



PBT, PET & PBT/PET COMPOUNDS



NUREL | OVER 50 YEARS OF EXPERIENCE IN POLYMER MANUFACTURING

The synergy created within the SAMCA Group, combined with new investments in our extrusion facilities, has enabled us to expand our range of technical polymers for injection molding. This expansion includes a new range of **PBT, PET and PBT/PET compounds** under our **Proxylene®** brand.

At NUREL Engineering Polymers, we are committed to delivering innovative solutions to meet the challenges of tomorrow. The **Proxylene** range of compounds encompasses both **reinforced and unreinforced grades**, offering various viscosities suitable for injection molding and extrusion applications.



SUSTAINABILITY | REDUCING OUR ENVIRONMENTAL IMPACT



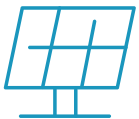
SUSTAINABLE DEVELOPMENT: NUREL is dedicated to sustainable development and environmental responsibility. Our operational center holds **ISO-14001 and ISO-50001 certifications**, highlighting our commitment to eco-friendly practices. We focus on **minimizing waste, conserving resources, and improving energy efficiency** in our operations, contributing to global sustainability efforts.



LIFE CYCLE ANALYSIS: To help our customers make informed decisions on their journey towards climate neutrality, we provide **product carbon footprint (PCF) calculations** for our products. At NUREL, we follow the “Cradle-to-Gate” approach, and our calculations align with the ISO 14067 standard, using **SimaPro software**.



ISCC PLUS CERTIFICATION: Focussing on the circular economy, NUREL has obtained the ISCC Plus certification for its production processes. ISCC Plus (International Sustainability and Carbon Certification) is an **international standard** that **guarantees the sustainable origin** of products bearing this certification stamp.



RENEWABLE ENERGY: To achieve **independence from conventional electrical resources**, NUREL's photovoltaic self-consumption **solar power plant** stands as one of the **largest in Europe**. Comprising more than 28,000 solar panels, it achieves an annual electricity production of approximately 16,000 MWh. Through this new facility, NUREL **prevents the emission of 4,400 tons of CO₂** into the atmosphere annually.

PBT, PET & PBT/PET

Proxylene® compounds, comprising **PBT, PET, and PBT/PET** grades, stand as versatile materials meticulously engineered to provide **tailored solutions** for addressing intricate technical challenges across diverse industries, with a particular emphasis on the automotive and electrical sectors.

Within the **automotive industry**, **Proxylene compounds** directly address the ongoing demand for materials that are both **lightweight and robust**. These compounds offer remarkable durability and weight-saving attributes, empowering manufacturers to create components that not only endure rigorous conditions but also enhance fuel efficiency while **reducing environmental impact**.

In the field of **electrical engineering**, **Proxylene Compounds** exhibit an exceptional balance of **mechanical strength and thermal resistance**. This makes them the preferred choice for producing intricate electrical components and systems, ensuring consistent and reliable performance even in the most challenging operational environments.

Proxylene's extensive range of compounds includes **unreinforced and reinforced grades featuring glass beads or glass fiber and steel fiber reinforcements**. Additionally, it offers **halogen-free and hydrolysis-resistant flame-retardant** grades designed for the most demanding applications. Moreover, all **Proxylene compounds** are **available in various colours**, providing further flexibility for specialized requirements.



PROXYLENE® MAIN PROPERTIES

- ↘ Excellent mechanical properties
- ↘ High stiffness and strength
- ↘ Excellent surface finish
- ↘ Dimensional stability
- ↘ Low moisture absorption
- ↘ Easy processing in injection moulding and extrusion applications
- ↘ Reinforced & filled grades including glass fiber, glass beads, mineral fillers & steel fiber reinforcements
- ↘ Outstanding heat resistance
- ↘ Grades with optimal flame retardancy. Halogen-free flame retardant technology
- ↘ Hydrolysis resistant grades available
- ↘ Suitable for food contact applications
- ↘ Laser marking



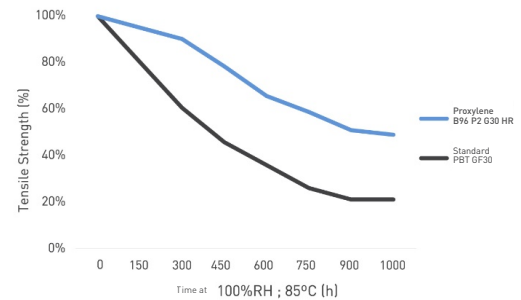
PROXYLENE® HYDROLYSIS RESISTANT (HR) PBT

