1. Identification

Product Name  Pyridinium bromide perbromide
Cat No. : AC158360000; AC158360050; AC158361000; AC158365000
Synonyms  Pyridine hydrobromide, compound with bromine
Recommended Use  Laboratory chemicals.
Uses advised against  No Information available

2. Hazard(s) identification

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

Skin Corrosion/irritation  Category 1 B
Serious Eye Damage/Eye Irritation  Category 1
Specific target organ toxicity (single exposure)  Category 3
Target Organs - Respiratory system.

Label Elements

Signal Word  Danger

Hazard Statements
Causes severe skin burns and eye damage
May cause respiratory irritation

Precautionary Statements
Prevention
Pyridinium bromide perbromide

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

Response
Immediately call a POISON CENTER or doctor/physician

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Immediately call a POISON CENTER or doctor/physician
Wash contaminated clothing before reuse

Eyes
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

Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Storage
Store locked up
Store in corrosive resistant stainless steel container with a resistant inliner

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

Hazards not otherwise classified (HNOC)
None identified

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen tribromide, compound with pyridine (1:1)</td>
<td>39416-48-3</td>
<td>&gt;90</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Immediate medical attention is required.

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media
No information available

Flash Point
No information available
Method -
No information available

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available
Lower
No data available
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Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx) Carbon monoxide (CO) Carbon dioxide (CO$_2$) Hydrogen halides Bromine

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

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Avoid release to the environment.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not breathe vapors/dust. Do not get in eyes, on skin, or on clothing. Do not ingest.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Red brown</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
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<tr>
<td>Melting Point/Range</td>
<td>127 - 133 °C / 260.6 - 271.4 °F</td>
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<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
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</table>
Flash Point  No information available
Evaporation Rate  No information available
Flammability (solid,gas)  No information available
Flammability or explosive limits  No data available
  Upper  No data available
  Lower  No data available
Vapor Pressure  No information available
Vapor Density  11.0
Relative Density  No information available
Solubility  No information available
Partition coefficient; n-octanol/water  No data available
Autoignition Temperature  No information available
Decomposition Temperature  No information available
Viscosity  No information available
Molecular Formula  C5 H6 Br3 N
Molecular Weight  319.83

10. Stability and reactivity

Reactive Hazard  None known, based on information available
Stability  Moisture sensitive.
Conditions to Avoid  Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.
Incompatible Materials  Water, Strong oxidizing agents, Strong bases
Hazardous Decomposition Products  Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen halides, Bromine
Hazardous Polymerization  No information available.
Hazardous Reactions  None under normal processing.

11. Toxicological information

Acute Toxicity
Product Information
Oral LD50  Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50  Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50  Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.
Component Information
Toxicologically Synergistic Products  No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Irritation  Causes burns by all exposure routes
Sensitization  No information available
Carcinogenicity  The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tr>
<td>Hydrogen tribromide, compound with pyridine (1:1)</td>
<td>39416-48-3</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
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</table>

Mutagenic Effects  No information available
Reproductive Effects  No information available.
Developmental Effects  No information available.
Teratogenicity  No information available.
Pyridinium bromide perbromide

STOT - single exposure
Respiratory system

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No UN3261
Proper Shipping Name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
Hazard Class 8
Packing Group II

TDG
UN-No UN3261
Proper Shipping Name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
Hazard Class 8
Packing Group II

IATA
UN-No UN3261
Proper Shipping Name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.*
Hazard Class 8
Packing Group II

IMDG/IMO
UN-No UN3261
Proper Shipping Name CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
Hazard Class 8
Packing Group II

15. Regulatory information

International Inventories

<table>
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<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
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<tr>
<td>Hydrogen tribromide, compound with pyridine (1:1)</td>
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<td>-</td>
<td>X</td>
<td>254-446-8</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
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T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes
Chronic Health Hazard No
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act Not applicable
Clean Air Act Not applicable
OSHA Occupational Safety and Health Administration Not applicable
CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals
State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class E Corrosive material

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com
<table>
<thead>
<tr>
<th>Creation Date</th>
<th>02-Feb-2012</th>
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<tr>
<td>Revision Date</td>
<td>19-Jan-2015</td>
</tr>
<tr>
<td>Print Date</td>
<td>19-Jan-2015</td>
</tr>
<tr>
<td>Revision Summary</td>
<td>This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)</td>
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</tbody>
</table>

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS