

Technical Data Sheet

DuPure[®] TU 76 V

Polypropylene Heterophasic Copolymer

Description

DuPure TU 76 V is a controlled rheology, heterophasic polypropylene copolymer (produced with a phthalate-free catalyst). The product shows a very high fluidity and a good impact resistance.

Applications

DuPure TU 76 V is suitable for: thin-walled packaging, house wares.

Quality, Environment and Safety Regulations

Material Safety Data Sheets and other regulatory documents are available on our web site <http://www.ducorchem.com>.

Properties		Method	Typical Value*	Unit
Physical				
Melt Flow Rate	(230 °C / 2.16 kg)	ISO 1133	48	g/10 min
Mechanical				
Tensile Modulus	(1 mm/min)	ISO 527-2	950	MPa
Tensile Stress at Yield	(50 mm/min)	ISO 527-2	19	MPa
Tensile Strain at Yield	(50 mm/min)	ISO 527-2	5	%
Tensile Strain at Break	(50 mm/min)	ISO 527-2	> 50	%
Shear Modulus		ISO 6721-2	500	MPa
Charpy Impact Strength, notched	(+23 °C)	ISO 179/1eA	20 P	kJ/m ²
	(0 °C)	ISO 179/1eA	9	kJ/m ²
	(-20 °C)	ISO 179/1eA	4.5	kJ/m ²
	(-30 °C)	ISO 179/1eA	4	kJ/m ²
Charpy Impact Strength, unnotched	(+23 °C)	ISO 179/1eU	No Break	kJ/m ²
	(0 °C)	ISO 179/1eU	No Break	kJ/m ²
	(-20 °C)	ISO 179/1eU	150	kJ/m ²
	(-30 °C)	ISO 179/1eU	125	kJ/m ²
Izod Impact Strength, notched	(+23 °C)	ISO 180/1A	18 P	kJ/m ²
	(0 °C)	ISO 180/1A	9	kJ/m ²
	(-20 °C)	ISO 180/1A	5.5	kJ/m ²
	(-30 °C)	ISO 180/1A	4.5	kJ/m ²
Ball Indentation Hardness (H 132/30)		ISO 2039-1	44	MPa
Thermal				
Melting Point, DSC		ISO 3146	163	°C
Heat Deflection Temperature	(1.8 MPa)	ISO 75-2	48	°C
Heat Deflection Temperature	(0.45 MPa)	ISO 75-2	78	°C
Vicat Softening Temperature	(10 N)	ISO 306	142	°C
Vicat Softening Temperature	(50 N)	ISO 306	56	°C
Other Properties				
Density		ISO 1183	0.91	g/cm ³

* Typical values; not to be construed as specifications

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DuPure[®] / DuClear[®] Polypropylene

General Statement on Chemical Absence

We confirm that during manufacturing of the above mentioned products, we do not intentionally use any of the chemical substances listed below. However, since the products have not been tested for these substances, we cannot guarantee that there is no trace amount present, as impurity or otherwise. If in this statement a general category or substance is mentioned, followed by one or more specific variants, the statement applies on the specific variants only, and not on the general category or substance.

