Safety Data Sheet

DELRIN® 500P NC010 acetal resin

Version 2.0

Issue Date	:	08/26/2020	Ref. 130000020716
Revision Date	:	02/14/2018	

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	DELRIN® 500P NC010 acetal resin
Product Use	:	Polymer
Restrictions on use	:	For manufacturing and research use only
Manufacturer/Supplier	:	DuPont 974 Centre Road Wilmington, DE 19805, USA
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)

SECTION 2. HAZARDS IDENTIFICATION

Classified as a non-hazardous substance or mixture according to the Hazardous Products Regulation (HPR) (WHMIS 2015)

Other hazards
No applicable data available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration (% w/w)
Formaldehyde	50-00-0	<0.005%

This product does not contain any components that require disclosure according to the Hazardous Products Regulation (HPR) (WHMIS 2015).

SECTION 4. FIRST AID MEASURES

General advice : No applicable data available.

Inhalation	:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
Skin contact	:	The material is not likely to be hazardous by skin contact, but cleaning the skin after use is advisable. Cool skin rapidly with cold water after contact with molten material. Do not peel polymer from the 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. Consult a physician if necessary.
Most important symptoms/effects, acute and delayed	:	No applicable data available.
Protection of first-aiders	:	No applicable data available.
Notes to physician	:	No applicable data available.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water, Foam, Dry chemical, Carbon dioxide (CO2)
Unsuitable extinguishing media	:	No applicable data available.
Specific hazards	:	Combustible . Burns with invisible flame. Large molten masses may ignite spontaneously in air. Water quenching is good practice. Minimize the generation and accumulation of dust. Failure or malfunction of temperature control systems on processing equipment, such as extruders, may create explosion hazards. Hazardous combustion products may include: (see also section 10) Carbon monoxide, Carbon dioxide.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Evacuate personnel and keep upwind of fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Safeguards (Personnel)	:	Spilled material is a slipping hazard.
Environmental precautions	:	Do not discharge to streams, ponds, lakes or sewers.
Spill Cleanup	:	Spills of fine material should be cleaned using gentle sweeping or vacuuming. Cleaning methods (e.g. compressed air) which can generate potentially combustible dust clouds should not be used. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Use only non-sparking tools.
Accidental Release Measures	:	No applicable data available.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Open container only in well-ventilated area. Wash hands thoroughly after handling. Provide appropriate exhaust ventilation at dryers, machinery and at places where dust or volatiles can be generated. Do not breathe dust. Pneumatic conveying and other mechanical handling operations can generate combustible dust. Minimize the generation and accumulation of dust. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. As with any acetal polymer, low levels of formaldehyde may occur in the headspace of containers as received or in containers of formed parts after processing. Closed containers of resin or formed parts should be opened in well ventilated areas. Measurements on representative acetal grades yielded formaldehyde levels of less than 2 ppm. Levels of formaldehyde can vary according to time, temperature, ventilation, & specific product grade. Please note that the formaldehyde level in a finished part is influenced by material/part handling and processing conditions.
Handling (Physical Aspects)	:	No applicable data available.
Dust explosion class	:	No applicable data available.
Storage	:	Residual monomer vapours can accumulate in the headspace of closed

containers. Store in a cool, dry place. Keep containers tightly closed to prevent moisture absorption and contamination. Keep in an area equipped with sprinklers. Store in a well-ventilated area away from heat and sunlight.

Storage period : No applicable data available.

Storage temperature : No applicable data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : General mechanical ventilation is normally adequate but use local exhaust where necessary to maintain exposures below acceptable limits. Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area. See Bulletin "Proper Use of Local Exhaust Ventilation During Processing of Plastics".

Personal protective equipment

Respiratory protection : Additives in this product do not present a respiration hazard unless the product 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. A respiratory protection program that meets country requirements must be followed whenever workplace conditions warrant respirator use. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer. Use a positive pressure air supplied respirator if exposure levels are not known or there are any other circumstances where air purifying respirators may not provide adequate protection.

Hand protection : Additional protection: Wear leather or cotton gloves when grinding, sawing, routing, drilling or sanding., When handling hot material, use heat resistant gloves.

Eye protection : Wear safety glasses with side shields. Wear tightly fitting chemical splash goggles and face shield when possibility exists for eye and face contact due to spattering or splashing of molten material. A full-face mask respirator provides protection from eye irritation.

Skin and body protection : If there is a potential for contact with hot/molten material wear heat resistant clothing and footwear.

Exposure Guidelines
Exposure Limit Values

This product does not contain any exposure limits that require disclosure according to Hazardous Product Regulations (HPR).

