Safety Data Sheet
acc. to OSHA HCS

Printing date 06/14/2024 Reviewed on 06/14/2024

1 Identification

· **Product identifier**

· **Trade name: Chloride Indicator for Zinc Plating Analysis**

· **Article number:** SPX854

· **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 2	H272 May intensify fire; oxidizer.

GHS06 Skull and crossbones

Acute Toxicity - Inhalation 3	H331 Toxic 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 1B	H360 May damage fertility or the unborn child.
Specific Target Organ Toxicity - Repeated Exposure 1	H372 Causes damage to the respiratory system through prolonged or repeated exposure.

GHS05 Corrosion

Skin Corrosion 1B	H314 Causes severe skin burns and eye damage.
Eye Damage 1	H318 Causes serious eye damage.

GHS07

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Acute Toxicity - Oral 4	*H302 Harmful if swallowed.*
Sensitization - Skin 1	*H317 May cause an allergic skin reaction.*
Specific Target Organ Toxicity - Single Exposure 3	*H335 May cause respiratory irritation.*

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

GHS03 GHS05 GHS06 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**
Potassium Dichromate
· **Hazard statements**
May intensify fire; oxidizer.
Harmful if swallowed.
Toxic 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.
May damage fertility or the unborn child.
May cause respiratory irritation.
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.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dusts or mists.
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.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
If swallowed: Call a poison center/doctor if you feel unwell.
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.
Immediately call a poison center/doctor.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
If experiencing respiratory symptoms: Call a poison center/doctor.

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Wash contaminated clothing before reuse.
In case of fire: Use CO2, powder or water spray to extinguish.
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 = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

*Health = *3*
Fire = 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: 7778-50-9	Potassium Dichromate	5.0%

· **Table of Nonhazardous Ingredients**		
CAS: 144-55-8	Sodium Bicarbonate	95.0%

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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:**
Immediately call a doctor.
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.*

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· **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.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **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:**
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:**		
CAS: 144-55-8	Sodium Bicarbonate	13 mg/m³
CAS: 7778-50-9	Potassium Dichromate	0.42 mg/m³

· **PAC-2:**		
CAS: 144-55-8	Sodium Bicarbonate	140 mg/m³
CAS: 7778-50-9	Potassium Dichromate	0.28 ppm

· **PAC-3:**		
CAS: 144-55-8	Sodium Bicarbonate	840 mg/m³
CAS: 7778-50-9	Potassium Dichromate	1.8 ppm

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.

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· **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.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
CAS: 7778-50-9 Potassium Dichromate	
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: 7778-50-9 Potassium Dichromate	
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.
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.

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· **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.

· **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:	Crystalline powder
Color:	Orange-Red
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	300 °C (572 °F)
Boiling point/Boiling range:	>500 °C (>932 °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):**	2.1858 g/cm³ (18.2405 lbs/gal)

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· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water at 20 °C (68 °F):	50 g/l
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **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	2,000 mg/kg
Dermal	LD50	22,000 mg/kg
Inhalative	LC50/4h	1 mg/l

· **Primary irritant effect:**
· **on the skin:** Caustic effect on skin and mucous membranes.
· **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
· **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Harmful
Corrosive

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Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The product can cause inheritable damage.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
CAS: 7778-50-9	Potassium Dichromate	1

· **NTP (National Toxicology Program)**		
CAS: 7778-50-9	Potassium Dichromate	K

· **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.
· **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.
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.
· **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**	UN2811
· **UN proper shipping name**	
· **DOT**	Toxic solids, organic, n.o.s. (Potassium Dichromate)

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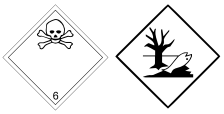
· **IMDG**	TOXIC SOLID, ORGANIC, N.O.S. (Potassium Dichromate), MARINE POLLUTANT
· **IATA**	TOXIC SOLID, ORGANIC, N.O.S. (Potassium Dichromate)

· **Transport hazard class(es)**

· **DOT**

· **Class**	6.1 Toxic substances
· **Label**	6.1

· **IMDG**



· **Class**	6.1 Toxic substances
· **Label**	6.1

· **IATA**

· **Class**	6.1 Toxic substances
· **Label**	6.1
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Product contains environmentally hazardous substances: Potassium Dichromate
· **Marine pollutant:**	Symbol (fish and tree)
· **Special precautions for user**	Warning: Toxic substances
· **Hazard identification number (Kemler code):**	60
· **EMS Number:**	F-A,S-A
· **Stowage Category**	A
· **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: 100 kg On cargo aircraft only: 200 kg

· **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

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· **UN "Model Regulation":**	UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (POTASSIUM DICHROMATE), 6.1, III

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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):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 7778-50-9	Potassium Dichromate

· **TSCA (Toxic Substances Control Act):**

Sodium Bicarbonate	ACTIVE
Potassium Dichromate	ACTIVE

· **Hazardous Air Pollutants**

CAS: 7778-50-9	Potassium Dichromate

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 7778-50-9	Potassium Dichromate

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

CAS: 7778-50-9	Potassium Dichromate

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

CAS: 7778-50-9	Potassium Dichromate

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

CAS: 7778-50-9	Potassium Dichromate

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 7778-50-9	Potassium Dichromate	A(inh), D(oral), K/L(inh), CBD(oral)

· **TLV (Threshold Limit Value)**

CAS: 7778-50-9	Potassium Dichromate	A1

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

CAS: 7778-50-9	Potassium Dichromate

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

GHS03 GHS05 GHS06 GHS07 GHS08

· **Signal word** Danger

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

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· **Hazard statements**
May intensify fire; oxidizer.
Harmful if swallowed.
Toxic 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.
May damage fertility or the unborn child.
May cause respiratory irritation.
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.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dusts or mists.
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.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
If swallowed: Call a poison center/doctor if you feel unwell.
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.
Immediately call a poison center/doctor.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Get medical advice/attention if you feel unwell.
If skin irritation or rash occurs: Get medical advice/attention.
If experiencing respiratory symptoms: Call a poison center/doctor.
Wash contaminated clothing before reuse.
In case of fire: Use CO2, powder or water spray to extinguish.
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:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
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 0.1, 06/14/2024: Reviewed SDS for accuracy. MH/STN
06/14/2024 / 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
Oxidizing Solids 2: Oxidizing solids – Category 2
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Acute Toxicity - Inhalation 3: Acute toxicity – Category 3
Skin Corrosion 1B: Skin corrosion/irritation – Category 1B
Eye Damage 1: Serious eye damage/eye irritation – Category 1
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 1B: Reproductive toxicity – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1
· *** Data compared to the previous version altered.**