- * Acrylamide (CAS No 79-06-1)
- * Acrylaldehyde (ACROLEIN, CAS No. 107-02-8)
- * ALKYLPHENOL DERIVATIVES
 - Dodecylphenol (CAS No. 121158-58-5)
 - Nonylphenol and ethoxylates
 - Octylphenol and ethoxylates
- * Anthraquinone (CAS No 84-65-1)
- * AROMATIC AMINES
 - Regulation 1907/2006/EC Annex XVII Appendix 8
 - 2-naphtylamine (CAS No 91-59-8)
- * ASBESTOS
 - Regulation 1907/2006/EC Annex XVII
- * Benzene (CAS No 71-43-2)
- * Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4- Trimethylpentene (BNST, CAS No 68921-45-9)
- * Benzidine (CAS No 92-87-15)
- * BIOCIDES
 - di-methyl fumarate (DMF, CAS No 624-49-7)
 - o-Phenylphenol (CAS No 90-43-7)
 - 2,4,4'-trichloro-2'-hydroxydiphenyl ether (TRICLOSAN, CAS No 3380-34-5)
 - Regulation 528/2012/EC
 - Directive 1998/8/EC
- * BISPHENOL A (BPA)
 - 2,2-bis(4-hydroxyphenyl)propane (CAS No 80-05-7)
- * BISPHENOL F (CAS No 620-92-8)
- * BISPHENOL S (BPS)
 - 4,4'-Sulfonyldiphenol (CAS No 80-09-1)
- * BROMINATED FLAME RETARDANTS
 - Directive 2012/19/EC (WEEE, repealing 2002/96/EC) – Annex II
 - Polybrominated biphenyls (PBB; CAS No 59536-65-1)
 - Polybrominated diphenyl ethers (PBDE)
 - Polybrominated terphenyls (PBT)
 - Pentabromodiphenyl ether (CAS No 32534-81-9)
 - Pctabromodiphenyl ether (CAS No 32536-52-0)
 - 1,2,5,6,9,10-hexabromocyclodecane (HBCD, CAS No 3194-55-6)
- * Butylated hydroxyanisole (BHA, CAS No 25013-16-5 and 121-00-6)
- * Butylated hydroxytoluene (BHT, CAS No 128-37-0)

- * CASEIN (CAS No 9000-71-9)
- * CHLORINATED ALIPHATIC COMPOUNDS
 - Pentachloroethane (CAS No 76-01-7)
 - Tetrachloromethane (CAS No 56-23-5)
 - Trichlorethylene (CAS No 79-01-06)
 - Trichloromethane (chloroform; CAS No 67-66-3)
 - 1,1,2,2-tetrachloroethane (CAS No 79-34-5)
 - 1,1,1,2-tetrachloroethane (CAS No 630-20-6)
 - 1,1,2-trichloroethane (CAS No 79-00-5)
 - 1,1-dichloroethylene (CAS No 75-35-4)
 - 1,1,1-trichloroethane (CAS No 71-55-6)
- SHORT and MEDIUM CHAIN CHLORINATED PARAFFINS
- * CHLORINATED AROMATICS
 - CHLORINATED BENZENES
 - CHLORINATED PHENOLS
 - Pentachlorophenol (PCP)
 - Regulation 1907/2006/EC Annex XVII
 - CHLORINATED TOLUENES
- * COALITION OF NORTHEASTERN GOVERNORS (CONEG)
 - This product meets the CONEG requirements of less than 100 ppm for total incidental Cadmium, Chromium (VI), Lead and Mercury.
- * COLOPHONIUM / COLOPHONY (CAS No 8050-09-7)
- * COLORANTS
 - DYES (UVITEX dye is used as optical brightener in a number of DuClear® resins)
 - AZO Dyes
 - PIGMENTS
 - INKS
- * CONFLICT MINERALS
 - Dodd-Frank Wall Street Reform and Consumer Protection Act - September, 2010.
 - Conflict minerals, which include columbite-tantalite (also known as coltan, source for Tantalum), cassiterite (source for Tin), Gold, wolframite (source for Tungsten) or their derivatives
- * Cyanuric acid (CAS No 108-80-5)
- * Decabromodiphenylether (decaBDE)
- * Di(2-ethyl hexyl) maleate (DEHM; CAS No 142-16-5)
- * Di-butyl-fumarate (DBF, CAS No 105-75-9)
- * Di-methyl-fumarate (DMF, CAS No 624-49-7)
- * Dicyandiamide (DCD, CAS No 461-58-5)
- * DIOXINS AND FURANS
 - Polychlorinated dibenzo-p-dioxins (PCDDs or dioxins)
 - Polychlorinated dibenzofurans (PCDFs or furans) Polychlorinated biphenyls (PCBs)
- * Epichlorohydrin (CAS No 106-89-8)
- * EPOXIDIZED SOYA BEAN OIL (ESBO; CAS No 8013-07-8)
- * EPOXY DERIVATIVES
 - Regulation 2005/1895/EC
 - Bisphenol A diglycidyl ether (BADGE, CAS No 1675-54-3)
 - Bisphenol F diglycidyl ether (BFDGE, CAS No 2095-03-6)
 - Novolac glycidyl ethers (NOGE)
- * Ethyl hexanoic acid (EHA)
- * FLUOROCARBONS
 - Fluorotelemers



