Brenntag Canada Inc.

BRENNTAG

MATERIAL SAFETY DATA SHEET

PRIMARY AMYL ACETATE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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WHMIS#: 00060038
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EMERGENCY TELEPHONE NUMBER (For Emergencies Involving Chemical Spills or Releases)

1 855 273 6824

PRODUCT IDENTIFICATION

Product Name:	Primary Amyl Acetate.
Chemical Name:	Not applicable.
Synonyms:	Primary Amyl Acetate, Mixed Isomers.
Chemical Family:	Esters.
Molecular Formula:	C7H14O2.
Product Use:	Industrial Acid. Chemical intermediate.

WHMIS Classification / Symbol:

B-3: Combustible Liquid
D-2B: Toxic (skin and eye irritant)

READ THE ENTIRE MSDS FOR THE COMPLETE HAZARD EVALUATION OF THIS PRODUCT.

2. COMPOSITION, INFORMATION ON INGREDIENTS (Not Intended As Specifications)

Ingredient	*CAS#*	*ACGIH TLV (TWA)*	*% Concentration*
n-Amyl Acetate	628-63-7	50 ppm	60 - 70
2-Methylbutyl Acetate	624-41-9	50 ppm	30 - 40

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:	Harmful if inhaled or swallowed. Mists or sprays are irritating to eyes and respiratory tract. High vapour concentrations may cause drowsiness. May cause teratogenic effects. See "Other Health Effects" Section. Combustible liquid and vapour. May cause flash fire or explosion. Can decompose at high temperatures forming toxic gases. Contents may develop pressure on prolonged exposure to heat.

POTENTIAL HEALTH EFFECTS

Inhalation:	Product is irritating to the nose, throat and respiratory tract. Contact with mist or spray may cause irritation of mucous membranes, coughing and difficulty in breathing. See "Other Health Effects" Section.
Skin Contact:	Skin contact can cause irritation, especially under the finger nails (and other confined spaces such as under rings or watch bands). Prolonged and repeated contact may lead to dermatitis.
Skin Absorption:	A single, prolonged skin exposure is not likely to result in the absorption of toxic amounts of the material.
Eye Contact:	This product causes irritation, redness and pain. May cause corneal damage and conjunctivitis.

Ingestion:	Ingestion of large amounts may cause nausea, gastrointestinal upset and abdominal pain.
Other Health Effects:	Effects (irritancy) on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential. Primary Amyl Acetate: May cause corneal damage, optic nerve damage, vocal cord damage, bronchitis, spleen damage, accelerated heart rate, weight loss, central nervous system (CNS) depression, liver damage and kidney damage. CNS depression is characterized by headache, dizziness, drowsiness, nausea, vomiting and incoordination. Severe overexposures may lead to coma and possible death due to respiratory failure. Liver damage is characterized by the loss of appetite, jaundice (yellowish skin colour), and occasional pain in the upper left-hand side of the abdomen. Signs and symptoms of kidney damage generally progress from oliguria, to blood in the urine, to total renal failure.

4. FIRST AID MEASURES

FIRST AID PROCEDURES

Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.
Skin Contact:	Wash affected areas thoroughly with soap and water. If irritation, redness, or a burning sensation develops and persists, obtain medical advice. If irritation, redness, or a burning sensation develops and persists, repeat flushing and obtain medical attention.
Eye Contact:	Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. Take care not to rinse contaminated water into the unaffected eye or onto the face. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.
Ingestion:	Do not attempt to give anything by mouth to an unconscious person. If victim is alert and not convulsing, rinse mouth out and give 1/2 to 1 glass of water to dilute material. IMMEDIATELY contact local Poison Control Centre. Vomiting should only be induced under the direction of a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.
Note to Physicians:	Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Vasopressor drugs (e.g. epinephrine, ephedrine etc.) should not be given on their own as there may be danger of cardiac arrhythmia. (7) Medical conditions that may be aggravated by exposure to this product include neurological and cardiovascular disorders, diseases of the skin, eyes or respiratory tract, preexisting liver and kidney disorders. This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed.

