SECTION I
PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: 1-Pentanol (Primary Amyl Alcohol)
This MSDS is valid for all grades that start with catalog number 301

Synonyms: 1-Pentanol, 1-Amyl Alcohol, n-Butyl Carbinol, n-Pentyl Alcohol
May contain up to 38% 2-Methylbutanol and/or other isomers.
Formula: $C_5H_{11}OH$

Manufacturer: Pharmco Products Inc.
58 Vale Road
Brookfield, Connecticut 06804, USA
Phone (203) 740-3471
Fax (203) 740-3481

1101 Isaac Shelby Drive
Shelbyville, KY 40065
Phone (502) 633-0650
Fax (502) 633-0685

Emergency Contact:
CHEMTREC 1-800-424-9300

SECTION II
COMPOSITION /INFORMATION ON INGREDIENTS

%wt	Material	CAS	Exposure Limits
Mixture	1-Pentanol	71-41-0	None
	2-MethylButanol	137-32-6	Established

SECTION III
HAZARDS IDENTIFICATION

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.

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 pnuemonia.

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.

SECTION IV
FIRST AID

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.

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).

SECTION V
FIRE FIGHTING MEASURES

Fire:
Flash point: 33C (91F) CC
Autoignition temperature: 300C (572F)
Flammable limits in air % by volume:
lel: 1.2; uel: 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.

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.

SECTION VI
SPILL/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.

SECTION VII
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.

SECTION VIII
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 feasble, 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.

SECTION IX
PHYSICAL AND CHEMICAL PROPERTIES

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: -79C
Vapor Pressure @ 20°C: 0.29 kPa 2.2 MMHg
Vapor Density (Air=1): 3
Specific Gravity (H2O = 1): 0.815 20°C/68°F
Evaporation Rate (Butyl Acetate = 1): 0.26
Solubility In Water (Wt %): 20°C, 2.7%
Percent Volatiles: 100 Wt%
Molecular Weight: 88.15 g/mol

SECTION X

STABILITY/REACTIVITY INFORMATION

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

SECTION XI
DISPOSAL CONSIDERATIONS

Vapors may collect in empty containers. Treat empty containers as hazardous.
Dispose of spill-clean up and other wastes in accordance with Federal, State, and local regulations.

SECTION XII
TRANSPORTATION 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

SECTION XIII
REGULATORY INFORMATION

US FEDERAL
TSCA
CAS# 71-41-0 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 71-41-0: acute, chronic, flammable.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 71-41-0 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 10 Flammable.
R 20 Harmful by inhalation.
Safety Phrases:
S 24/25 Avoid contact with skin and eyes.
WGK (Water Danger/Protection)
CAS# 71-41-0: 1
Canada - DSL/NDSL
CAS# 71-41-0 is listed on Canada's DSL List.
Canada - WHMIS
This product does not have a WHMIS classification.
Canadian Ingredient Disclosure List
CAS# 71-41-0 is listed on the Canadian Ingredient Disclosure List.