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- Perfluorooctane sulfonate (PFOS)
- Perfluorooctanoic acid (PFOA)
- Perfluorochemicals (PFC)
- * FOOD ALLERGENS
 - Food ingredients listed in Annex II Regulation (EU) No 1169/2011
- * Formaldehyde (formol; CAS No 50-00-0)
- * FUNGICIDES
- * GENETICALLY MODIFIED ORGANISM (GMO)
- * HALOGENS
 - Elemental Fluorine, Chlorine, Bromine or Iodine
- * HEAVY METALS and their compounds
 - Antimony, Arsenic, Barium, Beryllium, Bismuth, Cadmium, Chromium, Cobalt, Copper
 - Gold, Lead, Mercury, Nickel, Selenium, Tantalum, Tin, Tungsten, Vanadium.
 - Directive 200/53/EC
- * Hexachlorobenzene (HCB, CAS No 118-74-1)
- * HYDRAZINE DERIVATIVES
- * INSECTICIDES
 - Toxaphene (Cas No 8001-35-2)
 - Dichlorodiphenyltrichloroethane (DDT, CAS No 50-29-3)
- * Isocyanates
 - Hexamethylene diisocyanate (HDI, CAS No 822-06-0)
 - Isophorone diisocyanate (IPDI, CAS No 4098-71-9)
 - Methyl isocyanate (MIC, CAS No 624-83-9)
 - Methylene diphenyl diisocyanate (MDI, CAS No 101-68-8)
 - Naphthalene diisocyanate (NDI, CAS No 3173-72-6)
 - Toluene-2,4-diisocyanate (TDI, CAS No 584-84-9)
- * Isopropylthioxanthone (ITX, CAS No 5495-84-1 and 83846-86-0)
- * MELAMINE
 - 1,3,5-Triazine-2,4,6-triamine (CAS No 108-78-1)
- * MELANIN (CAS No 8049-97-6)
- * NANOMATERIALS
 - Commission recommendation on the definition of nanomaterial, 2011/696/EU.
 - Insoluble or biopersistent and intentionally manufactured materials with one or more external dimensions, or an internal structure, on the scale from 1 to 100 nm
- * NATURAL RUBBER and NATURAL LATEX
- * Nitroamines
- * Nitrite
- * Nitrate
- * n-butylbenzene (CAS No 104-51-8)
- * n-ethyl-p-toluenesulfonamide (NEPTSA; CAS No 80-39-7)
- * n-ethyl-toluenesulfonamide (NETSA; CAS No 1077-66-1)
- * ORGANO-TIN COMPOUNDS
 - Dibutyl-tin (DBT, CAS No 14488-53-0)
 - Dibutyltin dichloride (DBTC, CAS No 683-18-1)
 - Dioctyl-tin (DOT, CAS No 250252-87-0)
 - Monobutyl-tin (MBT, CAS No 78763-54-9)
 - Tributyl-tin (TBT, CAS No 36643-28-4)
 - Tributyl-tin oxide (TBTO, CAS No 56-35-9)
 - Triphenyl-tin (TPT, CAS No 668-34-8)
- * OXO and/or UV DEGRADABLE ADDITIVES
- * OZONE-DEPLETING CHEMICALS (ODC's)
 - The ozone-depleting substances (ODS), listed in the Annexes I & II of the Regulation (EC) No 1005/2009 of 16 September 2009, and Class I and Class II ODC's listed in the US Clean Air Act Amendments of 1990, among them:
 - 1,1,1-Trichloroethane (methyl chloroform)



