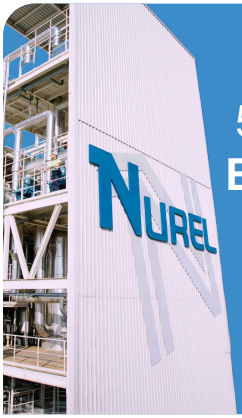
Promyde®
POLYAMIDE 6 & 66

POLYAMIDE 6 & 66 FOR INJECTION MOULDING

NUREL
ENGINEERING POLYMERS



50 YEARS OF **EXPERTISE** IN **ADVANCED MATERIALS**

- SYNTHETIC FIBERS
- **ENGINEERING POLYMERS**
  - **PA6**, **PA66**, PPA, **PP**, PBT/PET, PBT & PET
  - COMPOSTABLE, BIOBASED, & BIODEGRADABLE MATERIALS
  - ADVANCED BARRIER MATERIALS FOR PACKAGING
  - CERTIFIED RECYCLED ENGINEERING COMPOUNDS
- BIOPOLYMERS
- INJECTION SOLUTIONS

NUREL, a leading and highly experienced producer of engineering polymers, is recognized for its strong commitment to **research, innovation and technical excellence**.

Building on decades of expertise in polyamide technology, **our in-house polyamide polymerization** together with **state-of-the-art compounding facilities** provide the basis for expanding our **PROMYDE®** range.

This integration enables us to deliver a comprehensive portfolio of **PA6 and PA66** grades for injection molding, including **unreinforced, reinforced, high-flow, impact-modified and flame-retardant solutions**.

At NUREL, innovation, technical know-how and sustainability are the foundation driving the future of **high-performance polyamides** for injection moulding.

OUR R&D CENTER FOR NEW ADVANCED MATERIALS

At NUREL, we operate a **state-of-the-art innovation centre**, fully equipped for the development of advanced plastic materials. This cutting-edge facility drives innovation and enables the creation of **high-quality, high-performance solutions** specifically designed for injection moulding applications.

EQUIPMENT

PILOT **POLYMERIZATION** PLANT

2 PILOT SCALE **COMPOUNDING EXTRUDERS**

2 INJECTION MOULDING LINES

CAST & THERMOFORMING PILOT LINE

7-LAYER BLOWN COEXTRUSION LINE

MATERIAL CHARACTERIZATION

PHYSICAL: DENSITY, RELATIVE VISCOSITY, MVR & MFI, MOISTURE & WATER ABSORPTION…

MECHANICAL: TENSILE & FLEXURAL TESTS, IMPACT RESISTANCE, SHORE HARDNESS

FLAMMABILITY: UL 94, GWFI, GWIT

THERMAL: DSC, HDT, THERMAL AGING

OPTICAL: COLOUR AND HAZE

SUSTAINABILITY APPROACH

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 our **zero waste policy, conserving resources, and improving energy efficiency** in our operations, contributing to global sustainability efforts.

LIFE CYCLE ANALYSIS

We are engaged in the **analysis of cradle-to-gate impacts** of our products through life cycle assessments. These **LCAs** enable us to compare the environmental impacts of similar products and processes. We conduct **LCAs using SimaPro software**.

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 11,000 tons of CO_2** into the atmosphere annually.

AVAILABLE CERTIFICATIONS

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.

RECOMYDE PRE- & POST-CONSUMER RECYCLED PA

Recomyde®
RECYCLED POLYAMIDE 6 & 66

In line with NUREL's commitment to sustainability throughout its manufacturing processes, PROMYDE offers high-quality recycled polyamide compounds.

PROMYDE POST-INDUSTRIAL & POST-CONSUMER (PIR–PCR) RECYCLED PA

These PA6 and PA66 polymers are sourced from both post-industrial and post-consumer waste streams. Recycling polyamide waste into new compounds helps reduce landfill pressure, conserve valuable resources, and lower the carbon footprint and energy demand associated with virgin polymer production.

MORE INFO

Scan this code to access the full RECO-LINE catalogue, featuring RECOMYDE® and other solutions in recycled engineering polymers.

Reco-line
RECYCLED TECHNICAL POLYMERS

PROMYDE® PRODUCT OVERVIEW

UNREINFORCED PA6

Unreinforced **PROMYDE®** is produced in NUREL's polymerization process in which **unique additivation packages and polymer chain modifications** are made combining cost effectiveness and differential properties.

NUREL offers an extensive range of unreinforced **PROMYDE PA6** grades, including **high-flow**, **impact-modified** types, and **flame-retardant** grades. Our portfolio also encompasses **high-viscosity** PA6 grades.

MULTI PURPOSE FAST INJECTION	
B300 P	Extremely High Flowing for design innovation, for very small pieces. Also to aid production of large parts in smaller machines. UL Certified.
B15 P	For very fast multi cavity moulding of small parts. UL Certified.
B20 P	For precise technical moulding of both large or small parts. UL Certified.
B30 P	Wide processing window for general purpose unreinforced applications. B30 P is UL Certified with a Glow Wire Flammability Index 850°C, applicable for electrical parts. UL Certified.
B30 PN	Non nucleated, with slightly improved impact resistance over B30 P. Excellent colourability. UL Certified.

HIGH VISCOSITY POLYAMIDE	
B33 BR1	For strong wheels and castors required to lift heavy loads.
B36 BR1	High viscosity injection moulding grade.
B38 BR1	For wheels and other thick walled parts.
B40 BR1	High viscosity injection moulding grade suitable for both small and large heavy duty wheels.

IMPACT MODIFIED	
B30 P MID	Injection of wall plugs, fixing systems and other applications. A combination of flexibility and resistance to breakage by impact. Also useful in over moulding.
B30 P2 HI	For applications requiring extra resistance to breakage by impact.
B30 P2 HI C	For extra high impact resistance in freezing cold temperatures over -30°C. Applications in ski equipment and auto shock absorbers.
B30 P2 HI60	For impact resistance for Charpy 60 and below.
B300 P2 HI	For applications requiring extra impact resistance and improved flowability.
B300 P2 HI60	For applications requiring impact resistance, Charpy 60 and below and improved flowability.

FLAME RETARDANT	
B30 P2 U2	For standard unfilled V0 requests. UL certified.
B30 P2 U0 T	For V0 requests with high mechanical strength and improved toughness. HL3 according to **EN45545**.

FOR RECYCLED MATERIALS and other sustainable grades please contact us.

All these grades are also available with UV & HS packages. All colours are available upon request.

PROMYDE® PRODUCT OVERVIEW

REINFORCED PA6 & PA66

NUREL's offer for PA6 & PA66 compounds guarantees that our customers receive **consistency in processing and product behaviour**.

PROMYDE® Reinforced Products:

10-60% GLASS FILLED

Excellent flow processing & smooth surface appearance.

GLASS BEADS AND SPECIAL GLASS FIBERS

Dimensional stability & smooth surface finish.

20%, 30% & 40% MINERAL FILLED

For extra flatness.

HIGH FLOW

All our reinforced grades are also available with a high flow polymer base.

IMPACT MODIFIED

Both medium and high impact resistant products.

FLAME RETARDANT AND SELF EXTINGUISHING

For electrical and electronics: V0 ratings, no flame up to 825°C. UL certified, Halogen free

COLOURING

In RAL colour cards and customized colour matching under demand.

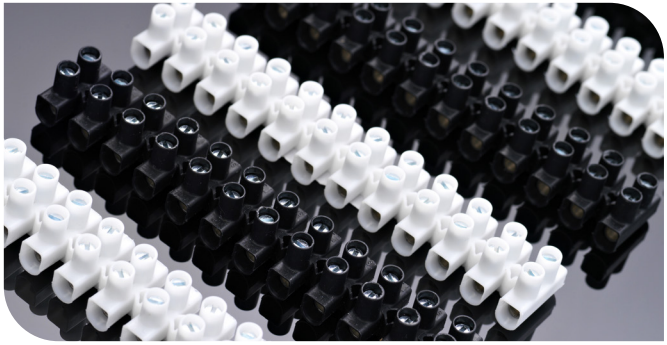
UV, HS, HR

Improved UV stabilization, Heat Resistance and/or Hydrolysis Resistance.

