Material Safety Data Sheet
Iodine-bromine, Hanus

Section 1 - Chemical Product and Company Identification

MSDS Name:
Iodine-bromine, Hanus

Catalog Numbers:
LC15670

Synonyms:
Iodine-bromine, Hanus, AOAC

Company Identification:
LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:
(412) 826-5230

Emergency Phone Number:
(800) 424-9300

CHEMTREC Phone Number:
(800) 424-9300

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name:</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7</td>
<td>Acetic acid</td>
<td>balance</td>
</tr>
<tr>
<td>7553-56-2</td>
<td>Iodine</td>
<td>1.32</td>
</tr>
<tr>
<td>7726-95-6</td>
<td>Bromine</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Dark amber

Warning! Irritant. Corrosive. May cause severe eye and skin irritation with possible burns.
Use only with adequate ventilation or respiratory protection. Flash Point: 104°F.
Target Organs: None known.

Potential Health Effects

Eye:
Eye contact may result in swelling, irritation, damage to the cornea and conjunctiva resulting in blurred or partial loss of vision.

Skin:
Skin contact may result in irritation, pain, burns, blisters, and brown or yellow stains.
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**Ingestion:**
Ingestion may result in severe burns of the mouth, throat, and stomach; vomiting and diarrhea of dark blood.

**Inhalation:**
Respiratory irritation, coughing, choking, headache, dizziness, weakness can occur. Exposure to 50ppm acetic acid is intolerable for most individuals. Delayed symptoms include lung fluid, chest pain, frothy sputum, cyanosis, rales and hypotension.

**Chronic:**
Chronic exposure can lead to iodism characterized by salivation, nasal discharge, sneezing, conjunctivitis, fever, laryngitis, bronchitis, stomatitis, and skin rashes. Use of iodides in pregnant asthmatics has resulted in fetal death, severe goiter and cretinoid appearance of the newborn. Acetic acid sensitization dermatitis from prolonged exposure can occur. Prolonged exposure to acetic acid may result in tooth discoloration, enamel erosion, jaw necrosis, nasal ulceration, laryngitis, pneumonia, bronchitis, coughing, gastrointestinal disturbances.

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### Section 4 - First Aid Measures

**Eyes:**
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once. Cover burns with loose sterile non-medicated bandages.

**Skin:**
Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes. Cover burns with a dry sterile bandage (secure, not tight).

**Ingestion:**
Get medical aid at once. Give conscious victim large quantities of water to dilute acid. Give oxygen if respiration is depressed. Induce vomiting (touch finger to back of throat) keeping head lower than hips (prevent aspiration into lungs).

**Inhalation:**
Give artificial respiration if necessary. Get medical aid. Keep victim warm, at rest. Move victim to fresh air.

**Notes to Physician:**
Treat symptomatically and supportively.

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### Section 5 - Fire Fighting Measures

**General Information:**
Avoid breathing corrosive vapors, knock down with water spray. Vapors heavier than air, may travel considerable distance and flash back from source of ignition. Keep out of sewers and drains. Vapor-air mixtures explosive. Move container if possible, cool with water - don't get water inside container.

**Extinguishing Media:**
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

**Autoignition Temperature:**
No information found.

**Flash Point:**
104°F (40.00°C)

**NFPA Rating:**
CAS # 64-19-7 health-3; flammability-2; reactivity-0
CAS# 7553-56-2: Not published.
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CAS# 7726-95-6: Not published.

Explosion Limits:
Lower: Upper:

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Absorb spills with absorbent (vermiculite, sand, fuller's earth) and place in plastic bags for later disposal. Caustic soda may be used to neutralize. Isolate, ventilate spill area.

Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Use with adequate ventilation. Avoid breathing dust, vapor, mist, or gas. Keep out of sewers and drains.

Storage:
Keep from contact with oxidizing materials. Store capped at room temperature. Store in acid containment area, protected from heat and ignition source. Protect from heat and incompatibles. Vapors heavier than air, may travel considerable distance and ignite or explode.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Local exhaust may be necessary to control concentrations to acceptable levels.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>10 ppm TWA; 15 ppm TWA; 25 mg/m3 TWA</td>
<td>10 ppm TWA; 25 mg/m3 TWA</td>
<td>10 ppm TWA; 25 mg/m3 TWA</td>
</tr>
<tr>
<td>Iodine</td>
<td>None of the components are on this list.</td>
<td>None of the components are on this list.</td>
<td>C 0.1 ppm; C 1 mg/m3;</td>
</tr>
<tr>
<td>Bromine</td>
<td>0.1 ppm TWA; 0.2 ppm STEL; 0.7 mg/m3 TWA</td>
<td>0.1 ppm TWA; 0.7 mg/m3 TWA</td>
<td>0.1 ppm TWA; 0.7 mg/m3 TWA</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs

Acetic acid: 10 ppm TWA; 25 mg/m3 TWA
Acetic acid: 10 ppm TWA; 25 mg/m3 TWA
bromine: 0.1 ppm TWA; 0.7 mg/m3 TWA

Personal Protective Equipment

Eyes:
Do not wear contact lenses when working with chemicals. An eye wash fountain should be available in the immediate work area. Wear splash-proof safety goggles.