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- Bromochloromethane
- Carbon tetrachloride
- CFC's
- Halons
- Hydrobromofluorocarbons (HBFC)
- Hydrochlorofluorocarbons (HCFC)
- Methyl bromide
- * PACKAGING AND PACKAGING WASTE
 - Directives 94/62/EC, 2004/12/EC (as amended)
- * PARABENS
 - Esters of para-hydroxybenzoic-acid
- * PERCHLORATE COMPOUNDS
- * PERFLUORINATED HYDROCARBONS
 - Directive 2006/122/EC
 - Perfluorooctanoic acid (PFOA)
 - Perfluorooctane sulfonate (PFOS)
 - Perfluorobutanesulfonic acid (PFBS)
- * PESTICIDES, HERBICIDES
 - Di-isopropyl-naphthalene's (DIPN, CAS No 24157-81-1)
- * PHTHALATES
 - Butyl benzyl phthalate (BBP, CAS No 85-68-7)
 - Di(2-ethylhexyl) phthalate (DEHP) or Di-octyl phthalate (DOP, CAS No 117-81-7)
 - Di-butyl phthalate (DBP) or Di-n-butyl phthalate (DNBP, CAS No 84-74-2)
 - Di-iso-decyl phthalate (DIDP, CAS No 26761-40-0)
 - Di-iso-nonyl phthalate (DINP, CAS No 28553-12-0)
 - Di-n-octyl phthalate (DNOP, CAS No 117-84-0)
 - Phthalates in toys and child care articles, mentioned in Directive 2005/84/EC
- * Phthalic anhydride (CAS No 038103-06-9)
- * PLASTICIZERS
 - Bis(2-ethylhexyl) adipate (DEHA, CAS No 103-23-1)
 - Butyryl tri-n-hexyl citrate (BTHC, CAS No 82469-79-2)
 - Glycerides, castor-oil mono-, hydrogenated, acetates (CAS No 736150-63-3)
 - Tris(2-ethylhexyl)benzene-1,2,4-tricarboxylate (CAS No 3319-31-1)
 - 1,2-Cyclohexanedicarboxylic acid, 1,2-diisononyl ester (DINCH, CAS No 166412-78-8)
- * Polychlorinated naphthalenes (PCN)
 - Regulation 1907/2006/EC Annex XVII
- * Polychlorinated terphenyls (PCT)
- * POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
 - 1,2-dihydro-acenaphthene (CAS No 83-32-9)
 - 1-methylnaphthalene (CAS No 90-12-0)
 - 2-methylnaphthalene (CAS No 91-57-6)
 - Acenaphthylene (CAS No 208-96-8)
 - Anthracene (CAS No 120-12-7)
 - Benz(a)anthracene (CAS No 56-55-3)
 - Benzo(a)pyrene (CAS No 50-32-8)
 - Benzo(b)fluoranthene (CAS No 205-99-2)
 - Benzo(e)pyrene (CAS No 192-97-2)
 - Benzo(ghi)perylene (CAS No 191-24-2)
 - Benzo(j)fluoranthene (CAS No 205-82-3)
 - Benzo(k)fluoranthene (CAS No 207-08-9)
 - Chrysene (CAS No 218-01-9)
 - Dibenz(a,h)anthracene (CAS No 53-70-3)
 - Fluoranthene (CAS No 206-44-0)
 - Fluorene (CAS No 86-73-7)
 - Indeno(1,2,3-cd)pyrene (CAS No 193-39-5)
 - Naphthalene (CAS No 91-20-3)



