



Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300 or 202-483-7616

## MATERIAL SAFETY DATA SHEETS

PartNumber/TradeName: **FUSEL OIL**

This MSDS is valid for all grades and catalog numbers

### General Information

Company's Name: PHARMCO PRODUCTS, INC.

Company's Street: 58 VALE RD.

Company's City: BROOKFIELD

Company's State: CT

Company's Zip Code: 06804

Company's Emerg Ph #: (203) 740-3471

Company's Info Ph #: (203) 740-3471

Date MSDS Revised: 12/00

Safety Data Review Date: 12/00

Preparer's Company: PHARMCO PRODUCTS, INC.

Preparer's St Or P. O. Box: 58 VALE RD.

Preparer's City: BROOKFIELD

Preparer's State: CT

Preparer's Zip Code: 06804

### Ingredients/Identity Information

Ingredient: 1-Pentanol (1-AMYL ALCOHOL)

Formula:  $C_5H_{11}OH$

May contain up to 38% 2-methyl butanol and/or other isomers.

Ingredient CAS: Pentanol 71-41-0

Ingredient CAS: 2-Methyl Butanol 137-32-6

### Physical/Chemical Characteristics

Appearance And Odor: TRANSPARENT COLORLESS, MILD ODOR

Physical State: LIQUID

pH: NOT CURRENTLY AVAILABLE

Boiling Point (760 mmHg): 133.2°C, 271.8°F

Melting Point: -79°C

Vapor Pressure @ 20°C: 0.29 kPa 2.2 MMHg

Vapor Density (Air=1): 3

Specific Gravity (H<sub>2</sub>O = 1): 0.815 20°C/68°F

Evaporation Rate (Butyl Acetate = 1): 0.3  
Solubility In Water (Wt %): 20°C, 2.7%  
Percent Volatiles : 100 Wt%  
Molecular Weight: 88.15 g/mol

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**Hazard Identification**  
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DANGER! CAUSES EYE AND SKIN IRRITATION. HARMFUL AND IRRITATING IF SWALLOWED. HARMFUL IF INHALED. COMBUSTIBLE. ASPIRATION MAY CAUSE LUNG DAMAGE. MAY CAUSE DIZZINESS AND DROWSINESS.

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**Fire and Explosion Hazard Data**  
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Flash Point-Closed Cup: TAG CLOSED CUP  
ASTM D56 33C  
Flash Point-Open Cup: TAG OPEN CUP  
ASTM D1310 51°C 123°F  
Autoignition Temperature: 300 C

Flammable Limits In Air: LOWER 1.2% (V)  
UPPER 10.0%  
Extinguishing Media: APPLY ALCOHOL-  
TYPE OR ALL-PURPOSE-TYPE FOAM BY  
MANUFACTURER'S RECOMMENDED  
SMALL FIRES  
Extinguishing Media To Avoid: NO  
INFORMATION CURRENTLY AVAILABLE

Special Fire Fighting Procedures: NO  
INFORMATION CURRENTLY AVAILABLE  
Unusual Fire And Expl Hazards: SEE  
SECTION 8.3 –ENGINEERING CONTROLS.  
THIS MATERIAL MAY PRODUCE A  
FLOATING FIRE HAZARD IN EXTREME  
FIRE CONDITIONS.  
Special Protective Equipment For Firefighters:  
USE SELF-CONTAINED BREATHING  
APPARATUS AND PROTECTIVE  
CLOTHING.

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  
ASPHYXIAN.

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**Reactivity Data**  
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Stability: STABLE  
Materials To Avoid: STRONG OXIDIZING AGENTS. STRONG INORGANIC ACIDS.  
Hazardous Polymerization: WILL NOT OCCUR  
Inhibitors/Stabilizers: NOT APPLICABLE

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**Health Hazard Data**  
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**SINGLE ACCUTE OVEREXPOSURE:**

**Route Of Entry - Inhalation:** INHALATION MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT, EXPERIENCED AS NASAL DISCOMFORT AND DISCHARGE, WITH CHEST PAIN, COUGHING, HEADACHE, NAUSEA, VOMITING, DIZZINESS, AND DROWSINESS. PROLONGED OVEREXPOSURE TO HIGH CONCENTRATIONS OF VAPOR MAY RESULT IN THE INHALATION OF HARMFUL AMOUNTS OF MATERIAL.