Skin:
Wear acid protective clothing and gloves.
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Clothing:
Wear acid protective clothing and gloves.

Respirators:
>100ppm- SCBA:PD,PP; SAF:PD,PP,CF.
500ppm- CCROVF/GMOV/SAF/SCBAF.
1000ppm- SAF:PD,PP,CF. Escape-
GMOV/SCBA. Firefighting- SCBA:PD,PP. Firefighting-SCBAF:PD,PP. (Respirator Codes: DHEW (NIOSH)
Publication No. 78-210)

Section 9 - Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Dark amber</td>
</tr>
<tr>
<td>Odor</td>
<td>Pungent vinegar-like odor</td>
</tr>
<tr>
<td>pH</td>
<td>Acidic</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information found.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information found.</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Boiling Point</td>
<td>No information found.</td>
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<tr>
<td>Freezing/Melting Point</td>
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</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information found.</td>
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<tr>
<td>Solubility in water</td>
<td>Miscible</td>
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<tr>
<td>Specific Gravity/Density</td>
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<tr>
<td>Molecular Formula</td>
<td>No information found.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>No information found.</td>
</tr>
</tbody>
</table>

Section 10 - Stability and Reactivity

Chemical Stability:
Stable under normal temperatures and pressures. Slight fumes of iodine and bromine may be given off.

Conditions to Avoid:
Incompatible materials, metals, oxidizers.

Incompatibilities with Other Materials
Bromine pentafluoride, chlorine trifluoride, chromic acid, chromic anhydride, diallyl methyl carbinol and ozone, nitric acid and acetone, perchloric acid, permanganates, phosphorous trioxide, sodium peroxide, m-xylene, azidotetrazole, phosphorus isocyanate, potassium hydroxide, acetic anhydride, hydrogen peroxides.

Hazardous Decomposition Products
Oxides of carbon, iodine, bromine.

Hazardous Polymerization
Has not been reported

Section 11 - Toxicological Information

RTECS:
CAS# 64-19-7: AF1225000.
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CAS# 7553-56-2: NN1575000.
CAS# 7726-95-6: EF9100000.

LD50/LC50:
CAS# 64-19-7:
Inhalation, mouse: LC50 =5620 ppm/1H
Oral, rat: LD50 = 3310 mg/kg
Skin, rabbit: LD50 = 1060 mg/kg.
CAS# 7553-56-2:
Oral, mouse: LD50 = 22 gm/kg
Oral, rabbit: LD50 = 10 gm/kg
Oral, rat: LD50 = 14 gm/kg.
CAS# 7726-95-6:
Inhalation, mouse: LC50 =750 ppm/9M
Inhalation, rat: LC50 =2700 mg/m3
Oral, mouse: LD50 = 3100 mg/kg
Oral, rabbit: LD50 = 4160 mg/kg
Oral, rat: LD50 = 2600 mg/kg.

Carcinogenicity:
CAS# 64-19-7: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.
CAS# 7553-56-2: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.
CAS# 7726-95-6: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

Epidemiology:
Severe eye, mucous membrane and skin irritant, skin sensitizer.

Teratogenicity:
Reproductive:

Mutagenicity:

Mutagenicity:

Neurotoxicity:

Section 12 - Ecological Information
No information found.

Section 13 - Disposal Considerations
Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Corrosive liquid, toxic, n.o.s.
(Acetic acid, Bromine)

Hazard Class: 8
UN Number: UN2922
Packing Group: PG I
US Federal

TSCA
CAS# 64-19-7 is listed on the TSCA Inventory.
CAS# 7553-56-2 is listed on the TSCA Inventory.
CAS# 7726-95-6 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ)
CAS# 64-19-7: final RQ = 5000 pounds (2270 kg)

CERCLA/SARA Section 313
Bromine is not at a high enough concentration to be reportable under Section 313.

OSHA - Highly Hazardous
CAS# 7726-95-6 is considered highly hazardous by OSHA.

US State

State Right to Know
Acetate can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Iodine can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
bromine can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

European/International Regulations

Canadian DSL/NDSL
CAS# 64-19-7 is listed on Canada's DSL List.
CAS# 7553-56-2 is listed on Canada's DSL List.
CAS# 7726-95-6 is listed on Canada's DSL List.

Canada Ingredient Disclosure List
CAS# 64-19-7 is listed on Canada's Ingredient Disclosure List.
CAS# 7553-56-2 is listed on Canada's Ingredient Disclosure List.
CAS# 7726-95-6 is listed on Canada's Ingredient Disclosure List.

MSDS Creation Date: May 27, 1998
Revision Date: September 7, 2007

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