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- Phenanthrene (CAS No 85-01-8)
- Pyrene (CAS No 129-00-0)
- * Polyethylene glycol (PEG)
- * POLYSTYRENE RESINS
- * Polyvinylchloride (PVC, CAS No 9002-86-2)
- * Polyvinylidene chloride (PVDC, CAS No 9002-85-1)
- * QUATERNARY AMMONIUM COMPOUNDS
 - Didecyl dimethyl ammonium chloride (DDAC, CAS No 7173-51-5)
 - Benzalkonium chloride (BAC, CAS No 8001-54-5)
- * RADIOACTIVE SUBSTANCES
- * RADON (CAS No 10043-92-2)
- * RECYCLED MATERIALS
 - Regulation
 - 282/2008/EC
- * RESTRICTION OF HAZARDOUS SUBSTANCES IN ELECTRIC AND ELECTRONIC EQUIPMENT
 - Directive 2015/863/EC, amending Annex II of 2011/65/EU (RoHS), repealing Directive 2002/95/EC
 - DEHP, BBP, DBP, DIBP, PBDE, PBB, PCB, Chromium (VI), Lead, Mercury and Cadmium
- * SEMICARBAZIDE (SEM) and AZODICARBONAMIDE
 - Directive 2004/1/EC
- * SILICA GEL (CAS No 99439-28-2)
- * SILICONE (CAS No 90337-93-2)
- * Styrene (ethenylbenzene; CAS No 100-42-5)
- * Sulphur (s)
- * Sulphur dioxide (CAS No 7446-09-5)
- * SYNTHETIC MINERAL FIBERS
- * TCEP (CAS No 51805-45-9)
- * TCPP (CAS No 13674-84-5)
- * TDCP (CAS No 13674-87-8)
- * Thiurams
- * Titanium acetyl acetonate (TAA, CAS No 77927-72-9)
- * Toluene (CAS No 108-88-3)
- * Tributyl phosphate (TBP, CAS No 126-73-8)
- * Tris-Nonylphenol phosphite (TNPP, CAS No 26523-78-4)
- * UV STABILIZERS and ABSORBERS
 - BENZOPHENONE DERIVATIVES
 - Benzophenone (CAS No 119-61-9)
 - 2-hydroxybenzophenone (CAS No 117-99-7)
 - 3-hydroxybenzophenone (CAS No 13020-57-0)
 - 4-hydroxybenzophenone (CAS No 1137-42-4)
 - 4-methylbenzophenone (CAS No 134-84-9)
 - BENZOTRIAZOLE DERIVATIVES
 - Benzotriazole (CAS No 95-14-7)
 - 2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320, CAS No 3846-71-7)
- * Vinylchloride monomer (VCM, CAS No 75-01-4)
- * Xylene
 - 2,4-pentadione, acetilacetone (ACAC, CAS No 123-54-6)
 - 2,4-di-tert-butylphenol (CAS No 96-76-4)
 - 2 naphthylamine (CAS No 91-59-8)
 - 2-mercaptobenzothiazole (MBT, CAS No 149-30-4)
 - 4-aminobiphenyl (CAS No 92-67-1)
 - 4-aminodiphenyl
 - 4-nitrodiphenyl
 - 4-tert-butylphenol (CAS No 98-54-4)
 - 4-tert-octylphenol (CAS No 140-66-9)



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DuPure[®] TU 76 V

Polypropylene

General Statement on Compliance with Food Contact Regulations

Food contact – European Union

This product meets the relevant requirements of Regulation 1935/2004/EC, so far applicable for plastic raw materials, used for articles or components of articles intended to come into contact with food. This product is a plastic raw material for which specific measures are adopted as foreseen in article 5 of Regulation 1935/2004/EC. For plastic materials and articles, specific measures are adopted through Regulation 10/2011/EC as amended (see below).

This product is manufactured in line with the relevant requirements of Regulation 2023/2006/EC, so far applicable to plastic raw materials, on good manufacturing practice for materials and articles intended to come into contact with food.

The monomers and additives used to manufacture the above-mentioned polypropylene grade are listed in Regulation 10/2011/EC and amendments 1282/2011/EC, 1183/2012/EC, 202/2014/EC, 174/2015/EC, 1416/2016/EC, 752/2017/EC, 79/2018/EC, 213/2018/EC, 831/2018/EC, 37/2019/EC, 1338/2019/EC & 1245/2020/EC, relating to plastic materials and articles intended to come into contact with foodstuffs. This product contains one or more components which are regulated with a specific migration limit (SML). The identity of this/these component(s) can be disclosed for testing purposes, upon special request and under maintaining secrecy. Furthermore, dual use additives may be used in the formulation of the above mentioned product. The identity of those substances can also be disclosed upon special request and under maintaining secrecy.

