

Material Safety Data Sheet

PRODUCT NAME: ADOLF'S STYLE "B" INSERTS ZERO TOLERANCE

DELRIN ACETAL RESIN ALL IN SYNONYM LIST DEL011

DEL011

Revised 15-JAN-1998

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CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

DELRIN is a registered trademark of DuPont.



Distributed By -

FREEMAN Mfg. & Supply Co.

1101 MOORE ROAD

© AVON, OHIO 44011-1011 (800) 321-8511

Tradenames and Synonyms

DELRIN 510GR BL1080, 510GR NC000, 525GR NC000,
 DELRIN 570 NC000, 577 BK000, 577 BK642,
 DELRIN DE9036 NCB000, DE9191 NC000, DE9191X NC000,
 DELRIN DE9255 NC000,
 DELRIN DE9453 BL1080, DE9453 BLN1080, DE9454 NC000, #
 DELRIN DE9474 BL1080, DE9474 BLN1080 #

Company Identification

MANUFACTURER/DISTRIBUTOR

DUPONT ENGINEERING 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	t
POLYOXYMETHYLENE HOMOPOLYMER	25231-38-3	>70
STABILIZER		<2
PIGMENT		<1
FIBERGLASS (Filament)		<30
FORMALDEHYDE	50-00-0	<0.005

Components (Remarks)

All ingredients comprising this resin are bound in a thermoplastic polymer. These substances do not present a respiration hazard unless the polymer is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled in sufficiently high concentrations. Good industrial hygiene practices, as with all dusts, should include precautions to prevent inhalation of respirable particles.

(COMPOSITION/INFORMATION ON INGREDIENTS - Continued)

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

ADDITIONAL HEALTH EFFECTS

Read "Handling Precautions" in Molding Guide H26577-2 for "Delrin" Acetal Resins before using "Delrin".

"DELRIN" POLYMER

HUMAN HEALTH EFFECTS:

There are no known adverse health effects from exposure to "Delrin" polymer. However, if overheated, formaldehyde may be released. Formaldehyde is a skin, eye and mucous membrane irritant and may cause allergic reactions, headache and/or nausea.

Inhalation of fines from ground pellets can irritate the nose and throat. Significant skin permeation and systemic toxicity after contact appears unlikely. There are inconclusive or unverified reports of human sensitization.

Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposure to formaldehyde.

Animal Data:

Inhalation 6 hr LC50: >22,000 mg/m³, rats
(very low toxicity of polymer)

Oral LD50: >11,000 mg/kg, rats
(very low toxicity by ingestion of polymer)

"Delrin" is not a skin irritant, and is not a skin sensitizer in animals.

Inhalation: Single or repeated exposure to high concentrations of "Delrin" dust resulted in collapse of some areas of the lungs, other areas were over-inflated. This effect was seen as late as 11-19 days post-exposure.

Ingestion: No toxic effects observed.

Some animal studies have shown an association between prolonged exposure to formaldehyde and nasal cancer.

FIBERGLASS (FILAMENT)

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(HAZARDS IDENTIFICATION - Continued)

ANIMAL DATA:

Glass fibers cause skin irritation and mild eye irritation in animals, but these effects are attributed primarily to mechanical damage rather than a chemical effect.

Inhalation: A single exposure of mice by intratracheal instillation include an inflammatory response. Repeated inhalation exposures invoked pulmonary macrophage reactions similar to biologically inert dusts.

Tests in some animals demonstrate carcinogenic activity. However, these studies were by artificial implantation or injection of fine glass fibers into the chest, abdominal cavity, or trachea and are judged to be irrelevant to industrial exposure. Chronic inhalation exposure of animals to fiberglass at low concentrations produced minimal fibrosis in one study and no adverse effects in a different study.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE TO FIBERGLASS

The mechanical actions of the sharp glass fibers may cause skin irritation with discomfort or rash. Eye contact may cause irritation with discomfort, tearing, or blurring of vision. Inhalation may cause irritation of the upper respiratory passages, with coughing and discomfort.