5. FIRE-FIGHTING MEASURES

Flashpoint (°C)	***AutoIgnition Temperature (°C)***	**Flammability Limits in Air (%):** ***LEL***	***UEL***
38 (3)	360 - 380 (4)	1.1 (3)	7.5 (3)

Flammability Class (WHMIS):	B-3: Combustible Liquid
Hazardous Combustion Products:	Thermal decomposition products are toxic and may include oxides of carbon and irritating gases.
Unusual Fire or Explosion Hazards:	Vapours from this product are heavier than air, and may "travel" to a source of ignition (eg. pilot lights, heaters, electric motors) some distance away, and then "flash back" to the point of product discharge causing an explosion and fire. Closed containers exposed to heat may explode. Spilled material may cause floors and contact surfaces to become slippery. Enforce NO SMOKING rules in area of use.
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.
Rate of Burning:	Not available.
Explosive Power:	Not available.

Sensitivity to Static Discharge:	Expected to be sensitive to static discharge when vapours are present between the lower and upper explosive limits.

EXTINGUISHING MEDIA

Fire Extinguishing Media:	Foam. Use carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of a fog. This material may produce a floating fire hazard in extreme fire conditions.

FIRE FIGHTING INSTRUCTIONS

Instructions to the Fire Fighters:	Use water spray to cool fire-exposed containers or structures. Use water spray to disperse vapours; re-ignition is possible. Isolate materials that are not involved in the fire and protect personnel. Cool containers with flooding quantities of water until well after the fire is out.
Fire Fighting Protective Equipment:	Use self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Information in this section is for responding to spills, leaks or releases in order to prevent or minimize the adverse effects on persons, property and the environment. There may be specific reporting requirements associated with spills, leaks or releases, which change from region to region.

Containment and Clean-Up Procedures:	In all cases of leak or spill contact vendor at Emergency Number shown on the front page of this MSDS. Wear protective clothing. Recover spilled material on non-combustible absorbents, such as sand or vermiculite, and place in covered containers for disposal. Eliminate all sources of ignition. Collect product for recovery or disposal. For release to land, or storm water runoff, contain discharge by constructing dikes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment.

7. HANDLING AND STORAGE

HANDLING

Handling Practices:	Ground and bond equipment and containers to prevent a static charge buildup. Use spark-resistant tools and avoid "splash-filling" of containers. Use normal "good" industrial hygiene and housekeeping practices. Containers exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn. Vent container frequently, and more often in warm weather, to relieve pressure. Enforce NO SMOKING rules in area of use.
Ventilation Requirements:	See Section 8, "Engineering Controls".
Other Precautions:	Use only with adequate ventilation and avoid breathing vapours or mists. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use. Do not use cutting or welding torches on empty drums that contained this material/product. Store wiping rags and similar material in metal cans with tight fitting lids.

STORAGE

Storage Temperature (°C):	See below.
Ventilation Requirements:	Ventilation should be explosion proof.
Storage Requirements:	Store in a cool, well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Do not expose sealed containers to temperatures above 40° C. Protect from direct sunlight. Protect against physical damage.
Special Materials to be Used for Packaging or Containers:	Confirm suitability of any material before using. Attacks some types of rubber, plastics and coatings.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Recommendations listed in this section indicate the type of equipment, which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

ENGINEERING CONTROLS

Engineering Controls:	Local exhaust ventilation required. Ventilation should be explosion proof. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense vapours may collect. For personnel entry into confined spaces (i.e. bulk storage tanks) a proper procedure must be followed. It must include consideration of, among other things, ventilation, testing of tank atmosphere, provision and maintenance of SCBA, and emergency rescue. Use the "buddy" system. The second person should be in view and trained and equipped to execute a rescue. (6)
PERSONAL PROTECTIVE EQUIPMENT (PPE)	
Eye Protection:	Safety glasses with side shields are recommended to prevent eye contact. Use full face-shield or chemical safety goggles when there is potential for contact. Contact lenses should not be worn when working with this material.
Skin Protection:	Gloves and protective clothing made from butyl rubber or polyvinyl alcohol (PVA) should be impervious under conditions of use. Prior to use, user should confirm impermeability. Attacks some types of rubber, plastics and coatings. Discard contaminated gloves. Destroy contaminated leather articles including shoes; these cannot be decontaminated. (3)
Respiratory Protection:	No specific guidelines available. Do not use compressed oxygen in hydrocarbon atmospheres. A NIOSH/MSHA-approved air-purifying respirator equipped with organic vapour cartridges for concentrations up to 500 ppm. An air-supplied respirator if concentrations are higher or unknown. If while wearing a respiratory protection, you can smell, taste or otherwise detect anything unusual, or in the case of a full facepiece respirator you experience eye irritation, leave the area immediately. Check to make sure the respirator to face seal is still good. If it is, replace the filter, cartridge or canister. If the seal is no longer good, you may need a new respirator. (6) Immediately Dangerous to Life and Health (IDLH) value: 1 000 ppm (n-Amyl Acetate). The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory equipment. In the event of failure of respiratory protective equipment, every effort should be made to exit immediately. (4)
Other Personal Protective Equipment:	Wear an impermeable apron and boots. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact. Clothing and footwear that is fire retardant and dissipates static electrical charges should be worn when handling flammable materials. Natural fibers (cotton, wool, leather and linen) should be selected in favour of synthetic materials (rayon, nylon and polyester).

