

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/17/2020

Reviewed on 11/17/2020

1 Identification

- **Product identifier**
- **Trade name:** 50.0 mg/L 12 Component Mixed Metal Working Solution
- **Article number:** SGS081
- **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 sherman@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

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



GHS07

- **Signal word** Warning
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
- **Precautionary statements**
Wash thoroughly after handling.
Wear protective gloves / eye protection / face protection.
If on skin: Wash with plenty of water.
Specific treatment (see on this label).
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **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: 7647-01-0	Hydrochloric Acid	2.343%
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· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	96.481%
CAS: 12007-60-2	Lithium Tetraborate, Reagent	0.36%
CAS: 7697-37-2	Nitric Acid	0.25%
CAS: 87-69-4	L-Tartaric Acid	0.248%
CAS: 7784-27-2	Aluminum Nitrate	0.07%
CAS: 13446-18-9	Magnesium Nitrate	0.053%
CAS: 7789-24-4	Lithium Fluoride	0.04%
CAS: 7782-61-8	Ferric Nitrate	0.036%
CAS: 16919-19-0	Ammonium hexafluorosilicate	0.032%
CAS: 7722-76-1	Ammonium Phosphate Monobasic	0.019%
CAS: 7631-99-4	Sodium Nitrate	0.018%
CAS: 7757-79-1	Potassium Nitrate	0.013%
CAS: 471-34-1	Calcium Carbonate	0.012%
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.009%
CAS: 10099-74-8	Lead Nitrate	0.008%
CAS: 7440-02-0	Nickel Metal	0.005%
CAS: 7440-66-6	Zinc Metal	0.005%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.

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- **After inhalation:** 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. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult 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:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **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-I:**

CAS: 7647-01-0	Hydrochloric Acid	1.8 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	4.3 mg/m ³
CAS: 7697-37-2	Nitric Acid	0.16 ppm
CAS: 87-69-4	L-Tartaric Acid	1.6 mg/m ³
CAS: 7784-27-2	Aluminum Nitrate	83 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	16 mg/m ³
CAS: 7789-24-4	Lithium Fluoride	10 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	22 mg/m ³
CAS: 16919-19-0	Ammonium hexafluorosilicate	12 mg/m ³
CAS: 7722-76-1	Ammonium Phosphate Monobasic	17 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m ³
CAS: 7757-79-1	Potassium Nitrate	9 mg/m ³
CAS: 471-34-1	Calcium Carbonate	45 mg/m ³
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.64 mg/m ³
CAS: 10099-74-8	Lead Nitrate	0.24 mg/m ³

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CAS: 7440-02-0	Nickel Metal	4.5 mg/m ³
CAS: 7440-66-6	Zinc Metal	6 mg/m ³

· PAC-2:

CAS: 7647-01-0	Hydrochloric Acid	22 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	47 mg/m ³
CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 87-69-4	L-Tartaric Acid	17 mg/m ³
CAS: 7784-27-2	Aluminum Nitrate	920 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	180 mg/m ³
CAS: 7789-24-4	Lithium Fluoride	110 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	110 mg/m ³
CAS: 16919-19-0	Ammonium hexafluorosilicate	130 mg/m ³
CAS: 7722-76-1	Ammonium Phosphate Monobasic	190 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	45 mg/m ³
CAS: 7757-79-1	Potassium Nitrate	100 mg/m ³
CAS: 471-34-1	Calcium Carbonate	210 mg/m ³
CAS: 1314-62-1	Vanadium Pentoxide Reagent	7 mg/m ³
CAS: 10099-74-8	Lead Nitrate	180 mg/m ³
CAS: 7440-02-0	Nickel Metal	50 mg/m ³
CAS: 7440-66-6	Zinc Metal	21 mg/m ³

· PAC-3:

CAS: 7647-01-0	Hydrochloric Acid	100 ppm
CAS: 12007-60-2	Lithium Tetraborate, Reagent	280 mg/m ³
CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 87-69-4	L-Tartaric Acid	100 mg/m ³
CAS: 7784-27-2	Aluminum Nitrate	5,500 mg/m ³
CAS: 13446-18-9	Magnesium Nitrate	1,100 mg/m ³
CAS: 7789-24-4	Lithium Fluoride	680 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	640 mg/m ³
CAS: 16919-19-0	Ammonium hexafluorosilicate	780 mg/m ³
CAS: 7722-76-1	Ammonium Phosphate Monobasic	1,100 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	270 mg/m ³
CAS: 7757-79-1	Potassium Nitrate	600 mg/m ³
CAS: 471-34-1	Calcium Carbonate	1,300 mg/m ³
CAS: 1314-62-1	Vanadium Pentoxide Reagent	70 mg/m ³
CAS: 10099-74-8	Lead Nitrate	1,100 mg/m ³
CAS: 7440-02-0	Nickel Metal	99 mg/m ³
CAS: 7440-66-6	Zinc Metal	120 mg/m ³

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **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 item 7.
- **Control parameters**

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

CAS: 7647-01-0 Hydrochloric Acid

NIOSH RECOMMENDED EXP LIMIT	Ceiling limit value: 7.0 mg/m ³ mg/m ³
PEL	Ceiling limit value: 7 mg/m ³ , 5 ppm
REL	Ceiling limit value: 7 mg/m ³ , 5 ppm
TLV	Ceiling limit value: 2.98 mg/m ³ , 2 ppm

- **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.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **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.