LASER MARKING

All our grades are also laser markable under demand.

FOR RECYCLED MATERIALS and other sustainable grades please contact us.



PA6 EASY PROCESSING

PROMYDE® HIGH FLOW POLYAMIDES

High Flow PA6 - B300 Types:

PROMYDE High Flow B300 grades feature a different polymer matrix compared to conventional polyamides and other brands' high-flow materials. Our High Flow polyamides combine **excellent mechanical performance with increased production efficiency.**

The PROMYDE High Flow B300 product range **includes unreinforced** as well as and **15-60% Glass filled types along with other reinforced** PAs to achieve an **easier and smoother injection process**.

KEY ADVANTAGES

- **Processing at 30°C to 45°C lower temperature** Polymer enters mould cooler and is released earlier.
- **Remarkable Cycle Time improvement:** Its higher fluidity allows lower injection temperatures and faster cooling, delivering up to 30% cycle time reduction.
- **Significant Clamp Force reduction:** Efficient processing at standard temperatures makes it possible to use smaller machines.
- **Superior surface quality:** Outstanding finish even with up to 60% glass fibre content.
- **Enables innovative design:** Extremely small and intricate parts can be designed with **PROMYDE B300.**

All these advantages **make PROMYDE B300** a highly recommended alternative for the **replacement of PA66** as well as for for **unreinforced PA6 substitution.**

COMPARATIVE MOLDFLOW STUDY

PROMYDE® HIGH FLOW POLYAMIDES

A moldflow simulation comparing **PROMYDE® B300 P2 G30** with a **standard PA6 + 30 % glass fibre compound** clearly demonstrates the **superior performance** of high-flow technology in injection moulding.

The study was conducted on a **front automotive bumper** with **two injection points**, under identical processing conditions.

REDUCED CYCLE TIME

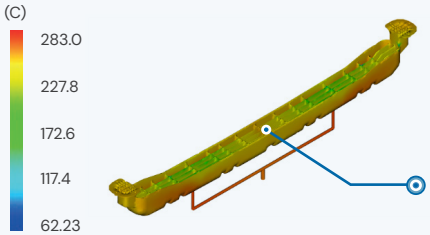
By setting the processing temperature **45°C lower** with **PROMYDE® B300 P2 G30** compared to a competitor's standard PA6 G30, the following benefits are achieved:

FILLING TEMPERATURE

PROMYDE B300 P2 G30	**250°C**
Standard PA6 G30	295°C

SAME CLAMPING FORCE FOR BOTH MATERIALS

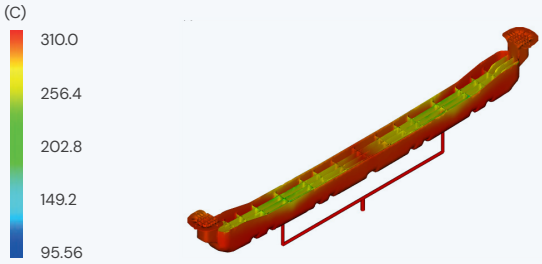
PROMYDE B300 P2 G30 20 s*



By using a **250°C Processing temperature reduces cycle time by 30%,** saving energy and boosting productivity.

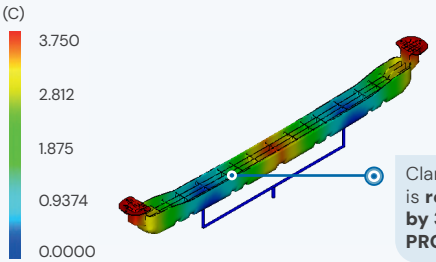
COMPETITOR'S PA6 G30 29 s*

* Time to reach ejection temperature



REDUCED CLAMPING FORCE COMPARATIVE TEST

FILLING TIME PROGRAMMED: 3.65s

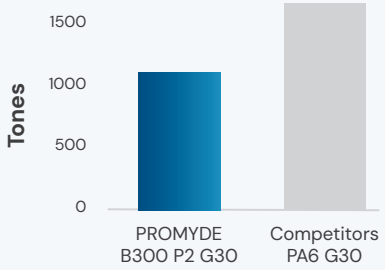


Clamping force is **reduced by 30%** with **PROMYDE B300**

Both materials were processed under the same temperature, cycle time and holding pressure settings.

PROMYDE® B300 achieves a 30% reduction in clamping force, allowing the use of smaller injection machines and thereby enhancing **cost-effectiveness**.

FILLING TIME PROGRAMMED: 3.65s



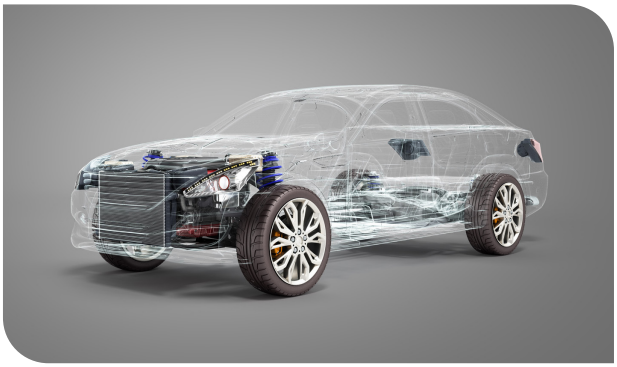
Melt Temperature
270°C

Holding pressure
80MPa (15s)

PA6 HS FOR PA66 REPLACEMENT

PROMYDE® HEAT STABILIZED

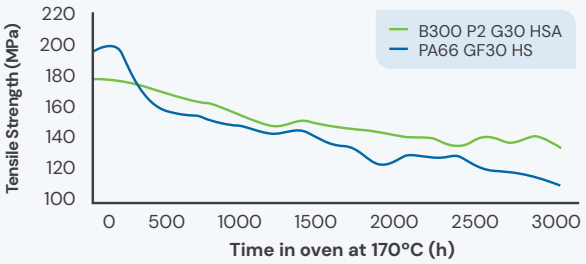
Components requiring **extended thermal resistance** benefit significantly from this innovative development. Our new **PROMYDE® PA6 HSA** series maintains its properties even in **high-temperature environments,** such as **automotive engines**.

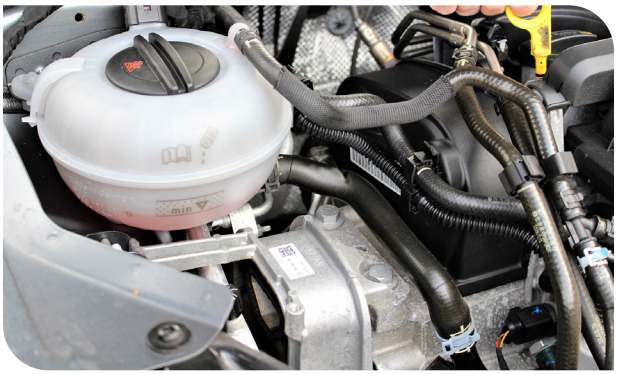


HIGH PERFORMANCE AT HIGH TEMPERATURES

For applications with continuous use temperatures up to 185°C, **PROMYDE HSA** grades retain their mechanical properties with minimal variations after ageing.

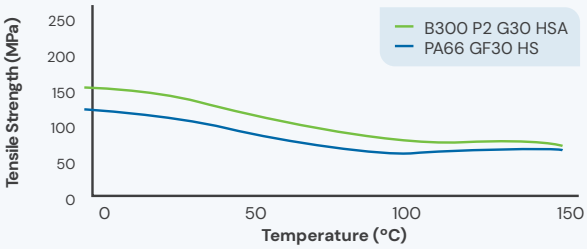
HSA characteristics can be incorporated into any **PROMYDE** product, ranging from **10% to 60% fiber content**.

