as solution	Not available
Solubility in water (g/L)	Miscible	VOC g/L	Not available
Vapor density (air =1)	Not available		

SECTION 10. STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Contact with alkaline materials liberates heat
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

Section 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled

Inhalation of vapors or aerosols (mists, fumes) generated by the material during the course of normal handling may be harmful.

The materials can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

Corrosive acids can cause irritation of the respiratory tract, with coughing, choking, and mucous membrane damage. There may be dizziness, headache, nausea, and weakness.

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Ingestion	<p>Toxic effect may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 grams may be fatal or may produce serious damage to the health of the individual.</p> <p>Ingestion of acidic corrosives may produce burns around and in the mouth, the throat, and esophagus, immediate pain and difficulties in swallowing and speaking may be evident.</p> <p>The material is not thought to produce adverse health effects following ingestion. Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route, and good hygiene practice requires that exposure to be kept to a minimum.</p>
Skin contact	<p>Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.</p> <p>Skin contact is not thought to produce harmful health effects. Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions, or abrasions.</p> <p>Open cuts, abraded or irritated skin should not be exposed to material.</p> <p>Entry into the bloodstream through, for example, cuts, abrasions, or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	<p>If applied to the eyes, this material causes serious eye damage.</p> <p>Direct eye contact with acid corrosives may product pain, tears, sensitivity to light, and burns. Mild burns of the epithelia general recover rapidly and completely.</p>
Chronic	<p>Repeated or prolonged exposure to acids may result in erosion of the teeth, swelling and/or ulceration of the mouth lining, irritation of airways to lung with cough and inflammation of lung tissue, and cough.</p> <p>Long-term exposure to respiratory irritants may result in disease of the airways involving breathing and related systemic problems.</p> <p>Inhaling the product is more likely to cause a sensitization reaction in some persons.</p> <p>Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.</p>

Chemical Oxygen Demand(COD) Vials | toxicity | irritation

Sulfuric acid	Occupational exposures to strong inorganic acid mists of sulfuric acid.
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Acute toxicity	✓	Carcinogenicity	✓
Skin irritation/corrosion	✓	Reproductivity	✓
Serious eye damage/irritation	✓	STOT – single exposure	✓
Respiratory or skin sensitization	✓	STOT – repeated exposure	⊖
Mutagenicity	✓	Aspiration hazard	⊖

Legend: ✓ Data required to make classification available.
 ⊖ Data not available to make classification

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CMR status CARCINOGEN	sulfuric acid	Environmental Defense Scorecard Recognized carcinogen	P65
	potassium dichromate	Environmental Defense Scorecard Recognized carcinogen Environmental Defense Scorecard Suspected carcinogen Air Toxic Hot Spots TSD for Describing Available Cancer Potency Factors	P65-MC HAZMAP, P65-MC
RESPIRATORY	sulfuric acid	California OEHHA/ARB – Acute Reference Exposure Levels and Target Organs (RELs) – Respiratory; California OEHHA/ARB – Chronic Reference Exposure Levels and Target Organs (CRELs) - Respiratory	

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. DO NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. DO NOT contaminate water when cleaning equipment or disposing of equipment wash waters. Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Ecotoxicity

The tolerance of water organisms toward pH margin and variation is diverse.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Water	low	low
Potassium dichromate	high	high

Bioaccumulative potential

Ingredient	Bioaccumulation
Water	low (LogKow = -1.38)
Potassium dichromate	low (LogKow = 2.6724)

MOBILITY IN SOIL

Ingredient	Mobility
Water	low (KOC = 14.3)
Potassium dichromate	low (KOC = 393.3)

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/package disposal | Dispose of according to federal, state, and local regulations

SECTION 14. TRANSPORT INFORMATION

Required labels

Product/packaging disposal



Marine Pollutant

No

Land transport (DOT)

UN number	1830
Packing group	II
UN proper shipping name	Sulfuric acid with more than 51 percent acid
Transport hazard class(uses)	Class 8
Special precautions for user	Special provisions A3, A7, B3, B83, B84, IB2, N34, T8, P2

Air Transport (ICAO-IATA / DGR)