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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:	Liquid
· Color:	Colorless
· Odor:	Odorless
· Odor threshold:	Not determined.

· **pH-value:** Not determined.· **Change in condition**

· Melting point/Melting range:	0 °C (32 °F)
· Boiling point/Boiling range:	100 °C (212 °F)

· **Flash point:** Not applicable.· **Flammability (solid, gaseous):** Not applicable.· **Decomposition temperature:** Not determined.· **Auto igniting:** Product is not selfigniting.· **Danger of explosion:** Product does not present an explosion hazard.· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)· **Density at 20 °C (68 °F):** 1.00552 g/cm³ (8.39106 lbs/gal)· **Relative density** Not determined.· **Vapor density** Not determined.· **Evaporation rate** Not determined.· **Solubility in / Miscibility with**· **Water:** Fully miscible.· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**· **Dynamic:** Not determined.· **Kinematic:** Not determined.· **Solvent content:**· **Water:** 96.5 %· **VOC content:** 0.00 %

0.0 g/l / 0.00 lb/gal

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- **Solids content:** 0.7 %
- **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:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories**

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

CAS: 7789-24-4	Lithium Fluoride	3
CAS: 1314-62-1	Vanadium Pentoxide Reagent	2B
CAS: 10099-74-8	Lead Nitrate	2A
CAS: 7440-02-0	Nickel Metal	2B

- **NTP (National Toxicology Program)**

CAS: 10099-74-8	Lead Nitrate	R
CAS: 7440-02-0	Nickel Metal	R

- **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.

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- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **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	Not regulated
· UN proper shipping name	
· DOT, IMDG, IATA	Not regulated
· Transport hazard class(es)	
· DOT, ADN, IMDG, IATA	
· Class	Not regulated
· Packing group	
· DOT, IMDG, IATA	Not regulated
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	Not regulated

15 Regulatory information

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

· Section 355 (extremely hazardous substances):	
CAS: 7697-37-2	Nitric Acid
CAS: 1314-62-1	Vanadium Pentoxide Reagent

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· Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2	Nitric Acid
CAS: 7784-27-2	Aluminum Nitrate
CAS: 13446-18-9	Magnesium Nitrate
CAS: 7782-61-8	Ferric Nitrate
CAS: 7757-79-1	Potassium Nitrate
CAS: 1314-62-1	Vanadium Pentoxide Reagent
CAS: 10099-74-8	Lead Nitrate
CAS: 7440-02-0	Nickel Metal
CAS: 7440-66-6	Zinc Metal

· TSCA (Toxic Substances Control Act):

Water	ACTIVE
Hydrochloric Acid	ACTIVE
Lithium Tetraborate, Reagent	ACTIVE
Nitric Acid	ACTIVE
L-Tartaric Acid	ACTIVE
Lithium Fluoride	ACTIVE
Ammonium hexafluorosilicate	ACTIVE
Ammonium Phosphate Monobasic	ACTIVE
Sodium Nitrate	ACTIVE
Potassium Nitrate	ACTIVE
Calcium Carbonate	ACTIVE
Vanadium Pentoxide Reagent	ACTIVE
Lead Nitrate	ACTIVE
Nickel Metal	ACTIVE
Zinc Metal	ACTIVE

· Hazardous Air Pollutants

CAS: 7647-01-0	Hydrochloric Acid
CAS: 10099-74-8	Lead Nitrate

· Proposition 65

· Chemicals known to cause cancer:

CAS: 1314-62-1	Vanadium Pentoxide Reagent
CAS: 10099-74-8	Lead Nitrate
CAS: 7440-02-0	Nickel Metal

· 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:

None of the ingredients is listed.

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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 12007-60-2	Lithium Tetraborate, Reagent	I (oral)
CAS: 10099-74-8	Lead Nitrate	B2
CAS: 7440-66-6	Zinc Metal	D, I, II

· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 7789-24-4	Lithium Fluoride	A4
CAS: 1314-62-1	Vanadium Pentoxide Reagent	A3
CAS: 10099-74-8	Lead Nitrate	A3
CAS: 7440-02-0	Nickel Metal	A5

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

CAS: 7440-02-0	Nickel Metal
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· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07

· **Signal word** Warning

· **Hazard statements**

Causes skin irritation.

Causes serious eye irritation.

· **Precautionary statements**

Wash thoroughly after handling.

Wear protective gloves / eye protection / face protection.

If on skin: Wash with plenty of water.

Specific treatment (see on this label).

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

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

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** 11/17/2020 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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*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)**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**Skin Irrit. 2: Skin corrosion/irritation – Category 2**Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*

US