Formaldehyde			
TLV	(ACGIH)	0.3 ppm	STEL
TLV	(ACGIH)	0.1 ppm	TWA
AEL *	(DuPont)	0.5 ppm	15 minute TWA

Dust (inhalable and respirable fraction)			
TLV	(ACGIH)	3 mg/m3	TWA
TLV	(ACGIH)	10 mg/m3	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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Physical state : solid
Form : pellets
Color : natural

Odor : slight, vinegar-like

Odor threshold : 0.6 ppm
formaldehyde

pH : Not applicable

Melting point/freezing point : Melting point/range
175 - 183 °C (347 - 361 °F)

Boiling point/boiling range : Boiling point/boiling range
Not applicable

Flash point : Not applicable

Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	May form combustible dust concentrations in air during processing, handling or other means.
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapor pressure	:	Not applicable
Vapor density	:	Not applicable
Specific gravity (Relative density)	:	> 1
Water solubility	:	insoluble
Solubility(ies)	:	No applicable data available.
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	>230 °C Thermal decomposition of the resin accelerates above temperature listed. Decomposition can occur below the recommended processing temperature limit. Decomposition is a function of both processing temperature and time at that temperature.
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable at normal ambient temperature and pressure.
Chemical stability	:	Stable at normal ambient temperature and pressure.
Possibility of hazardous	:	Polymerization will not occur.

reactions

Conditions to avoid	:	polymer melt temperature > 230 °C (> 446 °F) Avoid prolonged exposure at or above the recommended processing temperatures. Decomposes on heating. At temperatures above the "conditions to avoid" temperature, thermal decomposition of the resin accelerates. Decomposition can occur below the recommended processing temperature limit. Decomposition is a function of both processing temperature and time at that temperature.
Incompatible 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 and any elastomers containing halogenated polymers., 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 result., Do not contaminate either virgin resin or rework. Do not mix this resin with pigments or additives other than those designated by the Company. Do not mix this grade with other grades of acetals, nor with any other resins, without first consulting the Company. Doing any of the above may change the thermal stability of this resin and potentially cause decomposition.
Hazardous decomposition products	:	Decomposition of this material depends on the length of time it is exposed to elevated temperature, as well as pressure. At the recommended processing temperatures decomposition should not be significant until after 30 minutes. Decomposition may be accelerated by contaminants, pigments and/or other additives. 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 thermal decomposition products may include: Formaldehyde , Carbon monoxide, Carbon dioxide

SECTION 11. TOXICOLOGICAL INFORMATION

DELRIN® 500P NC010 acetal resin

Further information : No data is available on the product itself.For additional toxicity data,

write to the company address or call the non-emergency number shown in Section 1.

Formaldehyde

Inhalation 4 h LC50	:	490 ppm , Rat Target Organs: Respiratory system Respiratory effects
Dermal LD50	:	270 mg/kg , Rabbit
Oral Acute toxicity estimate	:	100 mg/kg , Rat Gastrointestinal effects
Skin irritation	:	Corrosive after 3 minutes to 1 hour of exposure, Rabbit
Eye irritation	:	Corrosive, Rabbit
Skin sensitization	:	Probability or evidence of high skin sensitisation rate in humans, human Does not cause respiratory sensitisation., Mouse
Repeated dose toxicity	:	Inhalation Mouse - 13 Weeks gasMethod: OECD Test Guideline 413 No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification. Ingestion Rat - 105 Weeks NOAEL: 21 mg/kg LOAEL: 109 mg/kgMethod: OECD Test Guideline 453 Gastrointestinal effects
Carcinogenicity	:	Possible human carcinogen An increased risk of cancer in humans has been shown in workplace-based studies. Animal experiments showed a statistically significant number of tumours.
Mutagenicity	:	Positive result(s) from in vivo non-mammalian somatic cell

mutagenicity tests, supported by positive results from in vitro mutagenicity assays.
Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Genetic damage in animals was observed in some laboratory tests but not in others.

Reproductive toxicity : No toxicity to reproduction
Evidence suggests the substance is not a reproductive toxin in animals.

Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to Hazardous Products Regulation (HPR), Subpart 6, 8.6.1. The classifications may differ from those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

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

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
Formaldehyde

96 h LC50 : Fish (unspecified species) 6.7 mg/l

72 h ErC50 : Desmodesmus subspicatus (green algae) 4.89 mg/l OECD Test Guideline 201

48 h EC50 : Daphnia pulex (Water flea) 5.8 mg/l OECD Test Guideline 202

28 d : NOEC Oryzias latipes (Orange-red killifish) > 48 mg/l

21 d : NOEC Aquatic invertebrates 25 mg/l

Environmental Fate

Formaldehyde

Bioaccumulation : OECD Test Guideline 305
Bioaccumulation is unlikely.

Additional ecological information : No data is available on the product itself. Toxicity is expected to be low based on insolubility in water.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product : Preferred options for disposal are recycling or incineration with energy recovery. The high fuel value of this product makes incineration 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.

Contaminated packaging : No applicable data available.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

HSNO (NZ) Status : Exempt

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

DSL All components of this product are on the Canadian DSL

SECTION 16. OTHER INFORMATION

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MSDS preparation date	:	02/14/2018
Restrictions for use	:	Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications and DuPont CAUTION Regarding Medical Applications.

Read the product information datasheet for this product or the molding guide for this resin family.

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.