EXPOSURE GUIDELINES

SUBSTANCE	***ACGIH TLV***	***OSHA PEL***		***NIOSH REL***	
	(STEL)	***(TWA)***	***(STEL)***	***(TWA)***	***(STEL)***
n-Amyl Acetate	100 ppm	100 ppm	---	100 ppm	---

9. PHYSICAL AND CHEMICAL PROPERTIES (Not intended as Specifications)

Physical State:	Liquid.
Appearance:	Clear, colourless liquid.
Odour:	Mild odour.
Odour Threshold (ppm):	Not available.
Boiling Range (°C):	146 - 149
Melting/Freezing Point (°C):	< -100
Vapour Pressure (mm Hg at 20° C):	4.0 - 5.0
Vapour Density (Air = 1.0):	4.5
Relative Density (g/cc):	0.87 - 0.88
Bulk Density:	870 - 880 kg/m³.
Viscosity:	0.9 cPs (20 °C)
Evaporation Rate (Butyl Acetate = 1.0):	0.5
Solubility:	Slightly soluble in water.
% Volatile by Volume:	Not available.
pH:	Not available.
Coefficient of Water/Oil Distribution:	2.42
Volatile Organic Compounds (VOC):	874 g/L
Flashpoint (°C):	38 (3)

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Under Normal Conditions:	Stable.
Under Fire Conditions:	Flammable.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames and all other sources of ignition. Keep tightly closed to protect quality.
Materials to Avoid:	Strong oxidizing and reducing agents. Strong acids. Strong bases. Nitric Acid. Sodium Hydroxide. Alkali metals and their hydroxides. Potassium tert-Butoxide.
Decomposition or Combustion Products:	Thermal decomposition products are toxic and may include oxides of carbon and irritating gases.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

SUBSTANCE	***LD50 (Oral, Rat)***	***LD50 (Dermal, Rabbit)***	***LC50 (Inhalation, Rat, 4h)***
n-Amyl Acetate	> 1 600 mg/kg (1)	---	---

Carcinogenicity Data:	The ingredient(s) of this product is (are) not classed as carcinogenic by ACGIH, IARC, OSHA or NTP.
Reproductive Data:	No adverse reproductive effects are anticipated.
Mutagenicity Data:	No adverse mutagenic effects are anticipated.
Teratogenicity Data:	No adverse teratogenic effects are anticipated.
Respiratory / Skin Sensitization Data:	Amyl Acetate produced mild allergic response in one study with guinea pigs. (4)
Synergistic Materials:	None known.
Other Studies Relevant to Material:	Rabbits experienced mild eye injury when exposed to 0.005 mL mixed Amyl Acetate. Damage to nerve fibers and cells of the optic nerve resulted in six rabbits following exposure to 7,500 ppm mixed Amyl Acetate for 60 days for a duration of 2 hours/day. (4) When 0.01 mL was applied to rabbit skin, the observed effect was mild to moderate irritation after 24 hours. Guinea pigs that had filter paper saturated with mixed Amyl Acetate placed onto the skin for 24 hours had minimal irritation. (4) Fatty degeneration of the liver and signs of kidney damage were observed in a cat exposed by inhalation to 1,900 ppm mixed Amyl Acetate for 6 hours/day for 6 days. Rats exposed to concentrated mixed Amyl Acetate vapours for 4 hours produced no deaths. (4) In long term studies, rabbits exposed to 4,900 ppm mixed Amyl Acetate vapours for 1 hour a day and 40 days had: fatty degeneration of the liver, damage to the heart tissue, spleen and kidney damage, and bronchitis. Likewise, other studies have found that exposure to 7,500 ppm for 2 months at 2 hours/day resulted in damage to heart tissues but no other abnormalities. It has been postulated that impurities may have been present in the Amyl Acetate which consequently lead to the organ injuries. (4) Workers exposed chronically to mixed Amyl Acetate became accustomed to the irritating effects. Corneal damage was not observed, however there was swelling of the eyelids. In some rare instances optic nerve damage has been reported and in one case this damage was reversible. (4) Human exposure to 100 ppm mixed Amyl Acetate for 3 - 5 minutes experienced slight discomfort of the throat. At higher levels (200 ppm) the irritation was severe. Symptoms observed in workers exposed to 950 to 1,000 ppm were: nose and throat irritation, breathing difficulties, increased heart rate, and symptoms of central nervous depression. Furthermore, stomach aches, headaches, drowsiness, loss of weight and appetite were experienced. In one severe case of exposure, there was vocal cord ulceration, fluid accumulation in the vocal cords and death. (4)

