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DuPont
Material Safety Data Sheet

Page 1

"ELVANOL" POLYVINYL ALCOHOL ALL IN SYNONYM LIST NOL032
NOL032 Revised 27-OCT-2006

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"ELVANOL" is a registered trademark of DuPont.

Tradenames and Synonyms

"ELVANOL" 85-91

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont Packaging & Industrial Polymers
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-(800)-441-7515
Transport Emergency : 1-(800)-424-9300
Medical Emergency : 1-(800)-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
VINYL ALCOHOL POLYMER	9002-89-5	>88
BORIC ACID	10043-35-3	<15
FUMARIC ACID	110-17-8	<3
METHANOL, PACKAGED	67-56-1	<0.99
SODIUM ACETATE	127-09-3	<1.4
PROCESS AIDS		0-3

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

Before using "Elvanol" Polyvinyl Alcohol read DuPont Bulletin, "Safe Handling Information."

ACUTE OR IMMEDIATE EFFECTS: ROUTES OF ENTRY AND SYMPTOMS

(HAZARDS IDENTIFICATION - Continued)

INGESTION Not a probable route of entry. Toxicity is predicted to be low.

SKIN Short term skin contact may cause dermatitis with itching and rash. Long term exposure may cause irritation with itching, burning, redness, swelling, or rash.

EYE Eye contact may cause eye irritation with tearing, pain, or blurred vision.

INHALATION "Elvanol" is supplied as a granular solid. Under certain conditions of use, dust may be formed. Treat this dust as a nuisance dust; use a dust mask if dust exceeds the recommended limits. "Elvanol" is rarely heated above 100 degrees C. If the temperature exceeds 200 degrees C, fumes irritating to the eyes, nose, and throat will be evolved. If exposed to these fumes, the eyes will tear, itch, and turn red. The nose will burn. The throat will burn and coughing may result.

CHRONIC EFFECTS None are known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE None are known.

BORIC ACID

Short-term skin contact with Boric Acid may cause dermatitis with itching or rash. Repeated and/or prolonged exposure may cause irritation with itching, burning, redness, swelling or rash. Damaged skin may allow absorption of this compound in toxic amounts.

Eye contact with Boric Acid may cause eye irritation with tearing, pain or blurred vision.

Inhalation of Boric Acid may cause irritation of the nose and throat with sneezing, sore throat or runny nose.

Immediate effects of overexposure and/or prolonged exposure by ingestion may cause irritation of the digestive tract with stomach pain, heartburn, nausea, vomiting or diarrhea; however there may be no symptoms at all.

Short-term overexposure by inhalation or ingestion may cause redness of skin, lethargy, muscle twitching, convulsions, fever, altered liver function or abdominal pain, vomiting or jaundice, or altered kidney function which may be accompanied by abnormal urine volume, low back pain, discomfort or edema. Repeated and/or prolonged exposure may cause weight loss, redness of skin, hair loss, convulsions, or red blood cell destruction with anemia. Other effects include fatality from gross over-exposure.

(HAZARDS IDENTIFICATION - Continued)

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the kidneys.

METHANOL

The fatal dose of Methyl Alcohol by ingestion is from 60 to 250 ml.

Inhalation of Methyl Alcohol may cause irritation of the nose and throat with sneezing, sore throat or runny nose.

Skin contact with Methyl Alcohol may cause irritation with itching, burning, redness, swelling or rash. Skin permeation may occur in amounts capable of producing the effects of systemic toxicity.

Eye contact with Methyl Alcohol may cause eye irritation with tearing, pain or blurred vision.

Ingestion of Methyl Alcohol may cause irritation of the digestive tract with stomach pain, heartburn, nausea, vomiting or diarrhea; however there may be no symptoms at all.

Inhalation, ingestion or skin contact with Methyl Alcohol may cause temporary mild depression of the central nervous system with dizziness, confusion, incoordination or drowsiness followed by an asymptomatic period usually ranging from 12 to 24 hours. Metabolic acidosis develops followed by ocular toxicity (visual disturbance including blindness). Other effects include non-specific effects such as headache, nausea and weakness. Gross overexposure may cause pathological changes in the liver and kidneys; nerve damage with numbness, weakness or muscle rigidity; tremors; convulsions; and fatality.

Increased susceptibility to the effects of Methyl Alcohol may be observed in persons with pre-existing disease of the nervous system, visual system, liver, kidneys, and cardiovascular system.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

SKIN CONTACT

(FIRST AID MEASURES - Continued)

In case of contact, immediately wash skin with soap and water.
Wash contaminated clothing before reuse.
If molten material gets on skin, cool rapidly with cold water. Do not attempt to remove material from skin. Obtain medical treatment for thermal burn.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Ignition Temperature: No Data Available

Fire and Explosion Hazards:

The solid polymer can be combusted only with difficulty. Dust from "ELVANOL" can form an explosive mixture in the air. Information about special precautions needed for bulk handling is available upon request.

HAZARDOUS COMBUSTION PRODUCTS Complete combustion gives carbon dioxide and water. Incomplete combustion gives, in addition, carbon monoxide and hydrocarbon oxidation products including organic acids, aldehydes and alcohols, oxides of sodium, oxides of boron.

