SAFETY DATA SHEET

Preparation Date: 1/21/2016 **Revision Date:** Not Applicable **Revision Number:** Not Applicable

1. IDENTIFICATION

Product identifier

Product code: P1708
Product Name: Periodic Acid, 50%

Other means of identification

Synonyms: No information available
CAS #: Mixture
RTECS # Not available
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier:
Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Oxidizing liquids	Category 2
Corrosive to metals	Category 1

Label elements

Danger

Hazard statements
Causes severe skin burns and eye damage
May cause respiratory irritation
May intensify fire; oxidizer
May be corrosive to metals

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
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 .?
Keep only in original container

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO_2or Halon may provide limited control.
Absorb spillage to prevent material damage
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 or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant/ .? container with a resistant inner liner

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Periodic Acid 10450-60-9	10450-60-9	48-52
Water 7732-18-5	7732-18-5	48-52

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms May cause chemical burns to the respiratory tract. Nose and throat irritation. Coughing and wheezing. May cause edema and swelling of the throat. Asphyxiation from constriction of the esophagus. Dyspnea (Difficulty breathing and shortness of breath). Severe skin and eye irritation or burns. May cause chemical pneumonitis. Causes digestive (gastrointestinal) tract irritation. May cause gastrointestinal (digestive) tract burns. May cause abdominal pain, nausea, vomiting, diarrhea. May cause bleeding or ulceration from the stomach. May cause perforation of the digestive tract. May cause severe and permanent damage to the digestive tract. Convulsions.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

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Extinguishing Media

Suitable Extinguishing Media: Water. CO_2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media: Dry chemical. Foam. Halons.

Specific hazards arising from the chemical

Hazardous Combustion Products: Hydrogen iodide, Iodine

Specific hazards: Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.)
The product is not flammable, but it may cause fire when in contact with other material
Contact with combustible or organic materials may cause fire
Will accelerate burning when involved in a fire

Special Protective Actions for Firefighters

Specific Methods: Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Neutralize with Sodium carbonate or Sodium bicarbonate. Dilute with water. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Keep away from combustible material. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Do not store near combustible materials. Store in a segrated and approved area. May corrode metallic surfaces. Do not store in uncoated metallic containers.

Incompatible Materials:
Combustible materials. Powdered metals. Metals. Organic materials. Reducing agents. Bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Periodic Acid 10450-60-9	None	None	None	None
Water 7732-18-5	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Periodic Acid 10450-60-9	None	None	None	None
Water 7732-18-5	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
Periodic Acid 10450-60-9	None	None
Water 7732-18-5	None	None

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation, especially in confined areas. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Face-shield.

Skin and body protection: Chemical resistant apron. Boots. Gloves. Long sleeved clothing.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid.	**Appearance:** No information available	**Color:** No information available
Odor: No information available	**Taste** No information available	**Formula:** No information available
Molecular/Formula weight: No information available	**Flammability:** No information available	**Flash point (°C):** No data available
Flashpoint (°C/°F): No information available.	**Flash Point Tested according to:** Not available	**Autoignition Temperature (°C/°F):** No information available
Lower Explosion Limit (%): No information available	**Upper Explosion Limit (%):** No information available	**pH:** No information available
Melting point/range(°C/°F): No information available	**Boiling point/range(°C/°F):** 110-140°C/230-284°F	**Decomposition temperature(°C/°F):** No information available
Bulk density: No information available	**Density (g/cm3):** 1.58 @ 20°C	**Specific gravity:** No information available
Vapor pressure @ 20°C (kPa): No information available	**Evaporation rate:** No information available	**Vapor density:** 7.9
VOC content (g/L): No information available	**Odor threshold (ppm):** No information available	**Partition coefficient (n-octanol/water):** No information available
Viscosity: No information available	**Miscibility:** No information available	**Solubility:** Very soluble in water

10. STABILITY AND REACTIVITY

Reactivity

Oxidizer. Reacts with reducing agents, organic material, combustible materials, and powdered metals
Contact with powdered metals may cause fire or explosion
Contact with combustible materials (wood, paper, oil, clothing, etc.) may cause fire
May produce corrosive solutions on contact with water.
May be corrosive to metals
Can react vigorously on contact with reducing materials
Reactive with tetraethylammonium hydroxide and dimethyl sulfoxide

Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur
May release toxic and/or corrosive fumes

Conditions to avoid: Heat. Ignition sources. Incompatible materials. Contact with combustible materials (wood, paper, oil, clothing, etc.).

