

MSDS MATERIAL SAFETY DATA SHEET

CHEMTREC: 800-424-9300 (USA)

703-527-3887(Outside USA and Canada)

CANUTEC: 613-996-6666

From: Mallinckrodt Baker, Inc
222 Red School Lane
Phillipsburg, NJ 08865

NOTE: Use CHEMTREC and CANUTEC
phone numbers only in the event
of a chemical emergency.

Emergency Telephone Number: 908-859-2151

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

MALLINCKRODT

J. T. BAKER

Amyl Alcohol (Mixed Isomers)

1. Product Identification

Synonyms: Mixed Pentanols; Pentyl Alcohol (Mixed Isomers)

CAS No.: Not applicable to mixtures.

Molecular Weight: 88.15

Chemical Formula: C₅H₁₁OH

Product Codes:

J.T. Baker: 9032

Mallinckrodt: 2996

2. Composition/Information on Ingredients

| Ingredient ----- | CAS No ----- | Percent ----- | Hazardous ----- |
|---------------------|-----------------|------------------|--------------------|
| Amyl Alcohol | 71-41-0 | 55 - 68% | Yes |
| 2-Methylbutanol | 137-32-6 | 25 - 40% | Yes |
| Isoamyl Alcohol | 123-51-3 | 2 - 15% | Yes |

3. Hazards Identification

Emergency Overview -----

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. VAPORS CAUSE RESPIRATORY TRACT IRRITATION AND SEVERE EYE IRRITATION. LIQUID CAUSES SKIN IRRITATION, SEVERE EYE IRRITATION AND POSSIBLE EYE BURNS. AFFECTS CENTRAL NERVOUS SYSTEM.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)

Flammability Rating: 2 - Moderate

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES;
CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:

Inhalation of vapors can irritate the nose, throat, and upper respiratory passages. Higher concentrations have a narcotic effect and may cause headache, nausea, vomiting, dizziness, double vision, shortness of breath, and delirium. In severe cases, inhalation may be fatal. May cause pulmonary edema, a medical emergency. May cause heart effects.

Ingestion:

Moderately toxic by ingestion, can cause headache, nausea, delirium and methemoglobin formation in the blood. Other symptoms may parallel those from inhalation exposure. Vomiting may cause aspiration into lungs and result in chemical pneumonia.

Skin Contact:

Skin contact causes irritations and possibly burns if contact is repeated or prolonged. May be absorbed through the skin.

Eye Contact:

Vapors cause severe irritation. Symptoms may include tearing, pain, redness, swelling. Liquid contact causes severe irritation and possible burns.

Chronic Exposure:

Repeated inhalation of aerosols may result in lung and kidney injury. Chronic exposure may cause skin effects.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Flash point: 33C (91F) CC

Autoignition temperature: 300C (572F)

Flammable limits in air % by volume:

l_{el}: 1.2; u_{el}: 10.0

Listed fire data is for amyl alcohol (CAS 71-41-0). Flammable. Upper explosive limit is for 100C (212F).

Contact with strong oxidizers may cause fire.

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool. Water may be ineffective.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

J. T. Baker SOLUSORBi₂ ½ solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- AIHA Workplace Environmental Exposure Level (WEEL):
100 ppm (360 mg/m³), 8-hour, TWA

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Clear, colorless liquid.

Odor:

Characteristic odor.

Solubility:

3 %

Specific Gravity:

0.81 @ 20C/4C

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

133C (271F)

Melting Point:

No information found.

Vapor Density (Air=1):

3.0

Vapor Pressure (mm Hg):

2 @ 20C (68F)

Evaporation Rate (BuAc=1):

0.26

10. Stability and Reactivity

Stability:

Stable at room temperature in sealed containers.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition. Can form aldehydes burning in limited air.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers. Strong inorganic acids. Heat and sources of ignition.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

For amyl alcohol (CAS # 71-41-0): Oral rat LD50: 2200 mg/kg; skin rabbit LD50: > 3200 mg/kg; irritation skin rabbit, standard Draize: 3200 mg/kg/24H severe; eye rabbit, standard Draize: 81 mg/24H severe. Investigated as a mutagen.