DURABILITY AND WATER RESISTANCE UNDER EXTREME CONDITIONS

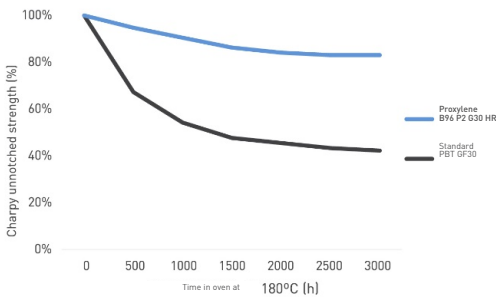
Hydrolysis is a chemical reaction by which polymers are broken down by the action of water. This reaction causes a breakage of molecular chains, loss of molecular weight and a loss of polymer properties, especially toughness.

Hydrolysis is a slow process at room temperature, but can be rapid at high temperatures. This is an irreversible process, since even drying, the material will not restore its initial properties. Some applications require materials with special properties to resist hydrolysis, such as **pipes and ducts** where the polymeric material is in contact with hot **water, steam or water-glycol mixtures**.

HYDROLYSIS RESISTANCE TEST (100% RH, 85°C)



AGEING TEST (3000H, 150°C)



The main feature of **Proxylene® PBT HR** is the extremely **high resistance** of the new PBT polymer development to damage due to water at elevated temperatures.

Proxylene® PBT HR performs extremely well against hydrolytic degradation and it can therefore considerably **extend the life of the final product**.

PROXYLENE PBT B96 P2 G30 HR: NEW HYDROLYSIS RESISTANT

Proxylene® B96 P2 G30 HR: It has not only a great resistance to hydrolysis, but also to high temperatures, showing a relevant effect on the continuous use.

HIGH-VISCOSITY PBT FOR OPTICAL FIBER CABLES

TOTAL PROTECTION AND ENDURANCE: PROXYLENE B97 LN AND PROXYLENE B97 P2

NUREL offers high-viscosity grades for extruding high-performance optical fiber cables:

- **Enhanced Cable Strength and Durability:** **Proxylene PBT** provides high tensile strength and remarkable durability, ensuring robust protection for delicate optical fibers within the cable and maintaining data transmission integrity.
- **Temperature Stability:** Optical cables often endure a wide range of environmental conditions, from extreme heat to sub-zero temperatures. **Proxylene PBT's** ability to maintain structural stability within this range guarantees reliable cable performance, regardless of external factors.
- **Chemical Resistance:** Environmental elements like moisture, chemicals, and other factors can compromise cable performance. **Proxylene PBT's** inherent resistance to these elements acts as a protective barrier for optical fibers, ensuring their long-term functionality.

PBT AND PBT/PET FLAME RETARDANT COMPOUNDS

HALOGEN-FREE FLAME RETARDANT COMPOUNDS FOR ELECTRICAL EQUIPMENT AND NEW MOBILITY



The **Proxylene®** product range encompasses **PBT, PET and PBT/PET flame retardant compounds**, offering both **unreinforced and glass fiber reinforced grades**. These versatile compounds possess an array of remarkable properties, including achieving the highest flame resistance ratings, **V0 and V2 UL-94**, showcasing NUREL's commitment to user safety, a favorable toxicological profile, and minimal environmental impact solutions.