For full compliance an overall migration limit of 10 mg/dm² and specific migration limits apply to the final article intended to come in contact with food, which shall be measured from the finished food contact article by using real food or appropriate food simulants at the time/temperature conditions as applicable, according to the rules as specified in Regulation 10/2011/EC and subsequent amendments. It is the responsibility of the converter to check and confirm that the final article meets both the technical and regulatory requirements of the application. To avoid any misunderstandings: we remind you that the manufacturers of the finished food contact material or article must verify that the finished material or article, manufactured according to good manufacturing practices, does not modify the organoleptic properties of the food.

Food contact – US Food and Drug Administration (FDA)

The base resin in this product meets the FDA (Food and Drug Administration) requirements contained in the Code of Federal Regulations in 21 CFR 177.1520(a)(3)(i) and (c)3.1a.

This product may contain adjuvant substances that may be safely used in polymers used for the manufacture of articles that come into direct contact with food. According to our information these

substances used in this product meet the requirements of their respective FDA regulations, (FCNs), and 21 CFR 177.1520(b).

This product meets the FDA criteria in 21 CFR 177.1520 for food contact applications, listed under conditions of use C through H in 21 CFR 176.170 (c), Table^(#) 2, and can be used in contact with all food types as listed in 21 CFR 176.170 (c), Table^(#) 1.

^(#) These tables can be found on the FDA website:

<http://www.fda.gov/food/ingredientspackaginglabeling/packagingfcs/foodtypesconditionsofuse/ucm109358.htm>

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DuPure[®] / DuClear[®] Polypropylene

Compliance with REACH Regulation 1907/2006/EC

The substances, which are contained in DuPure[®] and DuClear[®] Polypropylene products, and require registration under REACH, have been registered by Ducor Petrochemicals B.V., or by our upstream suppliers.

Substances, listed in Annex XVII of the REACH Regulation 1907/2006/EC, are not intentionally used or added in the formulation of DuPure[®] and DuClear[®] Polypropylene products. However, since the products have not been tested for these substances, we cannot guarantee that there is no trace amount present, as impurity or otherwise.

REACH Substances of Very High Concern (SVHC)

DuPure[®] and DuClear[®] Polypropylene products do not contain any of the Annex XIV candidate chemicals proposed to be Substances of Very High Concern (latest update: 19/01/2021), in a concentration above the threshold limit of 0,1% (w/w) as stated in REACH (Article 57, Regulation 1907/2006/EC).

The current list of all SVHCs can be found at the following link to the ECHA website:

<http://echa.europa.eu/web/guest/candidate-list-table>

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**Safety Data Sheet –
Ducor Polypropylene Impact and Random Copolymers
According to Regulation (EC) No 1907/2006 (REACH), Article 31**

1. Identification of substance

Trade name	DuPure® (Polypropylene Impact and Random Copolymers) Grades: DuPure® SH 50, SL 50, SR 76, ST 76 V, SL 76 A, SM 76 A, SU 76 V, SU 76 A, SU 76 AV, SW 76 AV, SR 79, ST 77 A, SU 77 AV, SY 77 AV, SU 77 A, TE 76, TM 76 V, TM 76, TR 76 V, TU 76 V, TT 79 V, QM 49, QG 49, QE 49, QL 50, QE 50, QE 50 E, QR 50, QW 76 AV. DuClear® (Polypropylene Random Copolymers) Grades: DuClear® QG 80 A, QR 80 A, QT 80 A, QU 80 A, QW 80 AV, QY 80 AV, CE 85 B
Identified uses	Manufacture of plastic articles by injection molding, extrusion or other conversion process
Prohibited used	Applications involving permanent implantation into the body, European Class III & FDA Class III medical devices
Manufacturer	Ducor Petrochemicals B.V. Merseyweg 24 3197KG Botlek - Rotterdam the Netherlands
Telephone	+31(0)181-247070
Fax	+31(0)181-247979
Emergency Number	+31(0)181-247070
Website	http://www.ducorchem.com
E-mail	info@ducorchem.com