**Route Of Entry – Eyes:** LIQUID CAUSES SEVERE IRRITATION, EXPERIENCED AS DISCOMFORT OR PAIN, EXCESS BLINKING AND TEAR PRODUCTION, MARKED EXCESS REDNESS AND SWELLING OF THE CONJUNCTIVA, AND CHEMICAL BURNS OF THE CORNEA. VAPOR OR MIST MAY BE IRRITATING ALSO, EXPERIENCED AS DISCOMFORT OR PAIN, EXCESS BLINKING AND TEAR PRODUCTION, WITH MARKED EXCESS REDNESS OF THE CONJUNCTIVA.

**Route Of Entry - Skin:** **BRIEF CONTACT** MAY CAUSE SLIGHT IRRITATION WITH ITCHING AND LOCAL REDNESS. PROLONGED CONTACT MAY CAUSE MORE SEVERE IRRITATION, WITH DISCOMFORT OR PAIN, LOCAL REDNESS AND SWELLING, AND POSSIBLE TISSUE DESTRUCTION. **SKIN ABSORPTION** – PROLONGED OR WIDESPREAD CONTACT MAY RESULT IN THE ABSORPTION OF POTENTIALLY HARMFUL AMOUNTS OF MATERIAL. EFFECTS MAY INCLUDE THOSE DESCRIBED FOR SWALLOWING.

**Route Of Entry - Ingestion:** (SWALLOWING) MODERATELY TOXIC. MAY CAUSE ABDOMINAL DISCOMFORT, NAUSEA, VOMITING, AND DIARRHEA. HEADACHE MAY OCCUR. DIZZINESS AND DROWSINESS MAY OCCUR. LOSS OF CONSCIOUSNESS MAY OCCUR. ASPIRATION INTO THE LUNGS MAY OCCUR DURING INGESTION OR VOMITING, RESULTING IN LUNG INJURY.

**CHRONIC, PROLONGED OR REPEATED OVEREXPOSURE:**

Signs/Symptoms Of Overexposure: REPEATED INHALATION OF AEROSOLS MAY RESULT IN PULMONARY EDEMA AND KIDNEY INJURY. OTHER EFFECTS OF OVEREXPOSURE – NONE CURRENTLY KNOWN.

Medical Conditions Aggravated By Exposure: SKIN CONTACT MAY AGGRAVATE AN EXISTING DERMATITIS. INHALATION OF MATERIAL MAY AGGRAVATE ASTHMA AND INFLAMMATORY OR FIBROTIC PULMONARY DISEASE.

**Emergency/First Aid Procedures:**

**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.

**Eye Contact:** IMMEDIATELY FLUSH EYES WITH WATER AND CONTINUE WASHING FOR AT LEAST 15 MINUTES. **DO NOT** REMOVE CONTACT LENSES, IF WORN. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPHTHALMOLOGIST.

**Skin Contact:** IMMEDIATELY REMOVE CONTAMINATED CLOTHING AND SHOES. WASH SKIN THOROUGHLY WITH SOAP AND WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, WASH CLOTHING BEFORE REUSE. DISCARD CONTAMINATED LEATHER ARTICLES SUCH AS SHOES AND BELT.

**Swallowing:** IF PATIENT IS FULLY CONSCIOUS, GIVE TWO GLASSES OF WATER. DO NOT INDUCE VOMITING. OBTAIN MEDICAL ATTENTION.

**Notes To Physician:** THERE IS NO SPECIFIC ANTIDOTE. TREATMENT OF OVEREXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION OF THE PATIENT.

DUE TO THE IRRITATING NATURE OF THE MATERIAL, ANY ASPIRATION DURING VOMITING COULD RESULT IN SEVERE LUNG INJURY, THEREFORE, EMESIS SHOULD NOT BE INDUCED MECHANICALLY OR PHARMACOLOGICALLY. HOWEVER, THE ACUTE PERORAL SYSTEMIC TOXICITY OF THE MATERIAL INDICATES THAT EVACUATION OF THE STOMACH CONTENTS SHOULD BE UNDERTAKEN AT THE EARLIEST POSSIBLE TIME BY MEANS CARRYING THE LEAST LIKELIHOOD OF ASPIRATION (e.g., THE USE OF GASTRIC LAVAGE WITH ENDOTRACHEAL INTUBATION).

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### Precautions for Safe Handling and Use

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**Steps If Material Released/Spill:** SMALL SPILLS CAN BE FLUSHED WITH LARGE AMOUNTS OF WATER; LARGER SPILLS SHOULD BE COLLECTED FOR DISPOSAL.