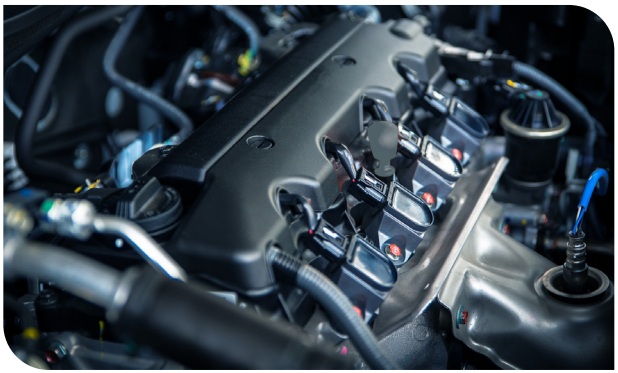




After ageing, **PA6 exhibits greater tensile strength than PA66** across all temperature ranges, showcasing **superior mechanical properties** in comparison to PA66.

AFTER AGEING (3,000H AT 170°C)



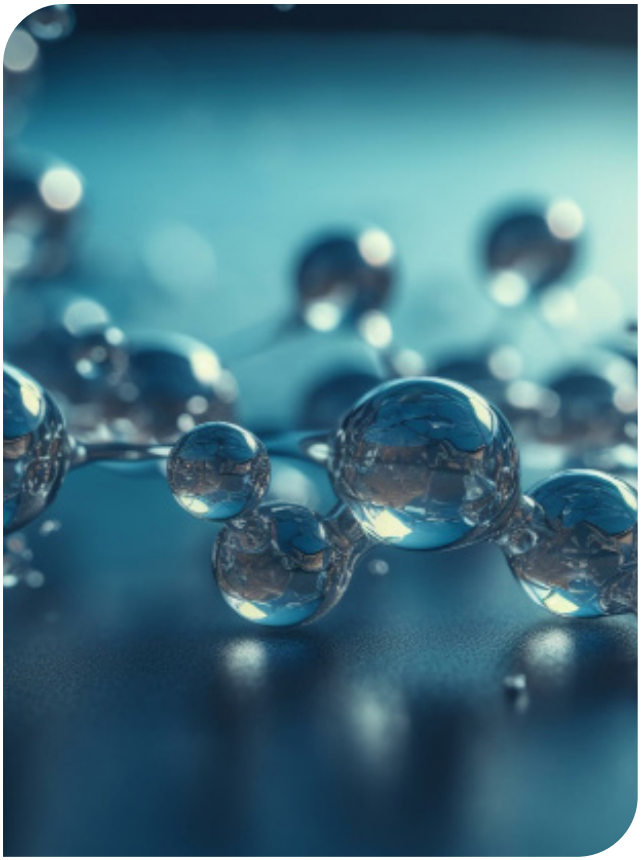


PA6 HR FOR PA66 REPLACEMENT

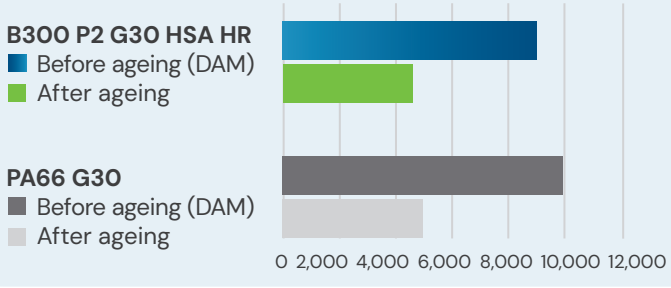
HYDROLYSIS RESISTANCE

NUREL has recently developed special hydrolysis resistant PA6 grades. Our **PROMYDE HSA HR glass fiber reinforced** grades, have been specially designed for **components requiring exceptional hydrolysis resistance**.

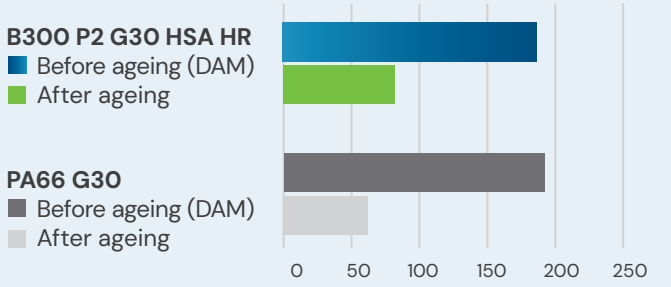
Comparative testing has demonstrated that our **PA6 HSA HR grades even outperform specialised PA66 hydrolysis resistant**.



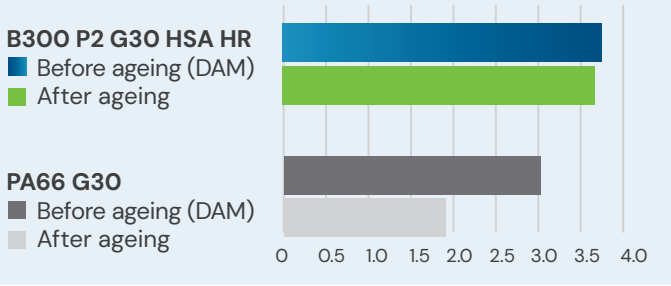
TENSILE MODULUS (MPA)



TENSILE STRENGTH (MPA)



ELONGATION AT BREAK (%)



TEST CONDITIONS: 1,000H AT 120°C IN ETHYLENE GLYCOL (50%)

PA6 & 66 REINFORCED AND UNREINFORCED

FLAME RETARDANT DEVELOPMENTS

PA6 & PA66 Halogen Free Flame Retardant (HFFR) Compounds

NUREL has developed a comprehensive portfolio of **halogen-free flame-retardant PA6 and PA66** compounds, reflecting our strong commitment to safety and environmental responsibility.

These products not only **meet rigorous flame retardancy standards,** but also excel in **toxicological safety** and **mechanical performance**, making them ideal for use in sectors such as like railways, automotive, electronics and electrical equipment.

FR Unreinforced Grades

Unreinforced **PROMYDE® flame-retardant grades** offer an exceptional balance of **flexibility and impact resistance**, making them the preferred choice for a wide range of functional applications requiring flame resistance.

These **halogen-free** PROMYDE® innovations are ideally suited for railway components, low-voltage sockets, plugs, electrical boxes and connectors, all of which are **UL94-certified for safety**.

Within the **electrical sector**, PROMYDE® grades are especially valued, offering a variety of colour options, with electric **grey RAL 7035** being one of the most in-demand choices for these applications.

PROMYDE B30 P2 UO	PROMYDE B30 P2 U2 RAL7035
Class V0 – UL94	Class V2 – UL94
GWFI = 960°C	GWFI = 960°C
CTI > 600V	CTI > 600V
EN 45545	EN 45545
Halogen Free	Halogen Free
Yellow Card available	Electric Grey RAL 7035

Glass Fiber Reinforced Range

Reinforcing polyamide 6 with **glass fibres** provides several key benefits, including increased **strength, impact resistance and temperature resistance**, as well as improved **dimensional stability**. However, it is important to note that glass fibre reinforcement can have a negative effect on the fire resistance of PA.

NUREL has achieved significant progress in this area, developing **reinforced PA grades** that not only **meet stringent fire resistance standards** but also retain the full benefits of reinforcement. Thanks to new investments in production technologies and formulation, we can now offer **glass fibre contents ranging from 10% to 50%.**

PROMYDE B300 P2 G30 UO
Class V0 – UL94
GWFI = 960°C
CTI > 600V
High Flow
Halogen Free
Yellow Card available

PA6 & 66 REINFORCED AND UNREINFORCED

FLAME RETARDANT DEVELOPMENTS

NEW FR Reinforced PA with Enhanced Dimensional Stability

NUREL has developed a range of special glass fiber reinforced products offering **improved fire resistance, superior surface finish and reduced shrinkage.**

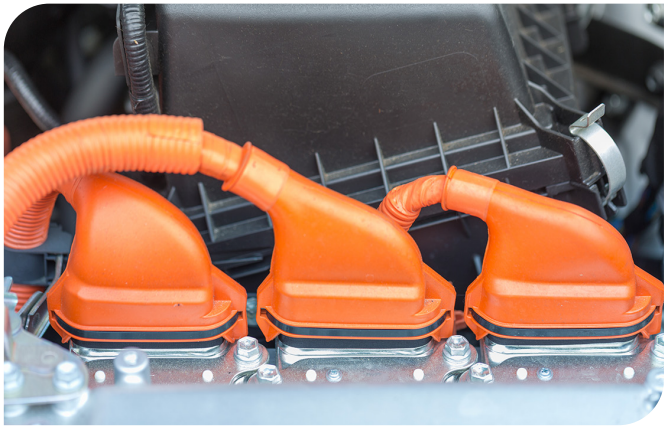
These materials are particularly suitable for electrical switches and electrical housings.