KEY ADVANTAGES OF PROXYLENE PBT AND PET FR COMPOUNDS

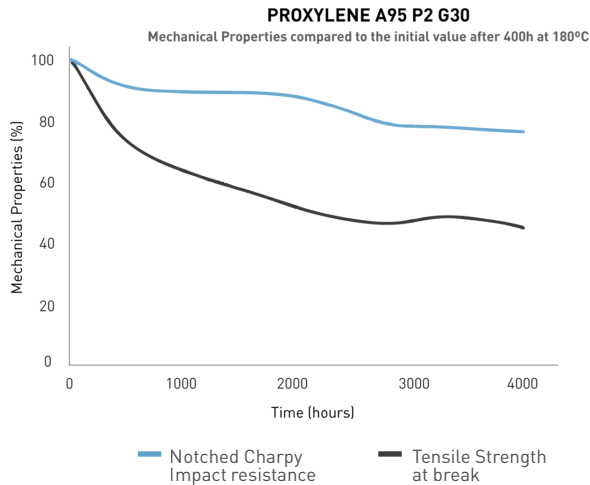
- ✎ **Exceptional mechanical properties** combined with **low water absorption** make these compounds well-suited for addressing evolving design trends in dynamic industries, especially electronics.
- ✎ Their ability to maintain **stability at high temperatures**, even with prolonged exposure or usage, ensures that **Proxylene FR** grades consistently uphold their exceptional mechanical properties, rendering them particularly suitable for demanding conditions, such as automotive applications.
- ✎ **Proxylene FR compounds** are renowned for their **outstanding surface finish**, enhancing not only functionality but also aesthetic appeal.
- ✎ **Halogen-Free V0 - UL94**, Glow Wire Flammability Index (GWFI) of 960°C, with CTI exceeding 600V.
- ✎ **Glow Wire Flammability Index (GWFI) of 960°C**. Remarkably, these exceptional flame resistance values persist even in applications with minimal thicknesses of less than 1mm.
- ✎ All Flame Retardant developments are **compatible with** other specialized requirements, such as **Heat Stabilization, Hydrolysis Resistance, and UV Resistance**.
- ✎ These advancements can be manufactured in a **wide range of colours** upon request, including vibrant options like **Bright Orange RAL 2003**.



ELEVATE PERFORMANCE
AND RELIABILITY WITH
PROXYLENE PBT

PROXYLENE® PET REINFORCED RANGE

PET HIGH TEMPERATURE RESISTANT



Proxylene PET glass fiber reinforced grades, with up to **60% glass fiber content**, demonstrate exceptional resilience to prolonged exposure to high temperatures. These **Proxylene** developments are particularly well-suited **for enduring extended applications at temperatures up to 180°C**.

Their remarkable stability at elevated temperatures, combined with **low moisture absorption, dimensional consistency, and robust mechanical properties**, positions **Proxylene PET** glass fiber reinforced grades as the top choice for the most demanding applications. This includes automotive components like **transmission parts, as well as sockets and connectors** for electronic applications.

These grades are also distinguished by their outstanding equilibrium between **strength and stiffness, resistance to creep**, and the retention of a **high surface gloss** even when exposed to elevated temperatures.

FIBER-GLASS-REINFORCED PET WITH LOW SHRINKAGE

	MOULDING SHRINKAGE	
	STANDARD PET GF30	PROXYLENE A95C P2 G30
Longitudinal (%)	0.20	0.10
Transversal (%)	0.80	0.55

Polymer shrinkage can lead to issues in final parts. NUREL has developed a new **Proxylene PET type reinforced with glass fiber** that substantially **reduces contractions, thus avoiding injection problems**.

OTHER PROXYLENE® PBT BLENDS

PET, PC, ABS, ASA

The NUREL Research and Development (R&D) department is constantly working to develop new products to satisfy the requirements of the most demanding applications in terms of durability and endurance.

Polybutylene terephthalate (PBT) is a versatile engineering thermoplastic that is **often blended with other materials to enhance its properties** and expand its range of applications. The choice of blend depends on the specific requirements of the application, such as mechanical properties, chemical resistance, thermal stability, and cost considerations.

Under our **Proxylene** brand, following blends are available upon request:

PBT/PET BLENDS



PROPERTIES

Good chemical resistance, dimensional stability, and heat resistance.

APPLICATIONS

Electrical connectors, switches, and automotive parts like lamp sockets and fuel system components.

PBT/PC BLENDS



PROPERTIES

High impact resistance, excellent dimensional stability, and good chemical resistance.

APPLICATIONS

Automotive components such as connectors, housings, and under-the-hood parts. Electrical and electronic components, as well as consumer goods.

PBT/ABS BLENDS



PROPERTIES

Toughness of ABS combine with the heat resistance of PBT.

APPLICATIONS

They are frequently used in automotive interiors, such as dashboards and consumer electronics.

PBT/ASA BLENDS



PROPERTIES

Combine the chemical resistance of PBT with the UV resistance and weatherability of ASA.

APPLICATIONS

Outdoor applications, such as automotive exterior parts, electrical enclosures, and construction materials.

