THE DOW CHEMICAL COMPANY
Midland, MI 48674

MATERIAL SAFETY DATA SHEET

Product Name: PRIMARY AMYL ACETATE MIXED ISOMERS
MSDS#: 526

Effective Date: 05/12/2001

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Dow encourages and expects you to read and understand the entire MSDS, as there is important information throughout the document. Dow expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

To promote safe handling, each customer or recipient should: 1) Notify its employees, agents, contractors and others whom it knows or believes will use this material of the information in this MSDS and any other information regarding hazards or safety; 2) Furnish this same information to each of its customers for the product; and 3) Request its customers to notify their employees, customers, and other users of the product of this information.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name: PRIMARY AMYL ACETATE MIXED ISOMERS
Chemical Name: Primary Amyl Acetate
Chemical Family: Esters
Formula: CH₃COOC₅H₁₁ (mixed isomers)
Synonym: None

1.2 COMPANY IDENTIFICATION

The Dow Chemical Company
Midland, MI 48674

1.3 EMERGENCY TELEPHONE NUMBER

24 hours a day: (989)636-4400.
Number for non-emergency questions concerning MSDS 1-800-258-2436.
Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.
2. COMPOSITION INFORMATION

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount (%/W/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentyl acetate</td>
<td>628-63-7</td>
<td>&lt;= 70%</td>
</tr>
<tr>
<td>2-Methyl butyl acetate</td>
<td>624-41-9</td>
<td>35 %</td>
</tr>
<tr>
<td>Isoamyl acetate</td>
<td>123-92-2</td>
<td>&lt; 0.1%</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance       Transparent colorless
Physical State   Liquid
Odor             Mild

Hazard of product WARNING! HARMFUL IF INHALED. CAUSES EYE AND SKIN IRRITATION. COMBUSTIBLE. STATIC IGNITION HAZARD CAN RESULT FROM HANDLING AND USE. MAY CAUSE DIZZINESS AND DROWSINESS.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation      May cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain, coughing, headache, nausea, vomiting, dizziness, drowsiness, disturbed vision and unconsciousness.
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Eye Contact Causes irritation, experienced as stinging and discomfort or pain.

Skin Contact Brief contact is not irritating. Prolonged or repeated contact may cause discomfort and local redness.

Skin Absorption Effects may include those described for "Swallowing".

Swallowing May cause abdominal discomfort, nausea, vomiting and diarrhea.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure No adverse effects anticipated from available information.

Other Effects of Overexposure None currently known.

Medical Conditions Aggravated by Exposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12 for Ecological information.

4. FIRST AID PROCEDURES

4.1 INHALATION
Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention.

4.2 EYE CONTACT
Immediately flush eyes with water and continue washing for several minutes. Remove contact lenses, if worn. Obtain medical attention if discomfort persists.

4.3 SKIN CONTACT
Remove contaminated clothing. Wash skin with soap and water. If irritation persists or if contact has been prolonged, obtain medical attention.

4.4 SWALLOWING
5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash Point - Closed Cup: Tag Closed Cup ASTM D 56 38 °C 101 °F
Flash Point - Open Cup: Tag Open Cup ASTM D 1310 41 °C 106 °F
Autoignition Temperature: Not currently available.

Flammable Limits in Air:
- Lower: 1.1 % (V)
- Upper: 7.5 % (V)

5.2 EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer’s recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 EXTINGUISHING MEDIA TO AVOID

No information currently available.

5.4 SPECIAL FIRE FIGHTING PROCEDURES

No information currently available.

5.5 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus and protective clothing.

5.6 UNUSUAL FIRE AND EXPLOSION HAZARDS

Avoid splash filling of containers when handling this flammable liquid because static electricity may be generated. Use proper bonding and grounding during product transfer as described in National Fire Protection Association Document NFPA 77.
Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association Document NFPA 77.

This material may produce a floating fire hazard in extreme fire conditions.

5.7 HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products: Carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled. Carbon dioxide in sufficient concentrations can act as an asphyxiant.

6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled:
Collect for disposal.

Personal Precautions: Wear suitable protective equipment. See Section 8.2 - Personal Protection.

Environmental Precautions: This product may be toxic to fish; avoid discharge to natural waters.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling
Avoid breathing vapor.
Avoid contact with eyes, skin, and clothing.
Keep away from heat and flame.
Electrically bond and ground all containers, personnel and equipment before transfer or use of material.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FOR INDUSTRY USE ONLY.

Ventilation
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General (mechanical) room ventilation is expected to be satisfactory where this product is stored and handled in closed equipment. Special, local ventilation is needed at points where vapor can be expected to escape to the workplace air.

Other Precautions

This product is a poor conductor of electricity and can become electrostatically charged during handling and use (for example, during mixing, filtering or pumping). If this charge reaches a sufficiently high level, static discharges or sparks capable of causing ignition might occur.