2. Hazards Identification

Classification & Labeling	This product is not classified as hazardous according to EEC directives 67/548/EEC, 1999/45/EC. This product is not classified as hazardous according to EC regulations 1907/2006/EC, 1272/2008/EC, and following amendments.
Information pertaining to particular dangers for man and environment	Fine dust may cause irritation of respiratory system and mucous. Contact with hot (molten) material – risk of serious burns. If heated to more than 160°C, the product may form vapors or fumes which may cause irritations of respiratory tract and cause coughing and sensation of shortness of breath. Handling this product may result in electrostatic accumulation. Use proper grounding procedures Dust may form explosive mixture in air. Combustible dust

3. Composition/Information on Ingredients

Chemical Name	Propene, polymer with ethene
Chemical Formula	(C ₃ H ₆) _x - (C ₂ H ₄) _y
CAS No. Designation	9010-79-1
Description	Mixture of propene, polymer with ethene, with additives/stabilisers

4. First Aid Measures

General information	Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.
After inhalation	Exposure to spray, fumes and vapours produced by heated or burned product: Move to fresh air. Call for medical help.
After skin contact	After contact with the molten product, cool rapidly with cold water. Do not pull solidified product away from the skin. Seek immediate medical advice.

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After eye contact	Immediately rinse with water for a prolonged period while holding the eyelids wide open. In case of irritation caused by fine dust: wash with copious volumes of water, until the irritation disappears. In case of eye contact with molten polymer: continuously flush eye(s) with cool running water for at least 15 minutes. Beyond flushing, do not attempt to remove the material adherent to the eye(s). Immediately seek medical attention
After swallowing	No specific measures have to be taken if the product is swallowed.

5. Fire fighting measures	
Suitable extinguishing agents	For small fire: Carbon dioxide. Dry powder. Water spray. For large fire: Foam.
Unsuitable extinguishing agents	Solid water jet/stream
Specific hazards during fire fighting	Keep away from heat and sources of ignition. In case of fire hazardous decomposition products may be produced such as: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). The formation of hydrocarbons and aldehydes are possible in the initial stages of a fire (especially in between 400 and 700°C)
Protection during firefighting	Wear approved positive pressure self-contained breathing apparatus and firefighter protective clothing.
Additional information	Combustible particulate solid, will decompose under fire conditions. Calorific Value: 8000 - 11000 kcal/kg Fight fire from safe distance with hose lines or monitor nozzles. Heat from fire may melt, decompose polymer, and generate flammable vapors. Move containers from fire area if it can be done without risk. Evacuate immediately in the event of opening of storage container pressure relief devices or discoloration of container. Always stay away from tanks engulfed in fire. Do not attempt to get on top of storage containers involved in fire. Cool storage containers with large volumes of water even after fire is out.

6. Accidental Release Measures	
Person-related safety precautions	Creates dangerous slipping hazard on any hard smooth surface. Avoid generating dust. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Potential combustible dust hazard.
Measures for environmental protection	Do not flush into surface water or sanitary sewer system
Measures for cleaning/collecting	On land, sweep/shovel into suitable disposal containers or vacuum using equipment which avoids ignition risk. On water, material is insoluble; collect and contain as any solid. All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.

7. Handling and Storage	
Information for safe handling	Handle in accordance with good industrial hygiene and safety practice. Provide for appropriate exhaust ventilation and dust collection at machinery. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
Requirements for storage areas and containers	Storage facilities must fulfill all fire safety requirements for buildings, and all electrical appliances must be compliant with the applicable regulations. Store

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in a dry, cool, well-ventilated area. Protect from heat and direct sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Proper grounding procedures to avoid static electricity should be followed. Prevent accidental release of the material in the environment during storage

8. Exposure Controls and Personal Protection

**Control parameters:
Components with
workplace control
parameters**

Occupational Exposure Limits

Ingredients	Source	Type	Limit value
Materials that can be formed when handling this product: Non specified (inert or nuisance) dust	US - ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ inhalable 3 mg/m ³ respirable

Consult local authorities for acceptable exposure limits

**Exposure controls
Engineering measures**

Ensure good ventilation of the work place. If handling results in dust generation or high temperatures, local exhaust ventilation should be provided to insure that exposure to dust or decomposition products does not exceed the exposure recommended levels. Safety shower. Eye fountain.