PBT, PET & PBT/PET PRODUCT RANGE

PBT UNREINFORCED GRADES	
B95 P2 / LN	Easy-flowing injection-moulding grade with good processability
B96 P2 / LN	Medium-viscosity injection-moulding grade with good processability
B97 P2 / LN	High-viscosity grade for extrusion applications
PBT UNREINFORCED GRADES WITH IMPROVED HYDROLYSIS RESISTANCE	
B96 P2 HR	Medium-viscosity grade with improved Hydrolysis Resistance (HR) for injection-moulding and extrusion applications
B97 P2 HR	High-viscosity grade with improved Hydrolysis Resistance (HR) for extrusion applications
PBT EASY-FLOWING REINFORCED GRADES*	
B95 P2 G15	Easy-flowing injection-moulding grade 15% Glass Fiber reinforced
B95 P2 G20	Easy-flowing injection-moulding grade 20% Glass Fiber reinforced
B95 P2 G30	Easy-flowing injection-moulding grade 30% Glass Fiber reinforced
B95 P2 G45	Easy-flowing injection-moulding grade 45% Glass Fiber reinforced
B95 P2 G50	Easy-flowing injection-moulding grade 50% Glass Fiber reinforced
B95 P2 GB20	Easy-flowing injection-moulding grade 20% Glass Beads reinforced
B95 P2 GB30	Easy-flowing injection-moulding grade 30% Glass Beads reinforced
PBT MEDIUM-VISCOSITY REINFORCED GRADES*	
B96 P2 G15	Medium-viscosity injection-moulding grade 15% Glass Fiber reinforced
B96 P2 G20	Medium-viscosity injection-moulding grade 20% Glass Fiber reinforced
B96 P2 G30	Medium-viscosity injection-moulding grade 30% Glass Fiber reinforced
B96 P2 GB20	Medium-viscosity injection-moulding grade 20% Glass Beads reinforced
B96 P2 GB30	Medium-viscosity injection-moulding grade 30% Glass Beads reinforced
PBT MEDIUM-VISCOSITY REINFORCED GRADES WITH IMPROVED HYDROLYSIS RESISTANCE*	
B96 P2 G15 HR	Hydrolysis Resistant (HR) medium-viscosity injection-moulding grade 15% Glass Fiber reinforced
B96 P2 G30 HR	Hydrolysis Resistant (HR) medium-viscosity injection-moulding grade 30% Glass Fiber reinforced
PBT UNREINFORCED FLAME-RETARDANT GRADES	
B95 P2 U2	Easy-flowing flame-retardant injection-moulding grade. V2 rated UL94. GWFI = 960°C. Halogen Free
B95 P2 U0	Easy-flowing flame-retardant injection-moulding grade. V0 rated UL94. GWFI = 960°C. Halogen Free
B95 P2 U0 H	Easy-flowing flame-retardant injection-moulding grade. V0 rated UL94. GWFI = 960°C. Improved Toughness

* Injection-moulding grades with 10% up to 60% glass fibers content.

FOOD CONTACT approved grades available.

ALL COLOURS upon request.

PBT REINFORCED FLAME-RETARDANT GRADES*	
B95 P2 G30 U0	Injection-moulding grade 30% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Halogen Free
B95 P2 G30 U0 H	Injection-moulding grade 30% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Improved Toughness
PBT STEEL FIBER REINFORCED GRADES*	
B95 P2 SF10	Injection-moulding grade 10% Steel Fiber reinforced. Electromagnetic Shielding (EMI)
B95 P2 SF10 U0	Injection-moulding flame-retardant grade 10% Steel Fiber reinforced. Electromagnetic Shielding. V0 rated UL94.

PBT/PET REINFORCED GRADES*	
B55 P2 G20	PBT/PET reinforced with 20% Glass Fiber. Easy-flowing injection-moulding grade with good processability
B55 P2 G30	PBT/PET reinforced with 30% Glass Fibers. Easy-flowing injection-moulding grade with good processability
B56 P2 G20	PBT/PET reinforced with 20% Glass Fibers. Medium-viscosity injection-moulding grade with good processability
B56 P2 G30	PBT/PET reinforced with 30% Glass Fibers. Medium-viscosity injection-moulding grade with good processability

