



DuPont Polymers



## “DELTRIN” ACETAL RESIN ALL IN SYNONYM LIST DEL011

### CHEMICAL PRODUCT/COMPANY IDENTIFICATION

#### Material Identification

"DELTRIN" is a registered trademark of DuPont

#### Tradenames and Synonyms

"DELTRIN" 510GR NC000, 525GR NC000,

"DELTRIN" 570 NC000, 577 BK000, 577 BK642,

"DELTRIN" DE9036 NCB000, DE9191 NC000, DE9191X NC000,

"DELTRIN" DE9255 NC000, DE9454 NC000

#### 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

Components Material	CAS Number	%
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.

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".

"DELTRIN" 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/m<sup>3</sup>, 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

## 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.

#### 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, CO<sub>2</sub>.

### 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.

## 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****Exposure Limits**

"DELIN" ACETAL RESIN ALL IN SYNONYM LIST DEL011

PEL (OSHA)	Particulates (Not Otherwise Regulated)
	15 mg/m <sup>3</sup> , 8 Hr. TWA, total dust
	5 mg/m <sup>3</sup> , 8 Hr. TWA, respirable dust

**Other Applicable Exposure Limits**

POLYOXYMETHYLENE HOMOPOLYMER

PEL (OSHA)	None Established
TLV (ACGIH)	None Established
AEL * (DuPont)	10 mg/m <sup>3</sup> , 8 Hr. TWA, total dust
	5 mg/m <sup>3</sup> , 8 Hr. TWA, respirable dust

FIBERGLASS (Filament)

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

FORMALDEHYDE

PEL (OSHA)	0.75 ppm, 0.92 mg/m <sup>3</sup> , 8 Hr. TWA STEL 2 ppm, 2.5 mg/m <sup>3</sup>
TLV (ACGIH)	Ceiling 0.3 ppm, 0.37 mg/m <sup>3</sup> , 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.

### 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.

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.

Responsibility for MSDS	J. P. BOLLMEIER
Address	DUPONT ENGINEERING POLYMERS CHESTNUT RUN PLAZA 713 WILMINGTON, DE 19880-0713
Telephone	302-999-4257