PROMYDE B30 P2 G20 S2 U2
Class V2 – UL94
GWFI = 960°C
CTI > 600V
Halogen Free
Improved dimensional stability
Improved surface finish

Bright Orange RAL 2003

NUREL has specifically developed a new formulation for the bright **orange colour RAL 2003**. This colour is required by **electric vehicle (EV)** manufacturers for use in **high-voltage applications** to ensure easy recognition for safety purposes. It is crucial for this colour to remain **highly stable at elevated temperatures over time**.

NUREL now offers **new flame-retardant engineering plastics** tailored for the e-mobility market that meet the stringent **color stability requirements**. By employing **cutting-edge orange pigments** and simultaneously incorporating **halogen-free flame retardant** additives, we surpass the highest safety standards in this emerging field of sustainable mobility.



All flame retardant developments are **compatible with other requirements such as ageing stabilization, hydrolysis resistance, and UV resistance**. These advancements are available in a wide range of colours upon request.

THERMOELECTRICAL CONDUCTIVITY

THERMOELECTRIC COMPOUNDS

Conductive Compounds Customized to Your Needs

In response to increasing demand in the electrical, electronic, and automotive sectors, where weight restrictions and design specifications are becoming more stringent, NUREL is committed to developing new materials with **controlled thermal and electrical properties**.

Leveraging our extensive expertise in **polymerization and nanotechnology**, we have successfully enhanced the **electrical and thermal conductivity of PA6**.

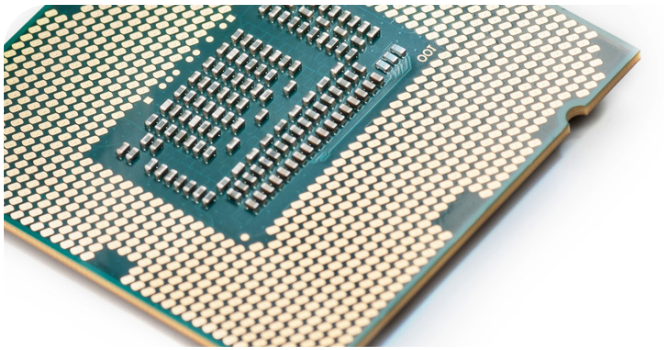
Electrical conductivity

NUREL offers a range of **PA6 compounds** with electrical conductivity levels from antistatic grades to highly conductive grades (10–10^{12} Ohm).
Applications include **electrostatic painting components, precision electronic parts and electrostatic surfaces for medical devices.**

Thermal conductivity

We also provide **PA6 compounds with tailored heat-conducting properties** to efficiently **dissipate heat** generated by electrical and electronic circuits.
Our new range of PROMYDE® PA6 compounds achieves **thermal conductivity values from 2 to 10 W/mK**, available for both black and coloured components.

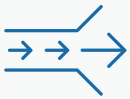
Thermally conductive plastics also enable **weight reduction by replacing metallic components**. These materials are primarily used in **heat sinks for electric motors, electronic circuits and lighting systems**.



ENHANCING PERFORMANCE WITH PROMYDE® SOLUTIONS

REINFORCED SOLUTIONS

Glass fiber, glass bead and mineral-filled compounds, including flame-retardant and high-flow grades for improved surface finish.



HIGH FLOW

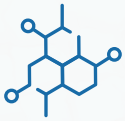
Combine high mechanical performance with excellent fluidity, ideal for complex geometries and high-quality surface finishes, improving productivity and reducing cycle times.

UV RESISTANCE

UV-stabilized PA6 & PA66 grades to extend durability of outdoor components exposed to sunlight.

HEAT STABILIZATION

Outstanding heat stabilisation, maintaining mechanical properties under continuous high-temperature use. These compounds are ideal for demanding applications such as automotive engines.



HYDROLYSIS RESISTANCE

Ensure long-term durability under extreme conditions. Our PROMYDE® HSA HR compounds outperform conventional solutions, even exceeding PA66 hydrolysis-resistant grades.

FLAME RETARDANT

Flame-retardant PA6 & 66 grades that meet the most demanding fire safety and electrical standards. Halogen-free solutions are available.

THERMAL CONDUCTIVITY

V-0 classification under UL94 while maintaining excellent mechanical performance. These halogen-free solutions ensure the highest safety standards.

ELECTRICAL CONDUCTIVITY

PA6 grades covering a wide conductivity spectrum, from antistatic to conductive ($10–10^{12}$ Ω), for ESD-sensitive applications.

ELECTROMAGNETIC SHIELDING (EMI)

PA6 compounds developed to absorb electromagnetic radiation or provide EMI shielding through controlled conductivity.

PROMYDE® PROPERTIES

POLYAMIDE 6 UNREINFORCED

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	UNREINFORCED PA6 B15 P	UNREINFORCED PA6 B20 P	UNREINFORCED PA6 B30 P
Density	23 °C	ISO 1183	g/cm³	1.13	1.13	1.13
Viscosity Number	25 °C	ISO 307	cm³/g	120	125	145
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.0	3.0	3.0
Water absorption	23 °C/saturation	ISO 62	%	9.5	9.5	9.5
Flammability	1.5 mm	UL-94	Class	V-2	V-2	V-2
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	850	850	850
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	700	700	725
PROCESSING CONDITIONS						
Melt Volume rate	275 °C / 5 kg	ISO 1133		260	226	145
Melt temperature, injection moulding			°C	250 - 270	250 - 270	250 - 270
Mould temperature			°C	40 - 80	40 - 80	40 - 80
Mould Shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10	0.90 - 1.10
	transversal		%	0.80 - 1.10	0.80 - 1.10	0.80 - 1.10
MECHANICAL PROPERTIES			(dry/cond.)*			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	3,300 / 1,100	3,300 / 1,100	3,300 / 1,100
Tensile strength	23 °C, 50 mm/	ISO 527-1/-2	MPa	85 / 40	85 / 40	85 / 40
Elongation at yield	23 °C, 50 mm/	ISO 527-1/-2	%	3.5 / 25	3.5 / 25	3.5 / 25
Elongation at break	23 °C, 50 mm/	ISO 527-1/-2	%	18 / >50	18 / >50	18 / >50
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,800 / 1,000	2,800 / 1,000	2,800 / 1,000
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	110 / 30	110 / 30	110 / 30
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB
	-30 °C	ISO 179/1eU	kJ/m²	320	320	-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5.0 / 30	5.0 / 30	5.0 / 30
	-30 °C	ISO 179/1eA	kJ/m²	4.5	4.5	4.5
THERMAL PROPERTIES						
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	65	65	65
	0.45 MPa	ISO 75-1/-2	°C	187	187	187
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.70	0.70	0.70
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	1.00	1.00	1.00
ELECTRICAL PROPERTIES			(dry/cond.)*			
Dielectric constant	1MHz	ISO 60250		3.5 / 7.0	3.5 / 7.0	3.5 / 7.0
Dissipation factor	1MHz	ISO 60250		300 / 3,000	300 / 3,000	300 / 3,000
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Comparative tracking index		ISO 60112		600	600	600

Unreinforced
Lubricated
Nucleated

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110
All these grades are also available with UV & HS packages. All colours are available upon request.

