



Pyridinium bromide perbromide

Safety Data Sheet

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Date of Compilation	: October 11, 2004
Date of Revision	: March 29, 2024
Due Date of Revision	: February, 2027
File Name	: 0043Gj Ghs11 Div. 3 sds Pyridinium bromide perbromide
Version Number	: 11
Supersedes date	: January 02, 2024
Supersedes version	: 0043Gj Ghs10 Div. 3 sds Pyridinium bromide perbromide

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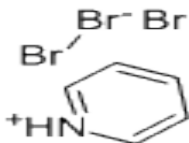
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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1. Product identifier

Trade name	: Pyridinium bromide per bromide
CAS RN	: 39416-48-3
EC#	: 254-446-8
Systematic Name	: Pyridinium tribromide
Synonyms	: Pyridine perbromide hydro bromide; Pyridinium bromide perbromide; Pyridine hydro bromide perbromide.
Molecular Formula	: C ₅ H ₆ Br ₃ N ₂
Structural Formula	:



1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: It is used as brominating and oxidizing agents. Pyridinium bromide perbromide has been shown to be a satisfactory reagent for the bromination of phenols, unsaturates and aromatic ethers.

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

FACTORY & REGISTERED OFFICE: Jubilant Ingrevia Limited., Bhartiagram, Gajraula, District: Amroha, Uttar Pradesh-244223, India.
T: +91-5924-267437, +91-5924-267438

HEAD OFFICE: Jubilant Ingrevia Limited, Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh, 201301 - India
T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 support@jubl.com - www.jubilantingrevia.com

1.4. Emergency telephone number

For Chemical Emergency ONLY (in the case of fire, leak, spill, exposure or accident) Call

Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.)

Chemtrec (India): 000-800-100-7141

For ALL other emergencies call Emergency Control Room Gajraula at 99970 22412

SECTION 2: HAZARD(S) IDENTIFICATION

2.1. Classification of the substance or mixture

GHS-US classification

Skin corrosion/irritation: Category 1B	H314	Causes severe skin burns and eye damage.
Eye damage/irritation: Category 1	H318	Causes serious eye damage.
Specific Target organ Toxicity: Category 3 (Single Exposure)	H335	May cause respiratory irritation.

2.2. Label Elements

Hazard Pictogram: GHS 05, GHS07



GHS 05-Corrosive



GHS 07-Exclamation mark

Signal Word: Danger!

HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS



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- H314: Causes severe skin burns and eye damage.
- H335: May cause respiratory irritation.

PRECAUTIONARY STATEMENTS

- P260: Do not breathe dust.
- P 261: Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264: Wash hands, eyes and face thoroughly after handling.
- P271: Use only out doors or in a well-ventilated area.
- P280: Wear protective gloves/clothing and eye/face protection.
- P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P310: Immediately call a POISON CENTER or doctor/physician.
- P312: Call a POISON CENTER or doctor/physician if you feel unwell.
- P363: Wash contaminated clothing before reuse.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P405: Store locked up.
- P403+233: Store in a well-ventilated place. Keep container tightly closed.
- P501: Dispose of contents/container to local/regional/national/international regulations.

2.3 Other Hazards

- Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance	CAS No.	EINECS No.	Purity	Hazard Classes and categories
Pyridinium bromide per bromide	39416-48-3	254-446-8	>85%	Skin corrosion/irritation: Category 1B Eye damage/eye irritant: Category 2A STOT-Single Exposure: Category 3

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

- **Eyes:** If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- **Skin:** Immediately take off all contaminated clothing. Wash thoroughly with water for at least 15 minutes. Wash contaminated clothes before reuse. Seek immediate medical attention.
- **Inhalation:** If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
- **Ingestion:** If swallowed call a poison center if you feel unwell. Wash mouth with water if conscious Rinse mouth. DO NOT INDUCE VOMITING. Make the victim drink water/ milk.

4.2. Most important symptoms and effects, both acute and delayed

Acute effects:

- Causes severe skin burns and eye damage. It may cause respiratory irritation. Cough, Shortness of breath, Headache, Nausea, Vomiting. Irritating to tissues of the mucous membranes and upper respiratory tract, digestive system, eyes and skin. May cause dizziness. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic effects:

- To the best of our knowledge, the chronic health effects of this product have not been fully investigated.