Personal protective equipment

**General protective and
hygienic measures
Respiratory protection**

Dustproof clothing. Gloves. Safety glasses. Dust formation: dust mask. Do not eat, drink or smoke during use
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use appropriate respiratory protection where atmosphere exceeds recommended limits. Where workers could be exposed to dust concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Protective gloves. When handling hot material, wear heat-resistant protective gloves that are able to withstand the temperature of molten resin.

Eye protection

Safety glasses with side-shields.

Skin & Body protection

Wear suitable clothing. Safety foot-wear

9. Physical and Chemical Properties

Physical state	Solid
Appearance	Pellet / Granule
Colour	Translucent to white
Odor	Slight
Melting point/range	120-170°C
Boiling point/range	Decomposition starting from 300°C
Autoignition temperature	> 300°C
Lower explosion limit	The minimum explosive concentration (MEC) for polymer dust varies according to particle size distribution
Density	0.89-0.91 g/cm ³
Solubility in water	Insoluble
Bulk Density	400-600 kg/m ³

10. Stability and Reactivity

Reactivity Electrostatic charges may be generated during handling. Take precautionary measures against static discharge during blending and transfer operations.

Chemical Stability The product is stable at normal handling- and storage conditions

Possibility of hazardous Dust may form explosive mixture in air.

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reactions

Conditions to Avoid	No flames, no sparks. Eliminate all sources of ignition. Avoid temperature above 300°C.
Materials to avoid	Strong acids. Strong bases. Strong oxidizing agents. Halogens.
Hazardous decomposition products	Not expected to decompose under normal conditions.
Thermal decomposition	Carbon monoxide, olefinic and paraffinic compounds, trace amounts of organic acids, ketones, aldehydes and alcohols may be formed.

11. Toxicological Information

Acute oral toxicity	Not classified
Skin corrosion/irritation	Not classified Heated product causes burns. Thermal decomposition products are produced at elevated temperatures and these may be irritating
Serious eye damage/irritation	Not classified Fine dust may cause irritation to ocular mucous. Thermal decomposition products are produced at elevated temperatures and these may be irritating. Heated product causes burns.
Respiratory or skin sensitisation	Not classified
Cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified Dust may cause irritation of respiratory system. If heated to more than 160°C, the product may form vapours or fumes which may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified

12. Ecological Information

Ecotoxicity Effects	Ecological damages are not known or expected under normal use. Small particles can have an effect on water and soil organisms.
Persistence and degradability	Product persists. Not expected to be biodegradable.
Bioaccumulation	This product is not expected to bioaccumulate
Mobility in soil	Low mobility. The product is not volatile, and insoluble in water
Results of PBT assessment	Not determined
Other adverse effects	No additional information available

13. Disposal Considerations

Waste treatment methods	All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible. Recycle if possible.
Additional information	Incinerate with household refuse in a municipal solid waste incinerator plan.

14. Transport Information

Transport Classification	The substance is not classified as dangerous according to relevant transport regulations.
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15. Regulatory Information

EC regulations See the Regulatory Affairs Product Information Datasheet (RAPIDS) of the product on www.ducorchem.com.

16. Other Information

Further information Conforms to Regulation (EC) No 1907/2006 (REACH), Article 31.

Disclaimer:

The information contained in the Safety Data Sheet is at the date of its issuance to the best of our knowledge correct according to the data available to us. The information is meant as a guideline for safe use, handling, disposal, storage and transport of products and does not imply any warranty (not implied nor explicitly) or specification. The Supplier shall to the extent permitted by law not be liable for any error or incorrectness in the information contained in this Safety Data Sheet. The information relates exclusively to the specified products, which may not be suitable for combination with other materials or use in processes other than those specifically described here.

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