7.2 STORAGE

Additional storage and handling information is available from the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limits</th>
<th>Skin Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentyl acetate</td>
<td>50 ppm TWA8 ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 ppm STEL ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 ppm TWA8 OSHA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>525 mg/m3 TWA8 OSHA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 ppm TWA8 US-UCC</td>
<td></td>
</tr>
<tr>
<td>2-Methyl butyl acetate</td>
<td>50 ppm TWA8 ACGIH</td>
<td></td>
</tr>
<tr>
<td>isoamyl acetate</td>
<td>100 ppm STEL ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 ppm TWA8 OSHA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>525 mg/m3 TWA8 OSHA</td>
<td></td>
</tr>
</tbody>
</table>

In the Exposure Limits Chart above, if there is no specific qualifier (i.e., Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.
8.2 PERSONAL PROTECTION

Respiratory Protection:
Use self-contained breathing apparatus in high vapor concentrations.

Ventilation:
General (mechanical) room ventilation is expected to be satisfactory where this product is stored and handled in closed equipment. Special local ventilation is needed at points where vapor can be expected to escape to the workplace air.

Eye Protection:
Monogoggles

Protective Gloves:
Butyl

Other Protective Equipment:
Eye Bath, Safety Shower

8.3 ENGINEERING CONTROLS

PROCESS HAZARD: Sudden release of hot organic chemical vapor or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapor."

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Transparent colorless

pH: Not currently available.

Solubility in Water (by weight): 20 °C 0.2 %
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Odor: Mild

Flash Point - Closed Cup: Tag Closed Cup ASTM D 56 38 °C 101 °F
Flash Point - Open Cup: Tag Open Cup ASTM D 1310 41 °C 106 °F

Percent Volatiles: 100 Wt%
Molecular Weight: 130.19 g/mol

Boiling Point (760 mmHg): 146 °C 294.8 °F
Freezing Point: Sets to glass < -100 °C < -148 °F
Specific Gravity (H2O = 1): 0.8757 20 °C / 20 °C
Vapor Pressure at 20°C: 0.5 kPa 4 mmHg
Vapor Density (air = 1): 4.5
Evaporation Rate (Butyl Acetate = 1): 0.5
Melting Point: Not applicable.

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable

Incompatible Materials: Strong oxidizing agents, Nitric acid, Sodium hydroxide, Alkali metal hydroxides.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

10.3 INHIBITORS/STABILIZERS Not applicable.
11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

Rat; LD50 = 19.7 (14.3 - 27.1) ml/kg

Percutaneous

Rabbit = 20 ml/kg; 24 hr occluded contact.
Mortality: 1/4
Major Signs: weight loss among survivors
Gross Pathology: None.

Inhalation

dynamic generation of vapor Rat; 4 hour (5200 - 6100) ppm; Room temperature
Mortality: 0/6
Major Signs: narcosis after 2 hr
Gross Pathology: None.

Inhalation

dynamic generation of vapor Rat; 8 hour (5200 - 6100) ppm; Room temperature
Mortality: 6/6
Major Signs: narcosis after 2 hr
Gross Pathology: None.
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IRRITATION

Skin: Rabbit, 24 h uncovered
Results: no irritation in 3/5
Skin: Rabbit, 24 h uncovered
Results: moderate-marked erythema in 2/5

Eye: Rabbit; 0.5 ml
Results: minor corneal injury

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS
Exposure of pregnant rats to primary amyl acetate vapor at 1000 ppm and greater resulted in maternal toxicity and evidence of delayed development. Exposure of pregnant rabbits to primary amyl acetate vapor at 1500 ppm resulted in maternal toxicity. However, no evidence of fetotoxicity or developmental toxicity was observed.

12. ECOLOGICAL INFORMATION

12.1 ENVIRONMENTAL FATE

BOD (% Oxygen consumption)

<table>
<thead>
<tr>
<th></th>
<th>Day 5</th>
<th>Day 10</th>
<th>Day 15</th>
<th>Day 20</th>
<th>Day 30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>84 %</td>
<td>76 %</td>
<td>72 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2 ECOTOXICITY

Toxicity to Fish
Fathead Minnow; 96 h; LC50
Result value: 69 mg/l

12.3 FURTHER INFORMATION

Theoretical Oxygen Demand (THOD) - measured: 2.22 mg/mg
13. DISPOSAL CONSIDERATIONS

13.1 WASTE DISPOSAL METHOD

Incinerate in a furnace where permitted under Federal, State, and local regulations. Dispose in accordance with all applicable Federal, State, and local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

13.2 DISPOSAL CONSIDERATIONS

See Section 13.1

Disposal methods identified are for the product as sold. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permissible under applicable rules, regulations and/or laws governing your location.

