

**HYTREL® 3D4100FL NC010 filament for 3D printing**

Version 3.0

Revision Date 02/07/2017

Ref. 130000147174

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

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : HYTREL® 3D4100FL NC010 filament for 3D printing
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)
Transport Emergency : CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Not classified as a hazardous substance or mixture according to the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 2012.

Other hazards

No applicable data available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product does not contain any components that require disclosure according to OSHA Hazard Communication Standard 2012.

**HYTREL® 3D4100FL NC010 filament for 3D printing**

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Revision Date 02/07/2017

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SECTION 4. FIRST AID MEASURES

General advice	: No applicable data available.
Inhalation	: Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
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 . 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.

**HYTREL® 3D4100FL NC010 filament for 3D printing**

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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 : Sweep up to prevent slipping hazard.
- 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.
- Handling (Physical Aspects) : No applicable data available.
- Dust explosion class : No applicable data available.
- Storage : Store in a cool, dry place. Keep container closed to prevent contamination. Keep in an area equipped with sprinklers.
- 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.
- 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



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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. Consult the OSHA respiratory protection information located at 29CFR 1910.134. 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 OSHA Hazard Communication Standard 2012.

Non-Constituent(s)

Dust (inhalable and respirable fraction)			
Permissible exposure limit:	(OSHA)	5 mg/m3	8 hr. TWA Respirable fraction.
Permissible exposure limit:	(OSHA)	15 mg/m3	8 hr. TWA Total dust.
TLV	(ACGIH)	3 mg/m3	TWA Respirable particles.
TLV	(ACGIH)	10 mg/m3	TWA Inhalable particles.

**HYTREL® 3D4100FL NC010 filament for 3D printing**

Version 3.0

Revision Date 02/07/2017

Ref. 130000147174

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : solid
Form : filament
Color : natural

Odor : none

Odor threshold : Not applicable

pH : Not applicable

Melting point/freezing point : Melting point/range
> 130 °C (> 266 °F)

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

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : No applicable data available.

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- : No applicable data available.



HYTREL® 3D4100FL NC010 filament for 3D printing

Version 3.0

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octanol/water

Auto-ignition temperature : Not applicable

Decomposition temperature : >275 °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 reactions : Polymerization will not occur.

Conditions to avoid : Temperature > 275 °C (> 527 °F)
 Abnormally long processing time or high temperatures can produce irritating and toxic fumes.
 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 : Strong acids Strong bases, Strong oxidizing agents

Hazardous decomposition products : Hazardous thermal decomposition products may include:
 Tetrahydrofuran , Carbon dioxide, Carbon monoxide, Acetic acid, 2-Methylpropene, Acetaldehyde, Formic acid, Acrolein, Propionaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

HYTREL® 3D4100FL NC010 filament for 3D printing

**HYTREL® 3D4100FL NC010 filament for 3D printing**

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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.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or 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, NTP, or OSHA, as a carcinogen.

SECTION 12. ECOLOGICAL INFORMATION

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

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TSCA	:	In compliance with TSCA Inventory requirements for commercial purposes.
SARA 313 Regulated Chemical(s)	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
PA Right to Know Regulated Chemical(s)	:	Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): None known.
NJ Right to Know Regulated Chemical(s)	:	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.
California Prop. 65	:	Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

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.

Hytrel® is a registered trademark of DuPont.

The DuPont Oval Logo is a registered trademark of E.I. du Pont de Nemours and Company. Read the product information datasheet for this product or the molding guide for this resin family.

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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.



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