UNREINFORCED PA6						
B30 PN	**B33 BR1**	**B36 BR1**	**B40 BR1**	**B730 P**	**B735 P**	**B930 P**
1.13	1.13	1.13	1.13	1.15	1.11	1.11
145	203	228	263	–	–	125
3.0	3.0	3.0	3.0	3.0	3.0	3.0
9.5	9.5	9.5	9.5	9.5	9.5	9.5
V-2	V-2	V-2	V-2	V-2	HB	V-2
–	–	–	–	800	800	800
–	–	–	–	825	825	675
145	35	25	14	180	100	180
250 - 270	260 - 280	260 - 280	260 - 280	210 - 290	220 - 250	220 - 290
40 - 80	40 - 80	40 - 80	40 - 80	0 - 80	0 - 80	0 - 30
1.20 - 1.40	0.90 - 1.10	0.90 - 1.10	0.90 - 1.10	0.16 - 0.24	–	0.80 - 1.00
1.08 - 1.40	0.80 - 1.10	0.80 - 1.10	0.80 - 1.10	0.00 - 0.08	–	0.70 - 0.90
2,900 / 1,000	3,400 / 1,100	3,400 / 1,100	3,400 / 1,100	3,000 / 1,500	2,800 / 1,600	2,500 / 1,200
75 / 40	85 / 40	85 / 40	90 / 40	60 / 30	60 / 50	40 / 20
4.0 / 25	4.0 / 25	4.0 / 25	4.0 / 25	2.5 / 5	2.5 / 5	1.5 / 15
50 / >70	50 / >50	60 / >50	70 / >50	3.0 / >20	2.0 / >10	1.5 / >10
2,400 / 1,000	2,900 / 1,000	2,800 / 1,000	2,900 / 1,000	2,700 / 1,300	2,400 / 1,000	2,200 / 1,000
105 / 30	110 / 30	115 / 30	115 / 30	112 / 60	105 / 55	210 / 40
NB / NB	NB / NB	NB / NB	NB / NB	100 / NB	100 / NB	115 / NB
–	–	–	–	–	–	– / –
7.5 / 35	5.4 / 32	6.0 / 35	6.2 / 38	5.0 / 40	4.0 / 30	4.0 / 210
4.5	–	–	–	–	–	– / –
222	222	222	222	185	190-195	210
65	65	65	65	60	50	50
197	197	197	197	60	60	55
0.70	0.70	0.70	0.70	0.70	0.70	0.70
1.00	1.00	1.00	1.00	1.00	1.00	1.00
3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	–	–	3.5 / 7.0
230 / 3,000	300 / 3,000	300 / 3,000	300 / 3,000	–	–	300 / 3,000
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	–	–	10^{13} / 10^{10}
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	–	–	10^{13} / 10^{10}
600	600	600	600	–	–	600
Unreinforced Lubricated	High viscosity			Extra improved transparency	Extra improved transparency	Improved transparency

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing or applications, we recommend that individual tests are performed to determine the suitability of the product use.

PROMYDE® PROPERTIES

POLYAMIDE 6 REINFORCED

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	REINFORCED PA6 B30 P2 G10	REINFORCED PA6 B30 P2 G15	REINFORCED PA6 B30 P2 G20
Density	23 °C	ISO 1183	g/cm³	1.20	1.22	1.28
Viscosity Number	25 °C	ISO 307	cm³/g	145	145	145
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.8	2.6	2.3
Water absorption	23 °C/saturation	ISO 62	%	8.5	8.0	6.9
Flammability	1.5 mm	UL-94	Class	HB	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	-	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	-	-	-
PROCESSING CONDITIONS						
Melt Volume rate	275 °C / 5 kg	ISO 1133	cm³/10min	75	60	55
Melt temperature, injection moulding			°C	260 - 290	260 - 290	260 - 290
Mould temperature			°C	40 - 80	40 - 80	40 - 80
Mould Shrinkage	longitudinal		%	0.40 - 0.80	0.40 - 0.70	0.40 - 0.70
	transversal		%	0.70 - 1.00	0.60 - 0.90	0.60 - 0.90
MECHANICAL PROPERTIES			**(dry/cond.)***			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	4,500 / 2,700	6,000 / 3,400	6,500 / 4,500
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	110 / 68	150 / 78	145 / 85
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	- / -	- / -	- / -
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	3.5 / 7.0	3.5 / 7.0	3.5 / 6.5
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	4,300 / 2,400	5,000 / 2,400	5,500 / 3,500
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	160 / 90	180 / 90	195 / -
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	40 / 80	50 / 90	70 / 95
	-30 °C	ISO 179/1eU	kJ/m²	30	43	-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5.0 / 8.0	5.5 / 12	8.0 / 26
	-30 °C	ISO 179/1eA	kJ/m²	4.0	5.0	-
THERMAL PROPERTIES						
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	190	190	205
	0.45 MPa	ISO 75-1/-2	°C	215	215	215
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.30	0.30	0.20
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	0.70	0.70	0.60
ELECTRICAL PROPERTIES			**(dry/cond.)***			
Dielectric constant	1MHz	ISO 60250		3.6 / 6.9	3.6 / 6.9	3.8 / 6.8
Dissipation factor	1MHz	ISO 60250		250 / 2,200	250 / 2,200	250 / 2,200
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Comparative tracking index		ISO 60112		500	500	500
				Reinforced		

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110
All these grades are also available with UV & HS packages. All colours are available upon request.

REINFORCED PA6								
B30 P2 G30	**B30 P2 G35**	**B30 P2 G40**	**B30 P2 G50**	**B30 P2 GFC15**	**B30 P2 GFC30**	**B30 P2 GB30**	**B30 P2 M30**	**B30 P2 M40**
1.36	1.40	1.46	1.56	1.22	1.36	1.36	1.36	1.46
145	145	145	145	145	145	145	145	145
2.1	2.0	1.8	1.5	2.6	2.1	2.1	2.1	1.8
6.7	6.2	6.0	4.5	8.0	6.7	6.7	6.7	5.7
HB	HB	HB	HB	HB	HB	HB	HB	HB
–	–	–	–	–	–	–	–	750
–	–	–	–	–	–	–	–	700
45	35	26	25	60	45	45	45	70
260 - 290	270 - 290	270 - 290	270 - 290	260 - 290	260 - 290	260 - 290	260 - 290	270 - 290
80 - 95	80 - 95	80 - 95	80 - 95	40 - 80	80 - 95	80 - 95	40 - 80	40 - 80
0.30 - 0.35	0.30 - 0.35	0.30 - 0.35	0.30 - 0.35	0.40 - 0.70	0.30 - 0.35	0.30 - 0.35	- / -	- / -
0.40 - 0.45	0.40 - 0.45	0.40 - 0.45	0.40 - 0.45	0.60 - 0.90	0.40 - 0.45	0.35 - 0.40	- / -	- / -
9,300 / 6,200	11,000 / 7,500	13,000 / 8,500	15,600 / 10,000	6,000 / 3,400	9,300 / 6,200	4,400 / 1,900	5,200 / 2,000	6,000 / 3,000
190 / 110	195 / 130	205 / 138	215 / 150	150 / 78	190 / 110	60 / 40	80 / 50	90 / 60
- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
3.0 / 5.0	3.0 / 4.0	3.0 / 3.5	3.0 / 3.5	3.0 / 5.0	8.0 / -	3.0 / 7.0	3.0 / 7.0	3.0 / 7.0
8,000 / 5,100	9,500 / 6,000	10,600 / 6,500	14,000 / 8,000	5,000 / 2,400	8,000 / 5,100	4,000 / 1,700	3,900 / 2,000	5,500 / 2,800
250 / 180	275 / -	285 / 180	340 / -	180 / 90	250 / 180	120 / 70	94 / 50	145 / 110
85 / 95	90 / 100	95 / 100	95 / 110	50 / 90	85 / 95	50 / 75	- / -	- / -
75	-	-	-	43	75	40	-	-
13 / 25	14 / 25	16 / 22	19 / 27	5.5 / 12	13 / 25	4.0 / 10	5.3 / 25	4.0 / 20
10.0	-	-	-	5.0	10.0	3.0	4.0	3.0
222	222	222	222	222	222	222	222	222
210	213	213	215	190	210	90	100	100
215	215	215	215	215	215	180	-	-
0.20	0.18	0.16	0.13	0.30	0.20	0.20	0.20	0.30
0.60	0.60	0.60	0.50	0.70	0.60	0.60	0.60	0.60
3.8 / 6.8	3.8 / 6.5	3.9 / 6.5	4.2 / 6.3	3.6 / 6.9	3.8 / 6.8	3.7 / 6.1	3.8 / 6.2	3.9 / 6.2
230 / 2,200	230 / 2,200	190 / 1,800	140 / 1,400	250 / 2,200	230 / 2,200	220 / 2,100	200 / 2,000	180 / 1,800
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
500	500	500	500	500	500	500	500	500

Reinforced | Food contact | Glass beads reinforced | Mineral reinforced

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing or applications, we recommend that individual tests are performed to determine the suitability of the product use.