**Precautions-Handling/Storing:** DO NOT GET IN EYES, ON SKIN, ON CLOTHING. DO NOT SWALLOW. AVOID BREATHING VAPOR AND AEROSOL. KEEP AWAY FROM HEAT AND FLAME. KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. FOR INDUSTRY USE ONLY.

**Personal Precautions:** AVOID CONTACT WITH EYES. WEAR SUITABLE PROTECTIVE EQUIPMENT.

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### Control Measures

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**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 VAPORS CAN BE EXPECTED TO ESCAPE TO THE WORKPLACE AIR.

**Protective Gloves:** NEOPRENE, NITRILE (NBR)

**Eye Protection:** MONOGOGGLES

**Other Protective Equipment:** CHEMICAL APRON, EYE BATH, SAFETY SHOWER.

**Engineering Controls-Process Hazard:** SUDDEN RELEASE OF HOT ORGANIC CHEMICAL VAPORS OR MISTS FROM PROCESS EQUIPMENT OPERATING AT ELEVATED TEMPERATURE AND PRESSURE, OR 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 VAPORS."

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### Toxicological Information

#### Acute Toxicity

**Peroral:** RAT LD50 3880 (3340-4510) MG/KG 10% DILUTION IN CORN OIL

Major Signs: PROSTRATION, TREMORS

Gross Pathology: LUNGS, LIVER, GASTROINTESTINAL TRACT DISCOLORED, SURFACE BURNS OF KIDNEY AND ADRENAL WHERE IN CONTACT WITH GASTROINTESTINAL TRACT

**Percutaneous:** RABBIT LD50 24 HR OCCLUDED CONTACT 4.49 (2.46-8.21) ml/kg

Major Signs: ERYTHEMA AND NECROSIS AT APPLICATION SITE

Gross Pathology: LUNGS, LIVER, KIDNEYS DISCOLORED

**Inhalation:** DYNAMIC GENERATION OF VAPOR. EXPOSURE TIME 8 HR

Rat: Room Temperature Kill Rate: 0/6

Major Signs: LIGHT ANESTHESIA

Irritation-Skin: RABBIT 4 HR COVERED NECROSIS IN \_

Skin: RABBIT 24HR UNCOVERED NO IRRITATION

Eye: RABBIT 0.005 ml SEVERE CORNEAL INJURY

Eye: RABBIT 0.5ml 15% DILUTION IN PROPYLENE GLYCOL NO INJURY

**Additional Studies:** REPEATED INHALATION OF AEROSOLS MAY RESULT IN PULMONARY EDEMA AND KIDNEY INJURY.

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**Transportation Data**  
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DOT Proper Shipping Name: AMYL ALCOHOLS  
DOT Class: 3  
DOT ID Number: UN1105  
DOT Pack Group: PG III

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 YOUR 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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**Disposal Data**  
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INCINERATE IN A FURNACE WHERE PERMITTED UNDER FEDERAL, STATE, AND LOCAL REGULATIONS. DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, PROVINCIAL, AND LOXAL ENVIRONMENTAL REGULATIONS. EMPTY CONTAINERS SHOULD BE RECYCLED OR DISPOSED OF THROUGH AN APPROVED WASTE MANAGEMENT FACILITY.

AT VERY LOW CONCETRATIONS IN WATER, THIS PRODUCT IS BIODEGRADABLE IN A BIOLOGICAL WASTEWATER TREATMENT PLANT. 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.

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**Ecological Information**  
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BOD: (% Oxygen Consumption)  
Day: 5 57%  
Day: 10 73%  
Day: 20 74%  
Day: 30

Ecotoxicity To Fish: FATHEAD MINNOW LC50 96 HR 500 mg/l

Further Information-THOD: (CALCULATED) 2.73 mg/mg  
Environmental Precautions: THIS PRODUCT MAY BE TOXIC TO FISH; AVOID DISCHARGE TO NATURAL WATERS.

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**Label Data**  
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Common Name: PRIMARY AMYL ALCOHOL

Signal Word: DANGER

Hazards Of The Product: CAUSES EYE AND SKIN IRRITATION. HARMFUL AND IRRITATING IF SWALLOWED. HARMFUL IF INHALED. COMBUSTIBLE. ASPIRATION MAY CAUSE LUNG DAMAGE. MAY CAUSE DIZZINESS AND DROWSINESS.

Protect Eye: YES

Protect Skin: YES

Protect Respiratory: YES

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The information contained herein is based on data considered to be accurate. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. It is the user's obligation to determine the conditions of safe use of the product.