

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 03/31/2021

Reviewed on 03/31/2021

1 Identification

- **Product Identifier**
- **Trade Name: RESTORE**
- **Product Number:** 1700-0140
- **Relevant identified uses of the substance or mixture and uses advised against:**
No further relevant information available.
- **Product Description:** Metal Ion Removal Solution
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**
Pickering Laboratories, Inc.
1280 Space Park Way
Mountain View, CA 94043
Phone: (650) 694-6700
Fax: (650) 968-0749
www.pickeringlabs.com
support@pickeringlabs.com
- **Emergency telephone number:**
Clean Harbors Environmental Services
1-800-645-8265

* 2 Hazard(s) Identification

- **Classification of the substance or mixture:**



Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements:**
- **Hazard pictograms:**



- **Signal word:** Danger
- **Hazard statements:**
H314 Causes severe skin burns and eye damage.
- **Precautionary statements:**

| | |
|----------------|--|
| P260 | Do not breathe dusts or mists. |
| P264 | Wash thoroughly after handling. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P301+P330+P331 | If swallowed: Rinse mouth. Do NOT induce vomiting. |
| P303+P361+P353 | If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P304+P340 | IF INHALED: Remove person to fresh air 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. |
| P310 | Immediately call a poison center/doctor. |
| P321 | Specific treatment (see supplementary first aid instructions on this Safety Data Sheet). |
| P363 | Wash contaminated clothing before reuse. |
| P405 | Store locked up. |

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P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Unknown acute toxicity:**

This value refers to knowledge of known, established toxicological or ecotoxicological values.
0 % of the mixture consists of component(s) of unknown toxicity.

· **Classification system:** NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Hazard(s) not otherwise classified (HNOC):** None known

*** 3 Composition/Information on Ingredients**

· **Chemical characterization: Substance**

· **Description:** Mixture of substances listed below with non-hazardous additions.

· **Dangerous Components:**

| | | |
|-------------------------------------|--|----------|
| CAS: 7664-38-2 RTECS: TB 6300000 | Phosphoric acid Met. Corr.1, H290; Skin Corr. 1B, H314 Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 % | 3.9-4.2% |
|-------------------------------------|--|----------|

· **Additional information:**

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

*** 4 First-Aid Measures**

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:**

Not anticipated under normal use.

In case of unconsciousness place patient stably in the side position for transportation.

· **After skin contact:**

Seek medical treatment.

Immediately wash with water and soap and rinse thoroughly.

Immediate medical treatment is necessary. Failure to treat burns can prevent wounds from healing.

· **After eye contact:**

Rinse opened eye for several minutes under running water. Then consult a doctor.

If easy to do so, remove contact lenses if worn.

If eye irritation occurs, consult a doctor.

· **After swallowing:**

Rinse mouth with water ensuring that rinse is not swallowed. Drink 2 glasses of water to dilute and induce vomiting by touching finger to the back of the victims throat. Get medical assistance immediately.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

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- **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:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** No further relevant information.
- **Special hazards arising from the substance or mixture:** No further relevant information available.
- **Advice for firefighters**
- **Special protective equipment for firefighters:**
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

* **6 Accidental Release Measures**

- **Personal precautions, protective equipment and emergency procedures:**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Dispose of the collected material according to regulations.
- **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: | | |
| 7664-38-2 | Phosphoric acid | 3 mg/m ³ |
| 7778-77-0 | Potassium Phosphate | 9.6 mg/m ³ |
| · PAC-2: | | |
| 7664-38-2 | Phosphoric acid | 30 mg/m ³ |
| 7778-77-0 | Potassium Phosphate | 110 mg/m ³ |
| · PAC-3: | | |
| 7664-38-2 | Phosphoric acid | 150 mg/m ³ |
| 7778-77-0 | Potassium Phosphate | 630 mg/m ³ |

* **7 Handling and Storage**

- **Handling**
- **Precautions for safe handling:**
Avoid contact with skin, eyes and clothing
Avoid breathing fumes.
Use personal protection equipment as outlined in section 8.
Ensure good ventilation/exhaustion at the workplace.

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Prevent formation of aerosols.

- **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:**
Store in dry conditions at a temperature range of 8°C - 25°C.
- **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 occupational exposure limits:**

7664-38-2 Phosphoric acid

| | |
|-----|---|
| PEL | Long-term value: 1 mg/m ³ |
| REL | Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ |
| TLV | Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ |

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.
- **Exposure controls:**
- **Personal protective equipment**
- **General protective and hygienic measures:**
Use adequate exhaust ventilation to prevent inhalation of product vapors.
Do not eat or drink while handling product.
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Respiratory protection is not required unless handling of the material produces nuisance airborne concentrations.
- **Protection of hands:**



Protective gloves

- **Material of gloves:**
Latex or vinyl
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 cannot 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 determined and observed by the manufacturer of the protective gloves.

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· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Lab coat

· **Limitation and supervision of exposure into the environment:** None

* **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 @ 20 °C (68 °F):** 1.3

· **Change in condition**

· **Melting point/Melting range:** Not determined.