PROMYDE® PROPERTIES

POLYAMIDE 6 IMPACT MODIFIED

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	IMPACT MODIFIED PA6 B30 P MID	B30 P2 MI	B30 P2 HI60
Density	23 °C	ISO 1183	g/cm³	1.13	1.10	1.10
Viscosity Number	25 °C	ISO 307	cm³/g	110	125	125
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.3	2.5	2.4
Water absorption	23 °C/saturation	ISO 62	%	9.5	8.5	8.1
Flammability	1.5 mm	UL-94	Class	HB	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	850	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	800	-	-
PROCESSING CONDITIONS						
Melt Volume rate	275 °C / 5 kg	ISO 1133	cm³/10min	130	100	120
Melt temperature, injection moulding			°C	250 - 270	250 - 270	250 - 270
Mould temperature			°C	40 - 80	40 - 80	40 - 80
Mould Shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10	0.80 - 1.00
	transversal		%	0.80 - 1.10	0.80 - 1.10	0.70 - 1.00
MECHANICAL PROPERTIES			(dry/cond.)*			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	2,800 / 1,100	2,800 / 1,100	2,100 /1,300
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	75 / 35	75 / 35	60 / 35
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	4.0 / 25	05 /25	4.5 / 35
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	50 / 180	25 / 180	35 / >50
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,400 / 700	2,300 / 750	1,700 / 900
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	98 / 32	85 / 25	70 / 35
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB
	-30 °C	ISO 179/1eU	kJ/m²	-	NB	NB
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	13 / NB	14 / NB	65 / 125
	-30 °C	ISO 179/1eA	kJ/m²	10.0	12.0	20.0
THERMAL PROPERTIES						
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	60	55	50
	0.45 MPa	ISO 75-1/-2	°C	150	150	-
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.70	0.70	1.20
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	1.00	1.00	1.20
ELECTRICAL PROPERTIES			(dry/cond.)*			
Dielectric constant	1MHz	ISO 60250		3.5 / 6.5	3.5 / 7.0	2.7 / 4.0
Dissipation factor	1MHz	ISO 60250		250 / 2,500	260 / 3,000	160 / 1,000
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{11}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}	-/-
Comparative tracking index		ISO 60112		600	600	600
				Medium impact res.		High impact res.

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110
All these grades are also available with UV & HS packages. All colours are available upon request.

IMPACT MODIFIED PA6								
B30 P2 HI	B30 P2 HIC	B300 P2 HI	B300 P2 HI60	B30 P2 G15 MI	B30 P2 G30 MI	B30 P2 G40 MI	B300 P2 G15 MI	B300 P2 G20 MI
1.08	1.05	1.08	1.10	1.21	1.33	1.43	1.21	1.21
125	125	100	100	145	110	145	100	100
2.4	2.4	2.4	2.6	2.2	6.3	1.5	2.2	2.0
7.6	7.6	7.6	8.1	7.0	2.0	4.9	7.0	6.8
HB	HB	HB	HB	HB	HB	HB	HB	HB
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
70	80	140	190	35	30	30	100	90
250 – 270	250 – 270	240 – 270	230 – 270	260 – 290	260 – 290	260 – 290	240 – 290	240 – 290
40 – 80	40 – 80	40 – 80	40 – 80	80 – 95	80 – 95	80 – 95	40 – 80	40 – 80
0.80 – 1.00	0.80 – 1.00	0.70 – 0.90	0.80 – 0.90	0.30 – 0.35	0.30 – 0.35	–	0.30 – 0.35	0.30 – 0.35
0.70 – 1.00	0.70 – 1.00	0.60 – 0.90	0.70 – 0.90	0.40 – 0.45	0.40 – 0.45	–	0.40 – 0.45	0.40 – 0.45
2,200 / 1,100	2,000 / 1,000	2,200 / 1,100	2,100 / 1,300	4,500 / 2,400	9,000 / 6,000	11,000 / 6,200	4,500 / 2,400	5,000 / 2,900
65 / 35	60 / 30	65 / 35	60 / 35	90 / 50	160 / 90	170 / 115	90 / 50	110 / 70
4.5 / 35	5.0 / 35	4.5 / 35	4.5 / 35	– / –	– / –	– / –	– / –	– / –
35 / > 50	35 / >50	35 / >50	35 / >50	10 / –	4.0 / 6.0	4.5 / 9.5	10 / –	4.5 / –
1,700 / 400	1,700 / 400	1,700 / 900	1,700 / 900	3,900 / 2,000	7,500 / 4,000	9,500 / 6,000	3,900 / 2,000	4,500 / 2,800
65 / 20	65 / 20	70 / 35	70 / 35	137 / 70	240 / –	240 / 140	137 / 70	150 / 85
NB / NB	NB / NB	NB / NB	NB / NB	75 / 100	100 / 105	100 / 130	75 / 100	75 / –
NB	NB	NB	NB	60	90	95	60 / –	– / –
100 / 125	80 / NB	65 / 125	65 / 125	16 / 30	20 / 30	22 / 40	16 / 30	20 / 40
31.5	60.0	32.0	20.0	10.0	16.0	17.0	10.0	10.0
222	222	222	222	222	222	222	222	222
50	50	50	50	182	200	205	182	195
–	–	–	–	200	215	215	200	200
0.70	0.70	0.70	1.20	0.30	0.20	0.15	0.30	0.30
1.00	1.00	1.00	1.20	0.70	0.60	0.50	0.70	0.70
3.5 / 6.0	3.5 / 6.0	3.5 / 6.0	2.7 / 4.0	3.7 / 6.8	3.8 / 6.8	4.0 / 5.5	3.7 / 6.8	3.7 / 6.8
240 / 2,400	240 / 2,400	240 / 2,400	160 / 1,000	250 / 2,200	230 / 2,200	230 / 2,000	250 / 2,200	250 / 2,200
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{11}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	– / –	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
600	600	600	600	600	600	600	600	600

High impact res.	High impact res. at low Temp.	High impact res.		
		High flow	Reinforced	
				High flow

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing or applications, we recommend that individual tests are performed to determine the suitability of the product use.

PROMYDE® PROPERTIES

POLYAMIDE 6 HIGH FLOW

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	HIGH FLOW PA6 B300 P	HIGH FLOW PA6 B300 P2 G30	HIGH FLOW PA6 B300 P2 G40
Density	23 °C	ISO 1183	g/cm³	1.13	1.36	1.46
Viscosity Number	25 °C	ISO 307	cm³/g	100	100	100
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.0	2.1	1.8
Water absorption	23 °C/saturation	ISO 62	%	9.5	6.7	6.0
Flammability	1.5 mm	UL-94	Class	V-2	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	750	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	700	-	-
PROCESSING CONDITIONS						
Melt Volume rate	275 °C / 5 kg	ISO 1133	cm³/10min	>300	90	57
Melt temperature, injection moulding			°C	230 - 280	235 - 250	235 - 260
Mould temperature			°C	40 - 80	40 - 80	40 - 80
Mould Shrinkage	longitudinal		%	0.90 - 1.10	0.30 - 0.35	0.30 - 0.35
	transversal		%	0.80 - 1.10	0.40 - 0.45	0.40 - 0.45
MECHANICAL PROPERTIES			(dry/cond.)*			
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	3,200 / 1,100	9,900 / 6,700	14,500 / 8,700
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 40	195 / 115	235 / 150
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	4.0 / 25	- / -	- / -
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	10 / > 50	3.0 / 5.0	3.0 / 3.5
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,800 / 1,000	8,400 / 5,200	12,000 / 3,500
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	115 / 40	275 / 180	340 / 200
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	85 / 95	103 / 130
	-30 °C	ISO 179/1eU	kJ/m²	-	75	-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5.0 / 40	13 / 25	15 / 22
	-30 °C	ISO 179/1eA	kJ/m²	4.0	10.0	-
THERMAL PROPERTIES						
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	65	210	213
	0.45 MPa	ISO 75-1/-2	°C	187	215	215
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.70	0.20	0.16
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	1.00	0.60	0.60
ELECTRICAL PROPERTIES			(dry/cond.)*			
Dielectric constant	1MHz	ISO 60250		3.5 / 7.0	3.8 / 6.8	3.9 / 6.5
Dissipation factor	1MHz	ISO 60250		300 / 3,000	230 / 2,200	190 / 1,800
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Comparative tracking index		ISO 60112		600	500	500
				Unreinforced	Reinforced	

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110
All these grades are also available with UV & HS packages. All colours are available upon request.