Incompatible Materials: Combustible materials. Powdered metals. Metals. Organic materials. Reducing agents. Bases.

Hazardous decomposition products: Iodine. Hydrogen iodide.

Other Information

Corrosivity: May be corrosive to metals

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation. Skin. Eyes.

Acute Toxicity

Component Information

Periodic Acid - 10450-60-9

LD50/oral/rat = No information available
LD50/oral/mouse = No information available
LD50/dermal/rat = No information available
LD50/dermal/rabbit = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No infomation available
Other LD50 or LC50information = No information available

Water - 7732-18-5

LD50/oral/rat = > 90 mL/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rat = No information available
LD50/dermal/rabbit = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No infomation available
Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin burns. Causes severe skin irritation and possible burns, especially if skin is wet or moist. . Can cause burning pain, inflammation and blisters.

Eye Contact: Causes severe irritation and burns. May cause permanent injury.

Inhalation Irritating to respiratory system. May cause swelling of the esophagus/throat. May cause ashyxiation due to swelling of the throat. Symptoms may include burning sensation or pain in the nose and throat. Symptoms may include coughing and wheezing, and shortness of breath. May cause chemical burns to the respiratory tract. May cause chemical pneumonitis. It may cause pulmonary edema.

Ingestion Ingestion may cause nausea, vomiting, diarrhea. Diarrhea may be watery or bloody. Causes severe irritation and burns of the digestive tract. May cause severe and permanent damage to the digestive tract. May cause perforation of the digestive tract. May cause edema and swelling of the throat. May affect behavior/central nervous system (convulsions).

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Periodic Acid	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Water	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: Eyes. Skin. Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Periodic Acid	None	None	None	None
Water	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s. (periodic acid solution)
Hazard Class: 5.1
Subsidiary Risk: 8
Packing Group: II
ERG No: 140
Marine Pollutant No data available
DOT RQ (lbs): No information available
Symbol(s): G

TDG (Canada)

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: (8)
Packing Group: II
Description: No information available

ADR

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Packing Group: II
Subsidiary Risk: 8
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: 8

14. TRANSPORT INFORMATION

Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: 8
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: 8
Packing Group: II
Description: No information available

IATA

UN-No: UN3098
Proper Shipping Name: Oxidizing liquid, corrosive, n.o.s.
Hazard Class: 5.1
Subsidiary Risk: 8
Packing Group: II
ERG Code: 5C
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Periodic Acid	Present	Present KE-27426	Present	Present (1)-368	Present	Present	Present 233-937-0
Water	Present	Present KE-35400	Present	Not present	Present	Present	Present 231-791-2

U.S. Regulations

Periodic Acid
FDA - Direct Food Additives 21 CFR 173.357
FDA - 21 CFR - Total Food Additives 173.357

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Periodic Acid	Not Listed	Not Listed	Not Listed	Not Listed
Water	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting *de minimis*
Periodic Acid	None	None	None	None	None
Water	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Periodic Acid	Not Applicable	Not Applicable
Water	Not Applicable	Not Applicable

Canada

WHMIS hazard class:
C Oxidizing materials

Periodic Acid

C

Water

Uncontrolled product according to WHMIS classification criteria

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
Periodic Acid	Present	Not Listed
Water	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting
Periodic Acid	Not listed	Not listed
Water	Not listed	Not listed

EU Classification

R-phrase(s)
R 8 - Contact with combustible material may cause fire.
R34 - Causes burns.

S -phrase(s)
S17 - Keep away from combustible material.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
Periodic Acid		No information	
Water		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
C - Corrosive.
O - Oxidising.

C

O

16. OTHER INFORMATION

Preparation Date: 1/21/2016
Revision Date: Not Applicable
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet