SECTION 1: IDENTIFICATION

Product name: PENSOLV PB2000
Recommended use: Degreasing, vapor degreasing
Physical Description: Clear water white liquid with halogenated solvent odor
Generic Ingredients: Halogenated solvent

Manufacturer: Penetone Corporation
125 Kingsland Ave.
Clifton, NJ 07014
800-631-1652 or 201-567-3000

Business Contact: Customer Service
800-631-1652 x2602 or 2272
Product Safety
800-631-1652 x2211 or 2257

Emergency Phone Numbers: PENETONE 201-567-3000 CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

<table>
<thead>
<tr>
<th>Health:</th>
<th>Physical:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration hazard: 1</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity: 1B</td>
<td></td>
</tr>
<tr>
<td>Eye irritation: 2A</td>
<td></td>
</tr>
<tr>
<td>Skin irritation: 2</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure: 2</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure: 3</td>
<td></td>
</tr>
</tbody>
</table>

DANGER!
May Be Fatal If Swallowed and Enters Airways.
Causes Skin Irritation and Serious Eye Irritation.
May Cause Respiratory Irritation.
May Cause Drowsiness or Dizziness.
May Damage Fertility or the Unborn Child.
May Cause Damage to Organs Through Prolonged or Repeated Exposure If Inhaled.

Precautions:

Prevention:
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Do not breathe fumes/mist/vapor/spray. Use only outdoors or in a well ventilated area.
Wear protective gloves/protective clothing/eye and face protection.
Do not eat, drink, or smoke when using this product. Wash hands and exposed skin thoroughly after handling.

Response:
If exposed or concerned: Get medical advice/attention.
If on skin: Wash with plenty of water. A mild soap may be used. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If swallowed: Immediately call a poison center/doctor/emergency room/911 if you feel unwell. Do NOT induce vomiting.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/emergency room/911 if you feel unwell.

Storage:
Store locked up. Store in a well ventilated place. Keep container tightly closed.

Disposal:
Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).
SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>Concentration Wt%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Bromopropane</td>
<td>106-94-5</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST-AID MEASURES

**General Description of Symptoms & First-Aid Measures**

Most likely work-place exposure routes will be skin contact or inhalation.

For skin contact, typically no immediate effects will be observed. A slight tingling sensation might be felt some time after exposure. Slight reddening or minor irritation could also develop if product is not quickly washed off. Repeated exposure may cause skin dryness or cracking.

Inhalation of mist may result in minor discomfort to the upper respiratory tract (nose and throat). Typical symptoms could include coughing and sneezing. Inhalation of vapors may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms would include headaches, dizziness, and drowsiness. In extreme cases, unconsciousness and other central nervous effects may occur.

**Eyes**

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists or develops: Get medical advice or attention. Penetone recommends that after any eye exposure a physician be seen immediately.

**Ingestion**

If swallowed: Rinse mouth. Do NOT induce vomiting. Call a poison center, doctor, physician or other competent medical authority if you feel unwell.

**Inhalation**

If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, physician or other competent medical authority if you feel unwell.

**Skin**

If on skin: Wash with plenty of water or a mild soap. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice or attention.

**Special Treatment / Other**

None

SECTION 5: FIRE FIGHTING MEASURES

**Flammable Properties**

**Classification:** Non-flammable

**Flash Point:** None-to-boil, TCC

**Autoignition Temperature:** 860°F (460°C)

**Lower Flammable Limit:** 3.6%  **Upper Flammable Limit:** 9.7%

**Specific Hazards**

Product has a very low boiling point of around 150-160°F. Containers can expand and explode under fire conditions due to vapor buildup.

**Extinguishing Media**

**Suitable:** SMALL FIRE: Use dry chemical, carbon dioxide (CO₂), water spray or alcohol resistant foam. LARGE FIRE: water spray, water fog, or alcohol resistant foam.
Unsuitable: Do not use solid water stream as this may spread fire.

**Protection & Precautions for Firefighters**

**Protective Equipment & Clothing:** Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

**Fire Fighting Guidance:** Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

**Hazardous Combustion Products:** Smoke, fumes, and oxides of carbon and bromine, hydrogen bromide gas.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

**Land Spill**

Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal. Product vapors are heavier than air and will concentrate in low areas. Keep personnel out of low, confined, or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. Confined space entry procedures may be required.

**Water Spill**

Product is much denser than water and will sink making recovery difficult. Check with local environmental regulatory agencies for reporting requirements.

*See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.*

### SECTION 7: HANDLING & STORAGE

**Handling**

Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Do not cut, weld, or reuse empty container.

**Storage**

Keep container tightly closed when not in use. Do not store in direct sunlight. Avoid storing above 120°F (49°C). Do not store near oxidizing agents or strong bases.

### SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

**Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

**Personal Protection**

*Inhalation* A respiratory protection program that meets OSHA’s 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an organic vapor mask or respirator is recommended.

*Skin* Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

*Eyes* Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may
warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

**Additional Remarks**
Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

**Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Source</th>
<th>Value</th>
<th>Type</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Bromopropane</td>
<td>ACGIH</td>
<td>0.1 ppm</td>
<td>TWA</td>
<td>A3</td>
</tr>
</tbody>
</table>

**SECTION 9: PHYSICAL & CHEMICAL PROPERTIES**

- **Appearance:** Clear water white liquid
- **Odor:** Halogenated
- **Odor Threshold:** Not determined
- **pH:** Not applicable
- **Melting Point / Freezing:** -166°F (-110°C)
- **Boiling Point / Boiling Point Range:** 158-160°F (70-71°C)
- **Flash Point:** None to boiling point, Tag closed cup
- **Evaporation Rate:** less than 1 (n-butyl acetate =1)
- **Flammability:** Not applicable
- **Lower Flammable Limit:** 3%
- **Upper Flammable Limit:** 9.7%
- **Explosive Properties:** Not applicable
- **Vapor Pressure:** 111 mm Hg @ 20°C
- **Relative Vapor Density:** 4.25
- **Relative Density:** 1.32 at 77°F (25°C)
- **Solubility (Water):** Insoluble
- **Partition Coefficient (K_{ow}):** log P_{ow} = 2.1
- **Auto-ignition temperature:** 860°F (460°C)
- **Decomposition temperature:** Not available
- **Viscosity:** less than 5 centipoise at room temperature

**SECTION 10: STABILITY & REACTIVITY**

**Reactivity**
Product will react with oxidizing agents, bases, and certain metals such as zinc, aluminum, and alkali metals. Reaction with zinc and aluminum could be vigorous if the metals are in a finely divided state.

**Chemical Stability**
Stable.

**Hazardous Reactions**
Product will react with oxidizing agents, bases, and certain metals such as zinc, aluminum, and alkali metals. Reaction with zinc and aluminum could be vigorous if the metals are in a finely divided state.

**Conditions to Avoid**
Do not store near strong oxidizing agents or bases. Do not store in aluminum.
Incompatible Materials

Hazardous Decomposition Products
Smoke, fumes, and oxides of carbon and bromine, hydrogen bromide gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary
Product is mildly irritating to skin and severely irritating to the eyes. Long term contact will defat the skin and may cause drying and flaking. Aerosol droplets, mists, and vapor may cause eye irritation and respiratory irritation. Vapor concentrations above recommended exposure levels may cause headaches, dizziness, drowsiness, unconsciousness and other central nervous system effects. Product has demonstrated fetal and reproductive organ effects in animal studies.

Acute Toxicity:
- Dermal: LD50 >2,000 mg/kg rat
- Inhalation: Lc50 253 mg/l 0.5 hr rat, irritating to respiratory system, dizziness
- Oral: LD50 4,260 mg/kg rat

Skin Corrosion/Irritation
Irritating to skin

Serious Eye Damage/Irritation
Irritating to eyes

Sensitization - Respiratory or Skin
No data available

Germ Cell Mutagenicity
Positive Ames test

Carcinogenicity
Not classified as a carcinogen by IARC, NTP, or OSHA.

Reproductive Toxicity
May cause congenital malformation in the fetus. May damage the unborn child. May impair fertility. Presumed human reproductive toxicant. In inhalation studies on rats, 1-bromopropane has caused paternal effects on sperm (morphology, motility, and count) and effects on prostate, seminal vesicle, Cowper’s gland, and accessory glands.

Specific Target Organ Effects - Single Exposure
May cause respiratory irritation, drowsiness, or dizziness.

Specific Target Organ Effects - Repeated or Prolonged Exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard
Based upon comparison to similar products, product is considered an aspiration hazard

SECTION 12: ECOLOGICAL INFORMATION

Product Summary
Product is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 50-300 100 mg/l)
Ecotoxicity
Fathead minnow 96 hr LC50 67.3 mg/l
Water flea 48 hr EC50 210 mg/l

Persistence and Degradability
28 day biodegradability of 19%. Product is not readily biodegradable. Product not considered to be persistent.

Bioaccumulative Potential
Log Kow is 2.1 and bioconcentration factor is 23, suggesting the product has a low potential to bioaccumulate.

Mobility in soil
No data available

Other Adverse Effects
None known

SECTION 13: DISPOSAL CONSIDERATIONS

Product is nonhazardous under RCRA definitions. Dispose of contents/container in accordance with all applicable federal, state, and local regulations.

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.

SECTION 14: TRANSPORT INFORMATION

ID No.: Not applicable, nonhazardous material
Proper Shipping Name: Not applicable
Hazard Class: Not applicable
Packing Group: Not applicable
Label: None
Marine Pollutant: Not applicable
RQ: None
Special Precautions: None

SECTION 15: REGULATORY INFORMATION

TSCA
The ingredients in this product are listed on the TSCA inventory.

RCRA HAZARD CLASS
Nonhazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health

REPORTING REQUIREMENTS (all quantities in pounds)

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS / 313 Code</th>
<th>Section 302 (EHS) TPQ</th>
<th>Section 304 EHS RQ</th>
<th>CERCLA RQ</th>
<th>Section 313</th>
<th>CAA 112(r) TQ</th>
<th>CWA / OPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>no component subject to reporting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NEW JERSEY RIGHT-TO-KNOW INFORMATION
This product contains 1-bromopropane (CAS#106-94-5)

CALIFORNIA PROPOSITION 65 INFORMATION
This product contains a chemical recognized by the state of California to cause developmental effects, male, female: 1-bromopropane (CAS# 106-94-5).

SCAQMD INFORMATION
Is there a photochemically reactive material present?  No
What is the % by volume of photochemically reactive material?  0
What is the VOC content?  1350 g/l
What is the vapor pressure of VOC's?  Number mm Hg @ 20°C

SECTION 16: OTHER INFORMATION

HAZARD RATING SYSTEMS:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>HMIS</th>
<th>NFPA</th>
<th>KEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABILITY</td>
<td>1</td>
<td>1</td>
<td>3 = Serious</td>
</tr>
<tr>
<td>REACTIVITY</td>
<td>0</td>
<td>0</td>
<td>2 = Moderate</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td>1 = Slight</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 = Minimal</td>
</tr>
</tbody>
</table>

FOR ADDITIONAL PRODUCT INFORMATION, CONTACT YOUR SALES ENGINEER
FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000

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