

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

1 Identification

- **Product identifier**
- **Trade name:** Catalyst Reagent
Prepared to ASTM D3228-19
- **Article number:** 7710
- **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



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Acute Toxicity - Inhalation 4

H332 Harmful if inhaled.

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



GHS07 GHS08

- **Signal word** Warning
- **Hazard-determining components of labeling:**
Mercuric Oxide (Red)
- **Hazard statements**
Harmful if swallowed or if inhaled.
May cause damage to organs through prolonged or repeated exposure.
- **Precautionary statements**
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 1)

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

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

Get medical advice/attention if you feel unwell.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 21908-53-2	Mercuric Oxide (Red)	3.946%
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· **Table of Nonhazardous Ingredients**

CAS: 7778-80-5	Potassium Sulfate,	95.284%
CAS: 7758-98-7	Copper Sulfate Anhydrous	0.77%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Generally the product does not irritate the skin.

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:** Immediately call a doctor.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 2)

- **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**
 During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
- **Environmental precautions:**
 Do not allow product to reach sewage system or any water course.
 Inform respective authorities in case of seepage into water course or sewage system.
 Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
 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:

CAS: 7778-80-5	Potassium Sulfate,	20 mg/m ³
CAS: 21908-53-2	Mercuric Oxide (Red)	1.5 mg/m ³
CAS: 7758-98-7	Copper Sulfate Anhydrous	7.5 mg/m ³

· PAC-2:

CAS: 7778-80-5	Potassium Sulfate,	220 mg/m ³
CAS: 21908-53-2	Mercuric Oxide (Red)	16 mg/m ³
CAS: 7758-98-7	Copper Sulfate Anhydrous	9.9 mg/m ³

· PAC-3:

CAS: 7778-80-5	Potassium Sulfate,	1,300 mg/m ³
CAS: 21908-53-2	Mercuric Oxide (Red)	30 mg/m ³
CAS: 7758-98-7	Copper Sulfate Anhydrous	59 mg/m ³

7 Handling and storage

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

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 3)

- **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.

8 Exposure controls/personal protection

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

- **Components with limit values that require monitoring at the workplace:**

CAS: 21908-53-2 Mercuric Oxide (Red)

PEL Long-term value: 0.1 mg/m³
as Hg; see OSHA standard interpretation memo

REL Long-term value: 0.05* mg/m³
Ceiling limit value: 0.1 mg/m³
as Hg; *Vapor; Skin

TLV Long-term value: 0.025 mg/m³
as Hg; A4; Skin; BEI

- **Ingredients with biological limit values:**

CAS: 21908-53-2 Mercuric Oxide (Red)

BEI 20 µg/g creatinine
LD50 Intraperitoneal: urine
Time: prior to shift
LD50: Mercury

- **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.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
- **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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 4)

- **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.

- **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: White

- **Odor:** Odorless

- **Odor threshold:** Not determined.

- **pH-value:** Not applicable.

- **Change in condition**

Melting point/Melting range: 1,069 °C (33.969 °F)

Boiling point/Boiling range: 1,689 °C (3589 °F)

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not determined.

- **Decomposition temperature:** Not determined.

- **Ignition temperature:** Product is not selfigniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

Lower: Not determined.

Upper: Not determined.

- **Vapor pressure:** Not applicable.

- **Density at 20 °C (68 °F):** 3.0038 g/cm³ (25.06671 lbs/gal)

- **Relative density** Not determined.

- **Vapor density** Not applicable.

- **Evaporation rate** Not applicable.

- **Solubility in / Miscibility with**

Water at 20 °C (68 °F): 111 g/l

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 5)

· Solvent content:	
· VOC content:	0.00 %
· Solids content:	100.0 %
· Other information	No further relevant information available.

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:**

ATE (Acute Toxicity Estimate)

Oral	LD50	456 mg/kg (rat)
Dermal	LD50	7,983 mg/kg (rat)
Inhalative	LC50/4h	1.27 mg/l

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
 Harmful

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 21908-53-2	Mercuric Oxide (Red)	3
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- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19



(Contd. of page 6)

- **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 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
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.
- **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.*

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN3288
- **UN proper shipping name**
- **DOT** *Toxic solid, inorganic, n.o.s. (Mercuric Oxide (Red))*
- **IMDG** *TOXIC SOLID, INORGANIC, N.O.S. (Mercuric Oxide (Red)),
Copper Sulfate Anhydrous), MARINE POLLUTANT*
- **IATA** *TOXIC SOLID, INORGANIC, N.O.S. (Mercuric Oxide (Red))*
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 6.1 Toxic substances
- **Label** 6.1
- **IMDG**
- 
- **Class** 6.1 Toxic substances

(Contd. on page 8)

US

Safety Data Sheet


acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 7)

· Label	9
· IATA	
	
· Class	6.1 Toxic substances
· Label	9
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	
· Marine pollutant:	Symbol (fish and tree)
· Special precautions for user	Warning: Toxic substances
· Hazard identification number (Kemler code):	90
· EMS Number:	F-A,S-F
· Segregation groups	(SGG7) Heavy metals and their salts (including their organometallic compounds), (SGG11) mercury and mercury compounds
· Stowage Category	A
· Stowage Code	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· IMDG	
· Limited quantities (LQ)	5 kg
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· UN "Model Regulation":	UN 3288 TOXIC SOLID, INORGANIC, N.O.S. (MERCURIC OXIDE (RED)), 9, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **Sara**

· **Section 355 (extremely hazardous substances):**

CAS: 21908-53-2	Mercuric Oxide (Red)
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· **Section 313 (Specific toxic chemical listings):**

CAS: 21908-53-2	Mercuric Oxide (Red)
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CAS: 7758-98-7	Copper Sulfate Anhydrous
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· **TSCA (Toxic Substances Control Act):**

Potassium Sulfate,	ACTIVE
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(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 8)

Mercuric Oxide (Red)	ACTIVE
Copper Sulfate Anhydrous	ACTIVE

· **Hazardous Air Pollutants**

CAS: 21908-53-2	Mercuric Oxide (Red)
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· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

CAS: 21908-53-2	Mercuric Oxide (Red)
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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 21908-53-2	Mercuric Oxide (Red)	D
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· **TLV (Threshold Limit Value)**

CAS: 21908-53-2	Mercuric Oxide (Red)	A4
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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07 GHS08

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Mercuric Oxide (Red)

· **Hazard statements**

Harmful if swallowed or if inhaled.

May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

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.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

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

Get medical advice/attention if you feel unwell.

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

US

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/25/2024

Reviewed on 07/25/2024

Trade name: Catalyst Reagent
Prepared to ASTM D3228-19

(Contd. of page 9)

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.

· **Department issuing SDS:** Environment protection department.

· **Contact:**

Date of Preparation / Last Revision:

· **Date of preparation / last revision**

*Revision 1.2 07/25/2024: Reviewed SDS for accuracy. MH/STN
07/25/2024 / 1.0*

· **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

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

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

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2

· *** Data compared to the previous version altered.**

US