UN number	1830	
Packing group	II	
Environmental hazard	No relevant data	
UN proper shipping name	Sulfuric acid with more than 51 percent acid	
Transport hazard class(es)	ICAO-IATA Class 8 ICAO-IATA subrisk: Not applicable ERG Code 8L	
Special precautions for user	Special provisions	Not applicable
	Cargo only packing instructions	855
	Cargo only maximum qty/pack	30 L
	Passenger and cargo packing instruction	851
	Passenger and cargo maximum qty/pack	1 L
	Passenger and cargo limited qty packing instruction	Y840
	Passenger and cargo limited maximum qty/pack	0.5 L

Sea transport

UN number	1830	
Packing group	II	
UN proper shipping name	Sulfuric acid with more than 51 percent acid	
Environmental hazard	Not applicable	
Transport hazard class(es)	IMDG class	8
	IMDG subrisk	Not applicable
Special precautions for user	EMS number	F-A, S-B
	Special provisions	Not applicable
	Limited quantities	1 L

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

Source	Ingredient	Pollution category
IMO MARPOL 73/78 (Annex II),List of Noxious Liquid Substances Carried in Bulk	sulfuric acid	Y

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

<p>Sulfuric acid (7664-93-9) is found on the following regulatory lists</p>	<p>ACGIH Threshold Limit Values (TLV) ACGIH Threshold Limit Values (TLV) – Carcinogens Alaska Limits for Air Contaminants California OEHHA/ARB, Acute Reference Exposure Levels and Target Organs (RELs) California OEHHA/ARB, Chronic Reference Exposure Levels and Target Organs (CRELs) California Permissible Exposure Limits for Chemical Contaminants Chemical Substance Inventory Hawaii Air Contaminant Limits Idaho Limits for Air Contaminants International Agency for Research on Cancer (IARC),Agents Classified by the IARC Monographs International Air Transport Association (IATA) Dangerous Goods Regulations, Prohibited List Passenger and Cargo Aircraft Michigan Exposure Limits for Air Contaminants Minnesota Permissible Exposure Limits (PELs) National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens New Jersey Right to Know, Special Health Hazard Substance List (SHHSL): Carcinogens NIOSH Recommended Exposure Limits (RELs) Oregon Permissible Exposure Limits (Z-1) OSHA Permissible Exposure Levels (PELs),Table Z1 Tennessee Occupational Exposure Limits, Limits For Air Contaminants Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants, Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants, Toxic Substances Control Act (TSCA) Washington Permissible exposure limits of air contaminants Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values, Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants</p>
<p>Water (7732-18-5) is found on the following regulatory lists</p>	<p>Toxic Substances Control Act (TSCA),Chemical Substance Inventory</p>

Chemical Oxygen Demand (COD) Vials

<p>Silver sulfate (10294-26-5) is found on the following regulatory lists</p>	<p>ACGIH Threshold Limit Values (TLV) California Permissible Exposure Limits for Chemical Contaminants Hawaii Air Contaminant Limits Idaho, Limits for Air Contaminants Michigan Exposure Limits for Air Contaminants Minnesota Permissible Exposure Limits (PELs) OSHA Permissible Exposure Levels (PELs) – Table Z1 Tennessee Occupational Exposure Limits, Limits For Air Contaminants Toxic Substances Control Act (TSCA), Chemical Substance Inventory Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants Washington Permissible exposure limits of air contaminants Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants</p>
<p>Potassium dichromate (7778-50-9) is found on the following regulatory lists</p>	<p>ACGIH Threshold Limit Values (TLV) ATSDR Minimal Risk Levels for Hazardous Substances (MRLs) California Permissible Exposure Limits for Chemical Contaminants, ACGIH Threshold Limit Values (TLV), Carcinogens California Proposition 65, Reproductive Toxicity California Proposition 65, Carcinogens International Agency for Research on Cancer (IARC), Agents Classified by the IARC Monographs Michigan Exposure Limits for Air Contaminants Minnesota Permissible, Exposure Limits (PELs) National Toxicology Program 13th Report Part A, Known to be Human Carcinogens New Jersey Right to Know, Special Health Hazard Substance List (SHHSL): Mutagens New Jersey Right to Know, Special Health Hazard Substance List (SHHSL): Carcinogens Oregon Permissible Exposure Limits (Z-1) OSHA Permissible Exposure Levels (PELs), Table Z1 Toxic Substances Control Act (TSCA), Chemical Substance Inventory Washington Permissible exposure limits of air contaminants Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants</p>

SECTION 16. OTHER INFORMATION

Other information

The SDS is a Hazard Communication tool and should be used to assist in risk assessment. Many factors determine whether the reported hazards are risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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