4.3. Indication of any immediate medical attention and special treatment needed

- Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media



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- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide. Do not use water or foam. Water can be effective in cooling down the fire-exposed containers. Use water spray to knock down fire fumes if possible. Water can be effective in cooling down the fire-exposed containers and knocking down the vapors. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures.

5.2. Special hazards arising from the substance or mixture

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and carbon di-oxide, halogenated compounds. WARNING: Highly toxic HBr gas is produced during combustion.
- High vapor concentration may result in an explosion hazard.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

5.3. Advice for firefighters

- Evacuate the area and fight fires from a safe distance.
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures.
- Fire-fighters must wear Self Contained Breathing Apparatus (SCBA).
- Report any run-off of firewater's contaminated with this chemical as per local and federal procedures applicable.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.
- Shut off all possible sources of ignition.
- Wipe up.
- Decontaminate all equipment.

For emergency personnel

- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible sources of ignition and increase ventilation.
- Stop leaks if possible.
- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.

6.2. Environmental precautions

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.
- Wipe up.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Contain spill with sand, earth or vermiculite.
- Spread area with lime or absorbent material, and leave for at least 1 hour before washing.

6.3. Methods and material for containment and cleaning up

- Clean up all tools and equipment.
- Decontaminate all equipment.

6.4. Reference to other sections

- For more information please refer to section 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

- Do not breathe dust, vapor or mist.
- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Use only in a chemical fume hood.
- Launder contaminated clothing before re-use.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.



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- Use in a well ventilated place/Use protective clothing commensurate with exposure levels.
- Use face shield (8" minimum)

7.2. Conditions for safe storage, including any incompatibilities

- Store away from incompatible substances.
- Keep containers tightly closed at ambient temperature.
- Keep in well-ventilated area.
- Avoid raising dust.

7.3. Specific end use(s)

- It is used as brominating and oxidizing agents. Pyridinium bromide perbromide has been shown to be a satisfactory reagent for the bromination of phenols, unsaturated and aromatic ethers.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits Values

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Pyridinium bromide per bromide	Not available	Not available	Not available

Exposure Limits (International):

- Not available.

Derived No-Effect-Levels (DNEL) / Predicted No-effect-concentration (PNEC)

- DNEL and PNEC data not available.

8.2. Exposure controls

Appropriate Engineering Controls:

- Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is usually preferred. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection:

- Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
- **Hands:** Wear appropriate protective gloves to prevent skin exposure.
- **Eyes:** Safety goggles/ Chemical Safety glasses and Face shield.
- **Clothing:** Boots and clothing to prevent contact.
- **Respirator:** Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	Red crystalline solid
2.	Odor	Not available
3.	Odor Threshold	Not available
4.	Molecular weight	319.8 gm/mol
5.	pH	Not available
6.	Melting point/Freezing point	127.5-131.5
7.	Boiling Point	Not available
8.	Flash point	Not available
9.	Evaporation rate (n-BuAc=1)	Not available
10.	Flammability	Non Flammable
11.	Upper/lower flammability or Explosive limits	Not available



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12.	Vapor pressure	Not available
13.	Vapor density (air=1)	11.0
14.	Relative density	Not available
15.	Solubility	Slightly soluble in water
16.	Partition coefficient : n-(Octonol / water)	Not available
17.	Auto-ignition temperature	Not available
18.	Decomposition temperature	Not available
19.	Viscosity	Not available
20.	Explosive property	Not available
21.	Oxidizing property	Yes
22.	Corrosive	Yes

SECTION 10: STABILITY AND REACTIVITY

10.1. Stability and reactivity

- Red crystalline solid. It may decompose on exposure to moist air or water.

10.2. Chemical stability

- Stable under specified condition of temperature and pressure. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry. The product is chemically stable under standard ambient conditions (room temperature).

10.3. Possibility of hazardous reactions

- Hazardous Polymerization: Not reported.

10.4. Conditions to avoid

- Keep away from heat, moisture and incompatible chemicals. Avoid excessive heat and light.

10.5. Incompatible materials

- Strong oxidizing agents, excess heat, strong bases and water.