PET REINFORCED GRADES *	
A95 P2 G15	Injection-moulding grade 15% Glass Fiber reinforced
A95 P2 G30	Injection-moulding grade 30% Glass Fiber reinforced
A95 P2 G35	Injection-moulding grade 35% Glass Fiber reinforced
A95 P2 G45	Injection-moulding grade 45% Glass Fiber reinforced
A95 P2 G60	Injection-moulding grade 60% Glass Fiber reinforced
PET REINFORCED GRADES WITH IMPROVED HYDROLYSIS RESISTANCE*	
A95 P2 G15 HR	Hydrolysis Resistant (HR) injection-moulding grade 15% Glass Fiber reinforced
A95 P2 G30 HR	Hydrolysis Resistant (HR) injection-moulding grade 30% Glass Fiber reinforced
PET FLAME-RETARDANT REINFORCED GRADES*	
A95 P2 G15 U0	Injection-moulding grade 15% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Halogen Free
A95 P2 G30 U0	Injection-moulding grade 30% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Halogen Free
A95 P2 G15 U0 H	Injection-moulding grade 15% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Improved Toughness
A95 P2 G30 U0 H	Injection-moulding grade 30% Glass Fiber reinforced. V0 rated UL94. GWFI = 960°C. Improved Toughness
PET IMPACT MODIFIED REINFORCED GRADES*	
A95 P2 G15 MI	Injection-moulding grade 15% Glass Fiber reinforced. Impact modified
A95 P2 G30 MI	Injection-moulding grade 30% Glass Fiber reinforced. Impact modified

* Injection-moulding grades with 10% up to 60% glass fibers content.

FOOD CONTACT approved grades available.

ALL COLOURS upon request.

PBT COMPOUNDS

PBT UNREINFORCED GRADES*

PHYSICAL PROPERTIES				B95 P2	B96 P2	B97 P2
Density	23 °C	ISO 1183	g/cm ³	1.30	1.30	1.30
Moisture absorption	23 °C/50% r.h.	ISO 62	%	0.25	0.25	0.25
Water absorption	23 °C/saturation	ISO 62	%	0.50	0.50	0.45
Flammability	1.5 mm	UL 94	Class	HB	HB	HB
PROCESSING CONDITIONS						
Melt Volume rate	250 °C / 2.16 kg	ISO 1133	cm ³ /10min	45	20	10
Melt Volume rate	275 °C / 2.16 kg	ISO 1133	cm ³ /10min	-	-	-
Melt temperature, injection moulding			°C	240-280	240-280	230-290
Mould temperature			°C	40-80	40-80	-
Mould Shrinkage	longitudinal		%	1.30	1.30	1.60
	transversal		%	1.60	1.60	2.00
MECHANICAL PROPERTIES						
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	2,600	2,700	2,700
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	60	60	60
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	30.0	15.0	>50.0
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,400	2,400	2,300
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	90	90	85
Charpy unnotched impact strength ⁽¹⁾	23 °C	ISO 179/1eU	kJ/m ²	150	205	NB
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m ²	4.50	4.50	5.0
THERMAL PROPERTIES						
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	223	223	223
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	60	60	60
	0.45 MPa	ISO 75-1/-2	°C	135	180	180
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10 ⁻⁴ /k	1.30-1.60	1.30-1.60	1.30-1.60
ELECTRICAL PROPERTIES						
Dielectric constant	1MHz	ISO 60250		3.30	3.30	3.30
Dissipation factor	1MHz	ISO 60250		200	200	200
Volume resistivity		ISO 60093	Ω.m	>10 ¹³	>10 ¹³	>10 ¹³
Surface resistivity		ISO 60093	Ω	10 ¹³	10 ¹³	10 ¹³
Comparative tracking index (CTI)		ISO 60112		550	550	550

PBT Unreinforced

(1) NB: No break.