For 2-methylbutanol (CAS # 137-32-6): Oral rat LD50: 1,000 mg/kg; Skin rabbit, LD50: 3540 uL/kg.

Isoamyl alcohol: Oral rat LD50 1300 mg/Kg; Skin rabbit LD50 3970 uL/Kg; Irritation skin rabbit 20 mg/24H moderate; Irritation eye rabbit 20 mg/24H moderate. Investigated as a tumorigen.

| Ingredient | ---NTP Carcinogen--- | | IARC Category |
|--------------------------|----------------------|-------------|---------------|
| | Known | Anticipated | |
| -----\Cancer Lists\----- | ----- | ----- | ----- |

| | | | |
|----------------------------|----|----|------|
| Amyl Alcohol (71-41-0) | No | No | None |
| 2-Methylbutanol (137-32-6) | No | No | None |
| Isoamyl Alcohol (123-51-3) | No | No | None |

12. Ecological Information

Environmental Fate:

When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material may biodegrade to a moderate extent. When released into water, this material may evaporate to a moderate extent. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: PENTANOLS

Hazard Class: 3

UN/NA: UN1105

Packing Group: III

Information reported for product/size: 375LB

International (Water, I.M.O.)

Proper Shipping Name: PENTANOLS

Hazard Class: 3

UN/NA: UN1105

Packing Group: III

Information reported for product/size: 375LB

International (Air, I.C.A.O.)

Proper Shipping Name: PENTANOLS

Hazard Class: 3

UN/NA: UN1105

Packing Group: III

Information reported for product/size: 375LB

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Amyl Alcohol (71-41-0) | Yes | Yes | Yes | Yes |
| 2-Methylbutanol (137-32-6) | Yes | Yes | Yes | Yes |
| Isoamyl Alcohol (123-51-3) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|------------|------|-------|
| Ingredient | Korea | --Canada-- | | Phil. |
| | | DSL | NDSL | |
| Amyl Alcohol (71-41-0) | Yes | Yes | No | Yes |
| 2-Methylbutanol (137-32-6) | Yes | Yes | No | Yes |
| Isoamyl Alcohol (123-51-3) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|------------|-----|--------------------|----------------|
| Ingredient | -SARA 302- | | -----SARA 313----- | |
| | RQ | TPQ | List | Chemical Catg. |
| Amyl Alcohol (71-41-0) | No | No | No | No |
| 2-Methylbutanol (137-32-6) | No | No | No | No |
| Isoamyl Alcohol (123-51-3) | No | No | No | No |

| -----\Federal, State & International Regulations - Part 2\----- | | | |
|---|--------|--------|--------|
| Ingredient | CERCLA | -RCRA- | -TSCA- |
| | | 261.33 | 8(d) |
| Amyl Alcohol (71-41-0) | No | No | No |
| 2-Methylbutanol (137-32-6) | No | No | No |
| Isoamyl Alcohol (123-51-3) | No | No | No |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
 Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: 3[Y]

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 0

Label Hazard Warning:

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. VAPORS CAUSE RESPIRATORY TRACT IRRITATION AND SEVERE EYE IRRITATION. LIQUID CAUSES SKIN IRRITATION, SEVERE EYE IRRITATION AND POSSIBLE EYE BURNS. AFFECTS CENTRAL NERVOUS SYSTEM.

Label Precautions:

Keep away from heat, sparks and flame.

Keep container closed.

Use only with adequate ventilation.

Avoid breathing vapor.

Do not get in eyes.

Avoid contact with skin and clothing.

Wash thoroughly after handling.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to

fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 14.

Disclaimer:

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Prepared by: Environmental Health & Safety

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