Results from epidemiology studies suggest no casual relationship between fiberglass exposure and cancer. One epidemiology study does indicate a slight increase in lung cancer deaths. The evidence that fiberglass is related to these increased lung cancer deaths is considered weak. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures to glass fibers.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
FORMALDEHYDE	2A	X	X	A2

FIRST AID MEASURES-----
First Aid

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

(FIRST AID MEASURES - Continued)

SKIN CONTACT

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer 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.

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

FIRE FIGHTING MEASURES-----
Flammable Properties

Flash Point : 322 C (612 F)
Method : ASTM D1929.

"Delrin" dust cloud ignition temperature is 440 degrees C (824 degrees F).

Not a fire or explosion hazard. Burns with invisible flame. Hazardous gases/vapors produced in fire are carbon monoxide, formaldehyde.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus.

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.

Spilled material is a slipping hazard.

Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation. Shovel or sweep up.

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HANDLING AND STORAGE

Handling (Personnel)

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT SECTIONS.

Handling (Physical Aspects)

Open container only in well-ventilated area.

Storage

Store in a well ventilated area away from heat and sunlight.

Keep container closed to prevent contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use sufficient ventilation to keep employee exposure below recommended limits.

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.

RESPIRATORS

When temperatures exceed 230 degrees C and ventilation is inadequate to maintain concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection.

During grinding, sanding, or sawing operations use a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister if airborne particulate concentrations are expected to exceed permissible exposure levels.

PROTECTIVE CLOTHING

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

Exposure Guidelines

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Exposure Limits

"DELTRIN" ACETAL RESIN ALL IN SYNONYM LIST DEL011

PEL (OSHA) : Particulates (Not Otherwise Regulated)
 15 mg/m³, 8 Hr. TWA, total dust
 5 mg/m³, 8 Hr. TWA, respirable dust

Other Applicable Exposure Limits

POLYOXYMETHYLENE HOMOPOLYMER

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

FIBERGLASS (Filament)

PEL (OSHA) : None Established
 TLV (ACGIH) : 5 mg/m³, 8 Hr. TWA, inhalable particulate
 A4
 AEL * (DuPont) : 5 mg/m³ total dust - 8 Hr. TWA, non-
 respirable fiber (> 3 microns in
 diameter) non-fibrous particulate.

FORMALDEHYDE

PEL (OSHA) : 0.75 ppm, 0.92 mg/m³, 8 Hr. TWA
 STEL 2 ppm, 2.5 mg/m³
 TLV (ACGIH) : Ceiling 0.3 ppm, 0.37 mg/m³, A2
 AEL * (DuPont) : 1 ppm, 8 & 12 Hr. TWA
 2 ppm, 15 minute TWA

* 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 : 172-184 C (342-363 F)
 Solubility in Water : Insoluble
 Odor : Slight formaldehyde
 Color : Pigmented.
 Form : Granules or powder
 Specific Gravity : 1.42

 STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

(STABILITY AND REACTIVITY - Continued)

Incompatibility with Other Materials

Incompatible with strong acids and bases (decomposes forming formaldehyde) and strong oxidizing agents. At melt temperatures, acetal resins are incompatible with halogenated polymers such as PVC and PVDC. Even small amounts of such contaminants can cause sudden and spontaneous formaldehyde gas formation to occur. Workplace fume concentrations well above threshold levels are likely. Unsafe pressurization of equipment, e.g., extruders, molds, can also result.

Decomposition

Decomposition of this material depends on the length of time it is exposed to elevated temperature, as well as pressure.

At the recommended processing temperature of 215 degrees C (419 degrees F) decomposition should not be significant until after 30 minutes. Decomposition may be accelerated by contaminants and/or pigments.

Autoclaving with pressurized steam may lead to a rapid decomposition and should be done for only minimum amounts of time. COOL COMPLETELY BEFORE OPENING the autoclave.

Hazardous gas/vapor produced is formaldehyde.

Polymerization

Polymerization will not occur.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

No information available. Toxicity is expected to be low based on insolubility in water.

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 : NA
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) - None known.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- Formaldehyde.

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) - None known.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

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(Continued)

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.

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Indicates updated section.

End of MSDS