Extinguishing Media

Water, CO2, Foam.

Fire Fighting Instructions

Wear self-contained breathing apparatus (SCBA) and full protective equipment.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Sweep up to avoid slipping hazard.

HANDLING AND STORAGE

Handling (Personnel)

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT SECTIONS.

Storage

Store in a cool, dry place. Keep containers tightly closed to prevent moisture absorption and contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

In the event the polymer is heated above 200 C (392 F), local ventilation should be used to avoid exposure to fumes. Use ventilation to avoid exposure of personnel to dust.

Personal Protective Equipment

EYE/FACE PROTECTION

Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material. A full face mask respirator provides protection from eye irritation.

RESPIRATORS

A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge with a dust/mist filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING

If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Exposure Guidelines

Applicable Exposure Limits

VINYL ALCOHOL POLYMER

PEL (OSHA) : None Established
 TLV (ACGIH) : None Established
 AEL * (DuPont) : 10 mg/m³, 8 & 12 Hr. TWA, total dust
 5 mg/m³, 8 & 12 Hr. TWA, respirable dust

BORIC ACID

PEL (OSHA) : None Established
 TLV (ACGIH) : 2 mg/m³, 8 Hr. TWA, A4
 STEL 6 mg/m³, A4
 AEL * (DuPont) : 5 mg/m³, 8 & 12 Hr. TWA, total dust

METHANOL, PACKAGED

PEL (OSHA) : 200 ppm, 260 mg/m³, 8 Hr. TWA
 TLV (ACGIH) : 200 ppm, 8 Hr. TWA, Skin
 STEL 250 ppm
 AEL * (DuPont) : 200 ppm, 8 & 12 Hr. TWA, Skin

SODIUM ACETATE

PEL (OSHA) : None Established
 TLV (ACGIH) : None Established
 AEL * (DuPont) : 10 mg/m³, 8 & 12 Hr. TWA, total dust
 5 mg/m³, 8 & 12 Hr. TWA, respirable dust

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point : Approximately 200 deg. C (392 deg. F)
 % Volatiles : 5 WT%
 Solubility in Water : Moderate solubility
 Odor : Mild
 Form : Free-flowing granules
 Color : White
 Specific Gravity : 1.3

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Conditions to Avoid

Temperatures above 200 C (392 F) .

Incompatibility with Other Materials

None reasonably foreseeable.

(STABILITY AND REACTIVITY - Continued)

Decomposition

HAZARDOUS DECOMPOSITION PRODUCTS - carbon monoxide and hydrocarbon oxidation products including organic acids, aldehydes and alcohols, oxides of sodium, oxides of boron.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

The oral LD-50 of one type of "ELVANOL" is greater than 11000 milligrams per kilogram of body weight as determined in rats, which is low toxicity.

One type of "ELVANOL" was tested on male guinea pigs. No irritation or sensitization effects were noted.

Boric Acid

Oral LD50: 3450 mg/kg in rats

Boric Acid is not a skin irritant, but is an eye irritant in animal tests.

Single and repeated ingestion exposures produced changes in male reproductive organs. Repeated exposure caused reduced weight gain, and histopathological changes of the stomach and spleen. Long-term exposure caused changes in male reproductive organs.

In animal testing Boric Acid has not caused carcinogenicity. Animal data show developmental effects only at or near levels producing other toxic effects in the adult animal. Tests have shown that Boric Acid causes reproductive toxicity in animals. Tests have shown that Boric Acid does not cause genetic damage in bacterial or mammalian cell cultures.

Methyl Alcohol

Oral LD50: 9,100 mg/kg in rats
Dermal LD50 15,840 mg/kg in rabbits
Inhalation 1 hour LC50: > 145,000 ppm in rats

Animal testing indicates Methyl Alcohol is an eye and skin irritant.

Eye contact with Methyl Alcohol caused clouding of the eye (corneal opacity).

Repeated skin contact with higher concentrations of Methyl Alcohol caused some mortality.

(TOXICOLOGICAL INFORMATION - Continued)

Single exposure by ingestion caused narcosis, liver effects, and hypothermia. Repeated exposure caused pathological changes of the eyes and acidosis.

Repeated exposure by inhalation caused irritation of the eyes, and blindness.

No animal data are available to define the carcinogenicity of Methyl Alcohol. Exposure of pregnant rats shows the following developmental effects: reduced birth weight, bone abnormalities, and behavioral abnormalities. Exposure of pregnant mice shows the following developmental effects: reduced birth weight, resorption, and bone abnormalities. No adequate animal data are available to define the reproductive effects of Methyl Alcohol. Tests have shown that Methyl Alcohol does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. Methyl Alcohol has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

Concentrations of "ELVANOL" up to 10,000 milligrams per liter of water showed no mortality or other effect when tested on bluegill sunfish.

DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : Not applicable
Hazard Class : Not regulated

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1 % OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES)- Fumaric Acid, Methanol.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- None Known.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS)- Fumaric Acid, Methanol.

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 1
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. "ELVANOL" is intended for industrial use and is expressly not for use in cosmetic, personal care and pharmaceutical or similar applications. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