HIGH FLOW PA6						
B300 P2 G50	**B300 P2 G60**	**B300 P2 GFC15**	**B300 P2 GFC30**	**B300 P2 GFC50**	**B300 P2 G20 M15**	**B300 P2 M40**
1.56	1.69	1.22	1.36	1.56	1.42	1.45
100	–	100	–	–	100	100
1.5	1.2	2.6	2.1	1.5	2.0	1.8
4.5	4.5	8.0	6.7	4.5	6.0	5.4
HB	HB	HB	HB	HB	HB	HB
–	–	–	–	–	–	–
–	–	–	–	–	–	–
37	35	135	90	35	100	300
235 - 260	235 - 270	230 - 260	235 - 250	235- 280	240 - 290	250 - 290
40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 -80
0.90	0.20 - 0.25	0.40 - 0.70	0.15	0.30 - 0.35	0.20 - 0.30	- / -
1.30	0.30 - 0.35	0.60 - 0.90	0.75	0.40 - 0.45	0.30 - 0.40	- / -
17,000 / 10,000	21,000 / 17,000	6,000 / 3,400	9,900 / 6,700	17,000 / 10,000	9,500 / 5,500	6,600 / 3,000
230 / 160	240 / 190	150 / 80	195 / 115	230 / 160	135 / 75	90 / 60
- / -	- / -	- / -	- / -	- / -	- / -	- / -
3.0 / 3.5	2.5 / 2.1	3.0 / 7.0	3.0 / 5.0	3.0 / 3.5	3.5 / 6.5	3.0 / 7.0
15,500 / 8,500	19,700 / 14,400	5,700 / 2,800	8,400 / 5,200	15,500 / 8,500	8,400 / 4,500	6,300 / 3,000
370 / 195	406 / 300	180 / 90	275 / 180	370 / 195	181 / -	130 / 100
105/130	110 / 130	50 / 90	85 / 95	105 /130	70 / 95	- / -
–	–	43	75	–	–	–
20 / 30	22 / 30	6.5 / 12	13 / 25	20/30	4.2 / 30	3.5 / 20
–	–	5.0	10.0	–	–	3.0
222	222	222	222	222	222	222
215	220	190	210	215	205	160
215	220	215	215	215	215	–
0.13	0.13	0.30	0.20	0.13	0.20	0.30
0.50	0.50	0.70	0.60	0.50	0.60	0.60
4.2 / 6.3	-	3.6 / 6.9	3.8 / 6.8	4.2 / 6.3	3.8 / 6.8	3.9 / 6.2
140 / 1,400	-	250 / 2,200	230 / 2,200	140 / 1,400	250 / 2,200	180 / 1,800
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
500	500	500	500	500	500	600

Reinforced

Food contact

Glass fiber and mineral reinforced

Mineral reinforced

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing

PROMYDE® PROPERTIES

POLYAMIDE 6 FLAME RETARDANT

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	FLAME RETARDANT PA6 B30 P2 U0	FLAME RETARDANT PA6 B30 P2 U0 T
Density	23 °C	ISO 1183	g/cm³	1.18	1.17
Viscosity number	25 °C	ISO 307	cm³/g	125	125
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.5	2.5
Water absorption	23 °C/saturation	ISO 62	%	9.0	9.0
Flammability	1.5 mm	UL-94	Class	V-0	V-0
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	960	960
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	775	775
PROCESSING CONDITIONS					
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10min	145	-
Melt temperature, injection moulding			°C	250 - 270	250 - 270
Mould temperature			°C	40 - 80	40 - 80
Mould shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10
	transversal		%	0.80 - 1.10	0.80 - 1.10
MECHANICAL PROPERTIES			(dry/cond.)*		
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	3,800 / 1,500	3,600 / -
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 40	85 / -
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	3.5 / 25	3.7/ -
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	9 / >50	9.0 /-
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	3,400 / 1,200	3,200 / -
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	116 / 50	110 /-
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	60 / -	120 /-
	-30 °C	ISO 179/1eU	kJ/m²	55	90 /-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	3.0 / 18	5.0 /-
	-30 °C	ISO 179/1eA	kJ/m²	-	-
THERMAL PROPERTIES					
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222
Heat deflection temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	80	80
	0.45 MPa	ISO 75-1/-2	°C	200	200
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.90	0.90
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	0.90	0.90
ELECTRICAL PROPERTIES			(dry/cond.)*		
Dielectric constant	1MHz	ISO 60250		3.5 / 7.0	3.5 / 7.0
Dissipation factor	1MHz	ISO 60250		300 / 3,000	300 / 3,000
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}
Comparative tracking index		ISO 60112		600	600
				Unreinforced	
				Halogen free	
				Yellow card	HL3 EN455545

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110
All these grades are also available with UV & HS packages. All colours are available upon request.

FLAME RETARDANT PA6					
B30 P2 G20 U0	**B300 P2 G30 U0**	**B30 P2 G20 S2 U2**	**B300 P2 G25 S2 U2**	**B30 P2 M25 U2**	**B300 P2 G30 S1 U2**
1.36	1.40	1.30	1.36	1.35	1.41
125	100	-	100	145	100
2.3	2.1	1.7	2.2	2.2	2.1
6.9	6.5	6.5	6.5	7.0	6.5
V-0	V-0	V-2	V-2	V-2	V-2
960	960	960	960	960	960
775	775	775	775	725	775
-	-	-	-	-	
250 - 270	250 - 270	250 - 290	250 - 270	250 - 270	250 - 270
40 - 80	40 - 80	60 - 100	40 - 80	40 - 80	40 - 80
0.20 - 0.50	0.20 - 0.50	0.4 - 0.7	0.20 - 0.50	0.90 - 1.10	0.20 - 0.50
0.70 - 0.90	0.70 - 0.90	0.6 - 0.9	0.70 - 0.90	0.80 - 1.10	0.70 - 0.90
8,300 / 5,000	9,900 / 6,500	5,200 / -	5,400 / -	6,000 / -	7,900 / -
95 / 40	160 / 110	85 / -	76 / -	75 / -	95 / -
-	-	-	-	-	-
2.5 / 5.0	3.3 / 6.0	3.5 / -	3.3 / -	3.0 / -	3.0 / -
7,200 / 3,500	9,300 / 5,800	4,200 / -	4,200 / -	5,200 / -	7,500 / -
180 / 90	140 / 80	120 / -	100 / -	115 / -	130 / -
60 / 80	70 / 95	45 / -	35 / -	30 / -	38 / -
-	-	-	-	-	-
6.5 / 25	6.5 / 20	4.0 / -	2.5 / -	3.0 / -	3.3 / -
-	-	-	-	-	-
222	220	222	221	222	221
200	211	-	180	150	200
-	-	-	-	-	-
0.20	0.20	-	0.20	0.20	0.20
0.60	0.60	-	0.60	0.60	0.60
3.7 / 6.8	3.7 / 6.8	-	3.7 / 6.8	3.7 / 6.8	3.7 / 6.8
230 / 2,200	230 / 2,200	-	230 / 2,200	230 / 2,200	230 / 2,200
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{14} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
600	600	600	600	525	600
Reinforced				Mineral reinforced	Reinforced
Halogen free					
	Yellow card		High flow Improved finish surface		High flow Improved finish surface

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing or applications, we recommend that individual tests are performed to determine the suitability of the product use.

