Safety Data Sheet
acc. to OSHA HCS

Printing date 07/03/2024 Reviewed on 07/03/2024

*
1 Identification

· **Product identifier**

· **Trade name: Chromium Trioxide, Reagent Grade ACS Crystal**

· **Article number:** C4708
· **CAS Number:**
1333-82-0
· **EC number:**
215-607-8
· **Index number:**
024-001-00-0

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586

· **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
· **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666

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2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS03 Flame over circle

Oxidizing Solids 1	H271 May cause fire or explosion; strong oxidizer.

GHS06 Skull and crossbones

Acute Toxicity - Oral 3	H301 Toxic if swallowed.
Acute Toxicity - Dermal 3	H311 Toxic in contact with skin.
Acute Toxicity - Inhalation 2	H330 Fatal if inhaled.

GHS08 Health hazard

Sensitization - Respiratory 1	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ Cell Mutagenicity 1B	H340 May cause genetic defects.
Carcinogenicity 1A	H350 May cause cancer.
Toxic to Reproduction 2	H361 Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity - Repeated Exposure 1	H372 Causes damage to the respiratory system through prolonged or repeated exposure.

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GHS05 Corrosion

Skin Corrosion 1A — H314 Causes severe skin burns and eye damage.

GHS07

Sensitization - Skin 1 — H317 May cause an allergic skin reaction.

· **Label elements**
· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS03 GHS05 GHS06 GHS08

· **Signal word** Danger
· **Hazard statements**
May cause fire or explosion; strong oxidizer.
Toxic if swallowed or in contact with skin.
Fatal if inhaled.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to the respiratory system through prolonged or repeated exposure.
· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Wear fire/flame resistant/retardant clothing.
[In case of inadequate ventilation] wear respiratory protection.
If swallowed: Immediately call a poison center/doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
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.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

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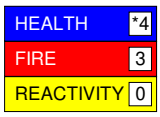
Specific treatment is urgent (see on this label).
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
Collect spillage.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 4
Fire = 3
Reactivity = 0

The substance possesses oxidizing properties.
· **HMIS-ratings (scale 0 - 4)**



*Health = *4*
Fire = 3
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
CAS: 1333-82-0 Chromium (VI) Oxide 99.9%
· **Identification number(s)**
· **EC number:** *215-607-8*
· **Index number:** *024-001-00-0*

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
· **After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*
· **After swallowing:**
Do not induce vomiting; immediately call for medical help.

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Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** Mouth respiratory protective device.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**
· **PAC-1:** 0.29 mg/m³
· **PAC-2:** 0.10 mg/m3
· **PAC-3:** 30 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
CAS: 1333-82-0 Chromium (VI) Oxide 99.9%	
PEL	Long-term value: 0.005* mg/m³ Ceiling limit value: 0.1** mg/m³ *as Cr(VI) **as CrO3; see 29 CFR 1910.1026
REL	Long-term value: 0.0002 mg/m³ as Cr; See Pocket Guide Apps. A and C
TLV	Short-term value: 0.0005 mg/m³ Long-term value: 0.0002 mg/m³ as Cr(VI); A1;inhalable, Skin;BEI, DSEN, RSEN

· **Ingredients with biological limit values:**	
CAS: 1333-82-0 Chromium (VI) Oxide 99.9%	
BEI	25 µg/L LD50 Intraperitoneal: urine Time: end of shift at end of workweek LD50: Total chromium (fume) 10 µg/L LD50 Intraperitoneal: urine Time: increase during shift LD50: Total chromium (fume)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Powder
Color:	Violet
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	196 °C (384.8 °F)
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Not determined.
· **Danger of explosion:**	Product does not present an explosion hazard. Explosive when mixed with combustible material.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	0 hPa
· **Density at 20 °C (68 °F):**	2.7 g/cm³ (22.5315 lbs/gal)
· **Bulk density:**	900 kg/m³
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	1.667 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Other information**	No further relevant information available.

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10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	100 mg/kg (ATE)
Dermal	LD50	300 mg/kg (ATE)
Inhalative	LC50/4h	0.05 mg/l (ATE)

· **Primary irritant effect:**
· **on the skin:** Strong caustic effect on skin and mucous membranes.
· **on the eye:** Strong caustic effect.
· **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
· **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**
· **IARC (International Agency for Research on Cancer)** 1
· **NTP (National Toxicology Program)** K
· **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Assessment by list): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

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14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN1463
· **UN proper shipping name**	
· **DOT**	Chromium trioxide, anhydrous
· **IMDG, IATA**	CHROMIUM TRIOXIDE, ANHYDROUS
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1, 6.1, 8
· **IMDG**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1/6.1/8
· **IATA**	
· **Class**	5.1 Oxidizing substances
· **Label**	5.1 (6.1, 8)
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	Environmentally hazardous substance, solid
· **Marine pollutant:**	No Symbol (fish and tree)

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· **Special precautions for user**	Warning: Oxidizing substances
· **Hazard identification number (Kemler code):**	568
· **EMS Number:**	F-A,S-Q
· **Stowage Category**	A
· **Segregation Code**	SG6 Segregation as for class 5.1 SG16 Stow "separated from" class 4.1 SG19 Stow "separated from" class 7
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations**	On passenger aircraft/rail: 5 kg On cargo aircraft only: 25 kg
· **IMDG**	
· **Limited quantities (LQ)**	1 kg
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· **UN "Model Regulation":**	UN 1463 CHROMIUM TRIOXIDE, ANHYDROUS, 5.1 (6.1+8), II

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**
· **Section 355 (extremely hazardous substances):** Substance is not listed.
· **Section 313 (Specific toxic chemical listings):** Substance is listed.
· **TSCA (Toxic Substances Control Act):** ACTIVE
· **Hazardous Air Pollutants** Substance is listed.
· **Proposition 65**
· **Chemicals known to cause cancer:** Substance is listed.
· **Chemicals known to cause reproductive toxicity for females:** Substance is listed.
· **Chemicals known to cause reproductive toxicity for males:** Substance is listed.
· **Chemicals known to cause developmental toxicity:** Substance is listed.

· **Carcinogenic categories**
· **EPA (Environmental Protection Agency)** A(inh), D(oral), K/L(inh), CBD(oral)
· **TLV (Threshold Limit Value)** A1
· **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is listed.
· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS03 GHS05 GHS06 GHS08

· **Signal word** Danger
· **Hazard statements**
May cause fire or explosion; strong oxidizer.
Toxic if swallowed or in contact with skin.

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Fatal if inhaled.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to the respiratory system through prolonged or repeated exposure.

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Wear fire/flame resistant/retardant clothing.
[In case of inadequate ventilation] wear respiratory protection.
If swallowed: Immediately call a poison center/doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
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.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
Specific treatment is urgent (see on this label).
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
Collect spillage.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**
· **Additional classification according to Decree on Hazardous Materials:**
Carcinogenic hazardous material group I (extremely dangerous).
Carcinogenic hazardous material group II (very dangerous).
Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**
Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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· **Department issuing SDS:** Environment protection department.
· **Contact:**
Date of Preparation / Last Revision:
· **Date of preparation / last revision**
Revision 1.2 07/03/2024: Reviewed SDS for accuracy. MH/STN
Creation date for SDS 10-15-2015. STN
07/03/2024 / 1.1
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Oxidizing Solids 1: Oxidizing solids – Category 1
Acute Toxicity - Oral 3: Acute toxicity – Category 3
Acute Toxicity - Inhalation 2: Acute toxicity – Category 2
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
Sensitization - Respiratory 1: Respiratory sensitisation – Category 1
Sensitization - Skin 1: Skin sensitisation – Category 1
Germ Cell Mutagenicity 1B: Germ cell mutagenicity – Category 1B
Carcinogenicity 1A: Carcinogenicity – Category 1A
Toxic to Reproduction 2: Reproductive toxicity – Category 2
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1
· *** Data compared to the previous version altered.**