14. TRANSPORT INFORMATION

14.1 U.S. D.O.T.

NON-BULK
Proper Shipping Name: NOT REGULATED

BULK
Proper Shipping Name: AMYL ACETATES
Hazard Class: 3
ID Number: UN1104
Packing Group: PG III

Reportable Quantity: 8,333 LB

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.
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15. REGULATORY INFORMATION

15.1 FEDERAL/NATIONAL

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 SECTION 103 (CERCLA)

The following components of this product are specifically listed as hazardous substances in 40 CFR 302.4 (unlisted hazardous substances are not identified) and are present at levels which could require reporting:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pentyl acetate</td>
<td>626-63-7</td>
<td>&lt;= 65.0000%</td>
</tr>
<tr>
<td>isoamyl acetate</td>
<td>123-82-2</td>
<td>&lt;= 0.2000%</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>&lt;= 390.0000PPB</td>
</tr>
</tbody>
</table>

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 302 AND 304

The following components of this product are listed as extremely hazardous substances in 40 CFR Part 355 and are present at levels which could require reporting and emergency planning:

None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTION 313

The following components of this product are listed as toxic chemicals in 40 CFR 372.65 and are present at levels which could require reporting and customer notification under Section 313 and 40 CFR Part 372:

This product does not contain toxic chemicals at levels which require reporting under the statute.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EPCRA) SECTIONS 311 AND 312

Delayed (Chronic) Health Hazard : Yes
Fire Hazard : Yes
Immediate (Acute) Health Hazard : Yes
Reactive Hazard : No
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Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)
The components of this product are on the EINECS inventory or are exempt from EINECS inventory requirements.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)
The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)
This product is subject to the Worker and Community Right-to-Know Act. The following components of this product are at levels which could require identification in the MSDS:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pentyl acetate</td>
<td>528-63-7</td>
<td>&lt;= 65.0000%</td>
</tr>
</tbody>
</table>

MASSACHUSETTS (HAZARDOUS SUBSTANCES DISCLOSURE BY EMPLOYERS)
The following components of this product appear on the Massachusetts Substance List and are present at levels which could require identification in the MSDS:

<table>
<thead>
<tr>
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<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
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<td>528-63-7</td>
<td>&lt;= 65.0000%</td>
</tr>
</tbody>
</table>

NEW YORK (HAZARDOUS SUBSTANCES BULK STORAGE ACT)
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New York State Bulk Storage Regulations (6 NYCRR Parts 595-569) This product is covered by 6 NYCRR for bulk storage and release reporting and response. Technical guidance and recommended practices are as follows: MATERIALS OF CONSTRUCTION - Suitable materials of construction are: Steel, stainless steel, aluminum, baked phenolic lined steel, galvanized steel, copper and copper alloys. Materials not to be used: Polyvinyl Chloride. STORAGE SYSTEM DESIGN - Design should comply with applicable industry, Federal, and local codes for a Class II Combustible liquid with regards to mechanical, electrical, safety and health components. Should also comply with the current versions of the applicable reference documents cited in NYS/DEC Chemical Bulk Storage Regulations Sections 598.3 to 598.6 (for existing tanks) or Sections 599.2 and 599.7 (for new or substantially modified tanks). CONDITIONS FOR STORAGE - Store at normal ambient temperatures. INSPECTION AND MAINTENANCE - A testing/inspection program which ensures structural integrity and proper system operation should be established. Inspection and maintenance procedures and testing of equipment should comply with NYS/DEC Regulations Sections 598.7 to 598.10. TRANSFER AND UNLOADING - These operations should comply with NYS/DEC Regulations, Section 598.5. See also other sections of this MSDS.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Component | CAS # | Amount
--- | --- | ---
Benzene | 71-43-2 | <= 300.000PPB

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Vapor pressure 4.0 mmHg @ 20 °C
874 g/l

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION
16.1 AVAILABLE LITERATURE AND BROCHURES

Additional information on this product may be obtained by calling the Union Carbide Corporation Customer Service Center at 1-800-568-4000.

16.2 SPECIFIC HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 1  F - 2  R - 0
HMIS ratings for this product are: H - 2  F - 2  R - 0

These ratings are part of specific hazard communications program(s) and should be disregarded where individuals are not trained in the use of these hazard rating systems. You should be familiar with the hazard communication applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS

FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 5.
Revision: 06/12/2001
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

16.5 LEGEND

A Asphyxiant
Bacterial/NA Non Acclimated Bacteria
F Fire
H Health
HMIS Hazardous Materials Information System
N/A Not available
NFPA National Fire Protection Association
O Oxidizer
P Peroxide Former
R Reactivity
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<table>
<thead>
<tr>
<th>TS</th>
<th>VOL/VOL</th>
<th>W</th>
<th>W/W</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trade Secret</td>
<td>Volume/Volume</td>
<td>Water Reactive</td>
</tr>
</tbody>
</table>

NOTICE: The Dow Chemical Company ("DOW") urges each customer or recipient of this MSDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this MSDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer’s/user’s responsibility to ensure that its activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of Dow, it is the buyer’s/user’s duty to determine the conditions necessary for the safe use of this product.