12. ECOLOGICAL INFORMATION

Ecotoxicity:	Low acute toxicity to aquatic organisms. Amyl Acetate: Fish toxicity: 48-hour TLm = 120 ppm (Daphnia). Fish toxicity: 96-hour TLm = 180 ppm (Scenedesmus). 96-hour LC50 (Fathead Minnow) = 69 mg/L.
Environmental Fate:	Can be hazardous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. Amyl Acetate: Biochemical Oxygen Demand (BOD): 64 %, 5 Days; 76 %, 10 Days; 72 %, 20 Days. Theoretical Oxygen Demand (THOD) = 2.22 mg/mg (measured). Theoretical Oxygen Demand (THOD) = 2.33 mg/mg (calculated).

13. DISPOSAL CONSIDERATIONS

Deactivating Chemicals:	None required.
Waste Disposal Methods:	Reevaluation of the product may be required by the user at the time of disposal since the product uses, transformations, mixtures and processes may influence waste classification. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.
Safe Handling of Residues:	See "Waste Disposal Methods".
Disposal of Packaging:	Empty containers retain product residue (liquid and/or vapour) and can be dangerous. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. Do not expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death. Do not dispose of package until thoroughly washed out.

14. TRANSPORTATION INFORMATION

CANADIAN TDG ACT SHIPPING DESCRIPTION:

AMYL ACETATES, Class 3, UN1104, PG III.

Label(s): Flammable Liquids. Placard: Flammable Liquids.

ERAP Index: -----. Exemptions: This product is not regulated in container sizes less than 450 L.

US DOT CLASSIFICATION (49CFR 172.101, 172.102):

AMYL ACETATES, Class 3, UN1104, PG III.

Label(s): Flammable Liquid. Placard: Flammable Liquid.

CERCLA-RQ: Not applicable. Exemptions: This product is not regulated in container sizes less than 450 L.

15. REGULATORY INFORMATION

CANADA

CEPA - NSNR:	All components of this product are included on the DSL.
CEPA - NPRI:	Not included.

Controlled Products Regulations Classification (WHMIS):

USA

Environmental Protection Act:	All components of this product are included on the TSCA inventory.
OSHA HCS (29CFR 1910.1200):	Combustible Liquid. Skin and Eye Irritant.

NFPA: Health, Fire, Reactivity (Not available.)

HMIS: 2 Health, 2 Fire, 0 Reactivity (6)

16. OTHER INFORMATION

REFERENCES

1. RTECS-Registry of Toxic Effects of Chemical Substances, Canadian Centre for Occupational Health and Safety RTECS database.
2. Clayton, G.D. and Clayton, F.E., Eds., Patty's Industrial Hygiene and Toxicology, 3rd ed., Vol. IIA,B,C, John Wiley and Sons, New York, 1981.
3. Supplier's Material Safety Data Sheet(s).
4. CHEMINFO chemical profile, Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.
5. Guide to Occupational Exposure Values, 2011, American Conference of Governmental Industrial Hygienists, Cincinnati, 2011.
6. Regulatory Affairs Group, Brenntag Canada Inc.
7. The British Columbia Drug and Poison Information Centre, Poison Managements Manual, Canadian Pharmaceutical Association, Ottawa, 1981.
8. NFPA 325M Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, 1994 Edition, Quincy, MA, 1994.

To obtain revised copies of this or other Material Safety Data Sheets, contact your nearest Brenntag Canada Regional office.

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