[*] All these grades are available **LUBRICATED & NUCLEATED (LN)**

PBT UNREINFORCED GRADES WITH
IMPROVED HYDROLYSIS RESISTANCE

PBT EASY-FLOWING REINFORCED GRADES

B96 P2 HR		B97 P2 HR		B95 P2 G15	B95 P2 G20	B95 P2 G30	B95 P2 G45	B95 P2 G50	B95 P2 GB20	B95 P2 GB30
1.30	1.30	1.42	1.46	1.52	1.70	1.73	1.45	1.52		
0.25	0.25	0.20	0.20	0.20	0.10	0.10	0.15	0.20		
0.45	0.40	0.40	0.40	0.40	0.30	0.30	0.40	0.40		
HB	HB	HB	HB	HB	HB	HB	HB	HB		
14	12	35	30	20	15	12	30	20		
-	-	-	-	-	-	-	-	-		
240-280	230-290	250-280	250-280	250-280	250-280	250-280	250-280	250-280		
40-80	-	60-100	60-100	60-100	60-100	60-100	60-100	60-100		
1.60	1.60	0.60	0.60	0.35	0.30	0.30	1.80	1.60		
2.20	2.00	1.30	1.30	1.00	0.90	0.90	1.80	1.60		
2,700	2,700	6,000	7,500	9,500	14,500	16,000	3,200	4,500		
55	55	95	110	135	160	165	45	50		
25.0	>50.0	4.0	3.0	2.5	2.0	2.0	5.5	4.5		
2,400	2,300	5,000	6,500	8,000	13,000	14,500	2,800	4,000		
90	85	170	175	190	220	230	80	90		
235	NB	40	50	60	65	70	30	35		
5.00	5.00	5.50	7.50	11.0	13.0	15.0	3.0	3.0		
223	223	223	223	223	223	223	223	223		
55	60	190	205	210	215	215	75	95		
150	180	215	220	220	220	220	75	200		
1.30-1.60	1.30-1.60	0.40	0.40	0.40	0.25	0.25	0.25	0.25		
3.40	3.30	3.70	3.70	3.70	3.70	3.70	3.70	3.70		
220	200	150	150	170	170	170	150	170		
>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³		
10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³		
550	550	375	375	375	375	375	225	225		
PBT Unreinforced		PBT Glass fiber					PBT Glass beads			
Hidrolysis resistance										

All these grades are available not just with a glass fiber content of 30%, but from 10% to 60%.

FOOD CONTACT approved grades available.

ALL COLOURS upon request.

PBT & PBT/PET COMPOUNDS

PBT MEDIUM-VISCOSITY REINFORCED GRADES

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	B96 P2 G15	B96 P2 G20	B96 P2 G30	B96 P2 GB20	B96 P2 GB30	
Density	23 °C	ISO 1183	g/cm ³	1.42	1.46	1.52	1.45	1.52	
Moisture absorption	23 °C/50% r.h.	ISO 62	%	0.20	0.20	0.20	0.20	0.20	
Water absorption	23 °C/saturation	ISO 62	%	0.40	0.40	0.40	0.40	0.40	
Flammability	1.5 mm	UL 94	Class	HB	HB	HB	HB	HB	
PROCESSING CONDITIONS									
Melt Volume rate	250 °C / 2.16 kg	ISO 1133	cm ³ /10min	18	15	9	15	9	
Melt Volume rate	275 °C / 2.16 kg	ISO 1133	cm ³ /10min	-	-	-	-	-	
Melt temperature, injection moulding			°C	250-280	250-280	250-280	250-280	250-280	
Mould temperature			°C	60-100	60-100	60-100	60-100	60-100	
Mould Shrinkage	longitudinal		%	0.60	0.40	0.30	1.80	1.60	
	transversal		%	1.30	1.10	1.00	1.80	1.60	
MECHANICAL PROPERTIES									
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	6,000	7,500	9,800	3,200	4,500	
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	95	110	140	45	50	
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	4.0	3.0	2.5	5.5	4.0	
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	5,000	6,500	8,000	2,800	3,500	
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	170	175	195	80	90	
Charpy unnotched impact strength ⁽¹⁾	23 °C	ISO 179/1eU	kJ/m ²	40	50	60	30	35	
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m ²	5.50	7.50	11.00	3.00	3.00	
THERMAL PROPERTIES									
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	223	223	223	223	223	
	1.8 MPa	ISO 75-1/-2	°C	190	205	205	75	95	
Heat Deflection Temperature (HDT)	0.45 MPa	ISO 75-1/-2	°C	215	220	220	175	200	
	23-80 °C long.	ISO 11359-1/-2	10 ⁻⁴ /k	0.40	0.40	0.25	0.25	0.25	
Thermal coefficient of linear expansion									
ELECTRICAL PROPERTIES									
Dielectric constant	1MHz	ISO 60250		3.70	3.70	3.70	3.70	3.70	
Dissipation factor	1MHz	ISO 60250		150	150	170	150	170	
Volume resistivity		ISO 60093	Ω.m	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	
Surface resistivity		ISO 60093	Ω	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	
Comparative tracking index (CTI)		ISO 60112		375	375	375	225	225	

PBT Glass fiber

PBT Glass beads

(1) NB: No break.