· **Flash point:** None

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** Not applicable

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self-igniting.

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

· **Explosion limits:**

· **Lower:** Not determined.

· **Upper:** Not determined.

· **Vapor pressure @ 20 °C (68 °F):** ≤23 hPa (≤17.3 mm Hg)

· **Density @ 20 °C (68 °F):** 1.0361 g/cm³ (8.6463 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:**

· **VOC content:** 0.00 %

· **Other information:** No further relevant information available.

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* **10 Stability and Reactivity**

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Product is stable under normal conditions.
- **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: | | |
| 7664-38-2 Phosphoric acid | | |
| Oral | LD50 | >5,000 mg/kg (Rat) (OECD Test Guideline 423) |
| Dermal | LD50 | 2,740 mg/kg (Rabbit) |
| Remarks: Behavioral: Somnolence (general depressed activity). Behavioral: Excitement. | | |

- **Primary irritant effect:**
- **On the skin:** Strong caustic effect on skin and mucous membranes.
- **On the eye:**
Strong irritant with the danger of severe eye injury.
Corrosive effect.
Causes serious eye irritation.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
Swallowing will lead to a corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories:**

| |
|--|
| IARC (International Agency for Research on Cancer): |
| None of the ingredients are listed. |

| |
|---|
| NTP (National Toxicology Program): |
| None of the ingredients are listed. |

| |
|---|
| OSHA-Ca (Occupational Safety & Health Administration): |
| None of the ingredients are listed. |

* **12 Ecological Information**

- **Toxicity:**

| | |
|----------------------------------|--------------------|
| Aquatic toxicity: | |
| 7664-38-2 Phosphoric acid | |
| EC50 | 4.6 mg/l (Daphnia) |

- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.

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- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.
 Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
- **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:**
 Do not allow product to reach sewage system.
 This product may be mixed with a combustible solvent and burned in a chemical incinerator equipped with an afterburner and scrubber. This product can also be sent to an EPA approved waste disposal facility.
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
 Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packaging**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport Information

- **UN-Number:**
- **DOT, ADR/ADN, ADN, IMDG, IATA** Non-Regulated Material
- **UN proper shipping name:**
- **DOT, ADR/ADN, ADN, IMDG, IATA** Non-Regulated Material
- **Transport hazard class(es):**
- **DOT, ADR/ADN, ADN, IMDG, IATA**
- **Class:** Non-Regulated Material
- **Packing group:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **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":** Non-Regulated Material

* **15 Regulatory Information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
 No further relevant information available.
- **SARA (Superfund Amendments and Reauthorization):**

| |
|---|
| · Section 355 (extremely hazardous substances): None of the ingredients are listed. |
|---|

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| | | |
|--|-----------------|----|
| · Section 313 (Specific toxic chemical listings): | | |
| 7664-38-2 | Phosphoric acid | |
| · TSCA (Toxic Substances Control Act): | | |
| All components have the value ACTIVE. | | |
| · Hazardous Air Pollutants | | |
| None of the ingredients are listed. | | |
| · California Proposition 65: | | |
| · Chemicals known to cause cancer: | | |
| None of the ingredients are listed. | | |
| · Chemicals known to cause reproductive toxicity for females: | | |
| None of the ingredients are listed. | | |
| · Chemicals known to cause reproductive toxicity for males: | | |
| None of the ingredients are listed. | | |
| · Chemicals known to cause developmental toxicity: | | |
| None of the ingredients are listed. | | |
| · New Jersey Right-to-Know List: | | |
| 7664-38-2 | Phosphoric acid | |
| · New Jersey Special Hazardous Substance List: | | |
| 7664-38-2 | Phosphoric acid | CO |
| · Pennsylvania Right-to-Know List: | | |
| 7664-38-2 | Phosphoric acid | |
| · Pennsylvania Special Hazardous Substance List: | | |
| 7664-38-2 | Phosphoric acid | E |
| · Carcinogenic categories: | | |
| · EPA (Environmental Protection Agency): | | |
| None of the ingredients are listed. | | |
| · TLV (Threshold Limit Value established by ACGIH): | | |
| None of the ingredients are listed. | | |
| · NIOSH-Ca (National Institute for Occupational Safety and Health): | | |
| None of the ingredients are listed. | | |

· **GHS label elements**

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

· **Hazard pictograms:**



· **Signal word:** Danger

· **Hazard statements:**

H314 Causes severe skin burns and eye damage.

· **Precautionary statements:**

- P260 Do not breathe dusts or mists.
- P264 Wash thoroughly after handling.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

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- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air 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.
- P310 Immediately call a poison center/doctor.
- P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

None of the ingredients are listed.

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

*** 16 Other Information**

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Contact:**

· **Date of last revision/ revision number:** 03/31/2021 / 8

· **Abbreviations and acronyms:**

- ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- 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 and Health
- OSHA: Occupational Safety & Health Administration
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Met. Corr. 1: Corrosive to metals – Category 1
- Skin Corr. 1B: Skin corrosion/irritation – Category 1B
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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

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