10.6. Hazardous decomposition products

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and carbon di-oxide, halogenated compounds. WARNING: Highly toxic HBr gas is produced during combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity: Causes severe skin burns and eye damage. It may cause respiratory irritation. Cough, Shortness of breath, Headache, Nausea, Vomiting. Irritating to tissues of the mucous membranes and upper respiratory tract, digestive system, eyes and skin. May cause dizziness. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

RTECS#: Not listed

ACUTE ORAL LD50 /LC50: Not available

Skin corrosion/irritation	:	It causes severe skin burns.
Serious eye damage/irritation	:	It causes serious eye damage.
Respiratory or skin sensitization	:	No data is available.
Germ cell Mutagenicity	:	No data is available.
Carcinogenicity	:	No data is available.
Reproductive toxicity	:	No data is available.
STOT-single exposure	:	May cause respiratory irritation.
STOT- repeated exposure	:	No data available.
Aspiration Hazards	:	No data available.

SECTION 12: ECOLOGICAL INFORMATION



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12.1. Eco toxicity

- No data is available.

12.2. Persistence and degradability

- Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

12.3. Bio accumulative potential

- No data is available.

12.4. Mobility in soil

- No data is available.

12.5. Results of PBT and vPvB assessment

- No data is available.

12.6. Other adverse effects.

Environment Fate:

- Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. The products of degradation are more toxic. Since this is an estimated result it is recommended that the material should not be disposed into the environment. The material should never be disposed into the sewage.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment reinstates.

Contaminated packaging

- Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

- This substance is considered to be Hazardous for transport by Air/Rail/Road and Sea and thus regulated by IATA/ ICAO/ US DOT/ IMO/ IMDG.

Mode of Transport	Agency
Land transport	US DOT
Maritime Transport	IMDG
Air Transport	IATA

14.1. UN number

- UN 3261

14.2. UN proper shipping name

- CORROSIVE, SOLID, ACIDIC, N.O.S (Pyridinium bromide perbromide)

14.3. Transport hazard class (es)

- Corrosive, class 8
- Hazard Label



14.4. Packing group

- II

14.5. Environmental hazards

- It is expected that this chemical is not a marine pollutant and is not Harmful to the Aquatic environment

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture.

Classification (as per Regulation (EC) No 1272/2008):

- Hazards Class and Category: Skin Corr. Cat 1B, Eye Irrit. Cat 1, STOT SE. Cat.3
- Hazard Statements: H314; H318,H335

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): Pyridinium bromide perbromide not listed

SARA 302/304 : Pyridinium bromide perbromide not listed



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SARA 311/312 : See section 2 for more information

California Prop. 65: Pyridinium bromide perbromide not listed

CAA (Clean Air Act): Pyridinium bromide perbromide not listed

CWA (Clean Water Act): Pyridinium bromide perbromide not listed

EU Information

Water hazard class (WGK) No Information available.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Pyridinium bromide perbromide not listed

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation	: October 11, 2004
Chemical	: Pyridinium bromide per bromide.
CAS #	: 39416-48-3
File Name	: 0043Gj Ghs11 Div. 3 sds Pyridinium bromide perbromide
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b) A key or legend to aberrations and acronyms used in the safety data sheet

- PBT =Persistent Bio accumulative and Toxic.
- vPvB= Very Persistent and Very Bio accumulative.
- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit.
- OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit.
- OELTWA= Occupational Exposure Limit Time Weighted Averages.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program.
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA= Toxic Substances Control Act.
- SARA= Superfund Amendments and Reauthorization Act.
- WHIMS= Workplace Hazardous Materials Information System.
- DSL/NDL= Domestic/Non-Domestic Substances List.
- BCF = Bio Concentration Factor.
- TLV = Threshold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation .Authorization and Restriction of Chemicals.
- CLP = Classification, Labeling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonized System.
- ADR = Accord European relative au transport international de merchandises.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- EmS = Emergency measures on Sea.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

c) Key Literature reference and sources for data

Biographical reference and data sources

- Globally Harmonized System of Classification and Labelling of Chemicals.
- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- REG (EC) no. 1907/2006, last modification by REG (EC) NO. 2020/ 878.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

(End of Safety Data Sheet)