All these grades are available not just with a glass fiber content of 30%, but from 10% to 60%.

FOOD CONTACT approved grades available.

ALL COLOURS upon request.

PBT UNREINFORCED FLAME RETARDANT GRADES			PBT REINFORCED FLAME-RETARDANT GRADES		PBT STEEL FIBER REINFORCED GRADES		PBT/PET REINFORCED GRADES			
B95 P2 U2	B95 P2 U0	B95 P2 U0 H	B95 P2 G30 U0	B95 P2 G30 U0 H	B95 P2 SF10	B95 P2 SF10 U0	B55 P2 G20	B55 P2 G30	B56 P2 G20	B56 P2 G30
1.34	1.32	1.42	1.52	1.62	1.4	1.43	1.46	1.55	1.46	1.55
0.25	0.25	0.25	0.20	0.20	0.22	0.20	0.20	0.20	0.20	0.20
0.50	0.50	0.50	0.40	0.40	0.45	0.40	0.40	0.40	0.40	0.40
V2	V0	V0	V0	V0	HB	V0	HB	HB	HB	HB
50	70	55	15	15	35	25	55	45	25	18
-	-	-	-	-	-	-	-	-	-	-
240-270	240-270	240-270	250-290	250-290	250-280	250-280	260-290	260-290	260-290	260-290
70-90	70-90	70-90	70-90	70-90	60-100	60-100	80-120	80-120	80-120	80-120
1.30-1.60	1.03-1.60	1.30-1.60	0.30-0.40	0.30-0.40	0.75	0.60	0.30	0.30	0.30	0.30
1.30-1.60	1.30-1.60	1.30-1.60	1.00-1.20	1.00-1.20	1.40	1.30	0.95	0.95	0.95	0.95
3,400	2,500	3,000	10,000	11,000	3,000	3,600	6,400	10,000	6,400	10,000
60	35	60	105	140	55	20	120	150	120	150
3.0	3.5	3.5	2.0	2.0	2.5	2.0	2.5	2.5	2.5	2.5
3,000	3,000	2,700	9,500	9,500	2,700	3,000	6,100	8,300	6,100	8,300
90	75	85	150	190	85	50	175	195	175	195
50	25	55	30	45	30	5.00	42	60	42	60
3.00	2.00	3.00	7.00	8.00	1.50	1.00	5.50	11.50	5.50	11.50
223	223	223	223	223	223	223	223	223	223	223
60	60	70	210	205	170	170	108	215	180	215
150	160	145	218	220	210	210	215	220	215	220
1.10	1.10	1.15	0.20	0.20	0.50	0.50	0.25	0.25	0.25	0.25
-	-	-	-	-	-	-	3.80	3.80	3.80	3.80
-	-	-	-	-	-	-	170	170	170	170
>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10	>10	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³
10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ⁴	10 ²	10 ¹³	10 ¹³	10 ¹³	10 ¹³
600	600	250	600	250	-	-	375	375	375	375
PBT Unreinforced			PBT Glass fiber		PBT Steel fiber		PBT/PET Glass fiber			
Flame retardant			Flame retardant		Flame retardant					
Halogen free			Halogen free		Halogen free					

(1) NB: No break.
All these grades are available not just with a glass fiber content of 30%, but from 10% to 60%.

FOOD CONTACT approved grades available.

All COLOURS upon request.

PET COMPOUNDS

PET REINFORCED GRADES

PHYSICAL PROPERTIES				CONDITIONS	TEST METHOD	UNIT	A95 P2 G15	A95 P2 G30	A95 P2 G35	A95 P2 G45	A95 P2 G60
Density		23 °C	ISO 1183	g/cm ³		1.44	1.56	1.63	1.70	1.82	
Moisture absorption		23 °C/50% r.h.	ISO 62	%		0.20	0.20	0.20	0.20	0.20	
Water absorption		23 °C/saturation	ISO 62	%		0.40	0.70	0.70	0.70	0.70	
Flammability		1.5 mm	UL 94	Class		HB	HB	HB	HB	HB	
PROCESSING CONDITIONS											
Melt Volume rate		250 °C / 2.16 kg	ISO 1133	cm ³ /10min		35	30	25	20	10	
Melt Volume rate		275 °C / 2.16 kg	ISO 1133	cm ³ /10min		-	-	-	-	-	
Melt temperature, injection moulding				°C		270-300	270-300	270-300	270-300	270-300	
Mould temperature				°C		80-120	80-120	80-120	80-120	80-120	
Mould Shrinkage		longitudinal		%		0.20	0.20	0.20	0.20	0.20	
		transversal		%		0.80	0.80	0.80	0.70	0.60	
MECHANICAL PROPERTIES											
Tensile modulus		23 °C, 1 mm/min	ISO 527-1/-2	MPa		6,000	10,800	12,000	15,000	19,000	
Tensile strength		23 °C, 50 mm/min	ISO 527-1/-2	MPa		120	155	160	180	185	
Elongation at break		23 °C, 50 mm/min	ISO 527-1/-2	%		3.5	2.5	2.0	2.0	1.5	
Flexural modulus		23 °C, 2 mm/min	ISO 178	MPa		5,000	8,300	10,000	14,500	17,000	
Flexural strength		23 °C, 2 mm/min	ISO 178	MPa		160	195	220	260	280	
Charpy unnotched impact strength ⁽¹⁾		23 °C	ISO 179/1eU	kJ/m ²		35	60	60	65	65	
Charpy notched impact strength		23 °C	ISO 179/1eA	kJ/m ²		6.00	11.50	11.50	12.00	12.00	
THERMAL PROPERTIES											
Melting temperature (DSC)		10 °C/min	ISO 3146	°C		252	252	252	252	252	
		1.8 MPa	ISO 75-1/-2	°C		210	224	224	226	230	
Heat Deflection Temperature (HDT)		0.45 MPa	ISO 75-1/-2	°C		230	245	245	245	250	
		23-80 °C long.	ISO 11359-1/-2	10 ⁻⁴ /k		0.10	0.10	0.10	0.10	0.10	
ELECTRICAL PROPERTIES											
Dielectric constant		1MHz	ISO 60250			3.80	3.80	3.8	3.80	3.80	
Dissipation factor		1MHz	ISO 60250			170	170	170	170	170	
Volume resistivity			ISO 60093	Ω.m		>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	
Surface resistivity			ISO 60093	Ω		10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	
Comparative tracking index (CTI)			ISO 60112			250	250	250	250	250	

PET Glass fiber

(1) NB: No break.

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FOOD CONTACT approved grades available.

ALL COLOURS upon request.

PET FLAME-RETARDANT REINFORCED GRADES

PET IMPACT MODIFIED REINFORCED GRADES

A95 P2 G15 U0	A95 P2 G30 U0	A95 P2 G15 U0 H	A95 P2 G30 U0 H	A95 P2 G15 MI	A95 P2 G30 MI
1.50	1.62	1.53	1.66	1.42	1.66
0.20	0.20	0.20	0.20	0.25	0.20
0.60	0.50	0.60	0.50	2.50	0.50
V0	V0	V0	V0	HB	HB

-	-	-	-	18	-
-	-	-	-	-	-
270-300	270-300	270-300	270-300	270-300	270-300
80-120	80-120	80-120	80-130	80-120	80-130
0.20	0.20	0.20	0.20	0.30	0.20
0.80	0.70	0.80	0.70	0.80	0.70

7,500	12,000	6,800	11,500	4,800	8,000
90	110	100	130	80	120
2.0	2.0	2.5	2.0	3.0	2.5
6,500	10,000	6,000	10,000	4,100	7,500
120	170	150	200	130	160
25	35	35	45	55	80
5.00	6.00	7.00	8.00	12.00	15.00

252	252	252	252	252	252
200	226	200	225	205	210
235	245	240	240	235	240
0.10	0.10	0.10	0.10	0.10	0.10

-	-	-	-	3.9	-
-	-	-	-	230	-
>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹¹	>10 ¹³
10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³	10 ¹³
550	550	225	225	225	225

PET Glass fiber				PET Glass fiber	
Flame retardant				Impact modified	
Halogen free					

(1) NB: No break.
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FOOD CONTACT approved grades available.

All COLOURS upon request.



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