PROMYDE® PROPERTIES

POLYAMIDE 6 WEIGHT REDUCTION

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	WEIGHT REDUCTION PA6 B30 NC100
Density	23 °C	ISO 1183	g/cm³	1.14
Viscosity number	25 °C	ISO 307	cm³/g	132
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.3
Water absorption	23 °C/saturation	ISO 62	%	7.0
Flammability	1.5 mm	UL-94	Class	V-2
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	-
PROCESSING CONDITIONS				
Melt Volume rate	275 °C / 5 kg	ISO 1133	cm³/	145
Melt temperature, injection moulding			°C	250 - 270
Mould temperature			°C	20 - 80
Mould shrinkage	longitudinal		%	0.70 - 0.85
	transversal		%	0.80 - 0.90
MECHANICAL PROPERTIES			(dry/cond.)*	
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	4,000 / 2,000
Tensile strength	23 °C, 50 mm/	ISO 527-1/-2	MPa	100 / 52
Elongation at yield	23 °C, 50 mm/	ISO 527-1/-2	%	3.5 / 25
Elongation at break	23 °C, 50 mm/	ISO 527-1/-2	%	4.0 / >25
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	3,500 / 1,400
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	130 / 70
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB
	-30 °C	ISO 179/1eU	kJ/m²	-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	4.3 / 10
	-30 °C	ISO 179/1eA	kJ/m²	-
THERMAL PROPERTIES				
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222
Heat deflection temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	100
	0.45 MPa	ISO 75-1/-2	°C	195
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.30
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	0.80
ELECTRICAL PROPERTIES			(dry/cond.)*	
Dielectric constant	1MHz	ISO 60250		3.6 / 6.5
Dissipation factor	1MHz	ISO 60250		250 / 2,500
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{14} / 10^{11}
Comparative tracking index		ISO 60112		550
				Nanoclay fortified

(1) NB: No break. | * dry = dry as moulded / cond. = conditioned according to ISO 1110

PROMYDE® PROPERTIES

POLYAMIDE 6 HYDROLYSIS RESISTANCE

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	HYDROLYSIS RESISTANT PA6 B300 P2 G30 HSA HR	HYDROLYSIS RESISTANT PA6 B300 P2 G30 HSA HR BL02
Density	23 °C	ISO 1183	g/cm³	1.36	1.36
Viscosity number	25 °C	ISO 307	cm³/g	-	-
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.0	2.0
Water absorption	23 °C/saturation	ISO 62	%	6.7	6.7
Flammability	1.5 mm	UL-94	Class	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12,12	°C	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12,12	°C	-	-
PROCESSING CONDITIONS					
Melt Volume rate	275 °C / 5 kg	ISO 1133	cm³/10min	90	60
Melt temperature, injection moulding			°C	235 - 280	235 - 280
Mould temperature			°C	40 - 80	40 - 80
Mould shrinkage	longitudinal		%	0.30 - 0.35	0.30 - 0.35
	transversal		%	0.40 - 0.45	0.40 - 0.45
MECHANICAL PROPERTIES			(dry/cond.)*		
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	9,500 / 6,200	10,300 / 6,200
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	180 / 120	200 / 120
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	- /-	- / -
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	3.5 / 7.5	3.5 / 7.5
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	8,400 / 5,200	8,400 / 5.200
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	275 / 180	280 / 180
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	95 / 110	90 / 110
	-30 °C	ISO 179/1eU	kJ/m²	80	80
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	13.0 / 25.0	13.0 / 25.0
	-30 °C	ISO 179/1eA	kJ/m²	10	10
THERMAL PROPERTIES					
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	222	222
Heat deflection temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	210	210
	0.45 MPa	ISO 75-1/-2	°C	215	215
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/k	0.20	0.20
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/k	0.60	0.60
ELECTRICAL PROPERTIES			(dry/cond.)*		
Dielectric constant	1MHz	ISO 60250		3.8 / 6.8	3.8 / 6.8
Dissipation factor	1MHz	ISO 60250		v	230 / 2,200
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		ISO 60093	Ω	10^{13} / 10^{10}	10^{13} / 10^{10}
Comparative tracking index		ISO 60112		500	500

Reinforced
High flow
Hydrolysis resistance

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values. Because many factors affect processing or applications, we recommend that individual tests are performed to determine the suitability of the product use.

PROMYDE® PROPERTIES

POLYAMIDE 66

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	UNREINFORCED PA66			
				A30 P	A30 P2 MI	A30 P2 HI	A30 P2 UO
Density	23 °C	ISO 1183	g/cm³	1.14	1.11	1.08	1.17
Viscosity number	25 °C	ISO 307	cm³/g	150	150	150	150
Melt Volume rate	275 °C/5 Kg	ISO 1133	cm³/10 min	100	80	60	150
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.7	2.5	2.2	2.5
Water absorption	23 °C/saturation	ISO 62	%	8.5	8.0	7.5	8.0
Mould Shrinkage	longitudinal		%	1.2	1.0	0.9	1.1
	transversal		%	1.2	1.0	0.9	1.1
Flammability	1.5 mm	UL-94	Class	V2	HB	HB	V0
MECHANICAL PROPERTIES			(dry/cond.)*				
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	3,400 / 1,300	2,700 / 1,200	2,000 / 1,000	3,800 / 1,800
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 55	70 / 45	55 / 35	75 / 50
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	15 / >50	>25 / >50	>25 / >50	>5 / >15
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	3,100 / 1,500	2,200 / 1,100	1,700 / 900	3,400 / 1,700
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	120 / 80	80 / 50	70 / 40	105 / 75
Charpy unnotched impact	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB	100 / 150
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5 /15	15 / 30	80 / 120	4 / 12
THERMAL PROPERTIES							
Melting temperature (DSC)	10 °C/min	ISO 3146	°C	260	260	260	260
Heat deflection temperature	1,8 MPa	ISO 75-1/-2	°C	70	60	60	80
ELECTRICAL PROPERTIES			(dry/cond.)*				
Volume resistivity		ISO 60093	Ω.m	10^{13} / 10^{11}	10^{13} / 10^{11}	10^{13} / 10^{11}	10^{13} / 10^{11}
Surface resistivity		ISO 60093	Ω	10^{12} / 10^{10}	10^{12} / 10^{10}	10^{12} / 10^{10}	10^{12} / 10^{10}
Comparative tracking index		ISO 60112		600	600	600	600
					Impact Modified	Impact Modified	Halogen Free
				Unreinforced			

REINFORCED PA66							
A30 P2 G15	**A30 P2 G30**	**A30 P2 G40**	**A30 P2 G50**	**A30 P2 G15 MI**	**A30 P2 GFC30**	**A30 P2 G30 HR HS**	**A30 P2 G30 UO**
1.23	1.35	1.46	1.57	1.20	1.35	1.35	1.40
150	150	150	150	150	150	150	150
60	40	25	20	50	40	40	50
2.5	1.9	1.5	1.2	2.2	1.9	1.8	1.5
8.0	6.0	5.0	4.0	7	6.0	6.0	5.5
0.7	0.5	0.3	0.2	0.7	0.5	0.5	0.3
0.9	0.7	0.5	0.3	0.9	0.7	0.7	0.5
HB	HB	HB	HB	HB	HB	HB	V0
5,500 / 3,500	9,500 / 7,500	13,000 / 8,500	17,000 / 11,000	5,000 / 3,000	9,500 / 7,500	10,000 / 7,000	10,500 / 8,000
120 / 80	190 / 130	210 / 150	250 / 190	110 / 70	190 / 130	200 / 130	150 / 110
3.0 / 3.7	3.0 /5.0	2.5 / 3.5	2.5 / 3.5	>5 / >10	3.0 / 5.0	3.5 / 7.0	2.5 / 5.0
4,500 / 2,500	9,000 / 6,500	12,000 / 7,500	16,000 / 10,500	4,000 / 2,200	9,000 / 6,500	9,000 / 6,000	9,500 / 7,000
160 / 100	280 / 160	360 / 190	360 / 230	140 / 90	280 / 160	290 / 200	230 / 150
80 / 100	80 / 100	95 / 100	95 / 100	100 / 120	80 / 100	80 / 100	60 / 80
8.0 / 15	10 / 25	13.5 / 20	16 / 20	15 / 25	10 / 25	12 / 20	9 / 15
260	260	260	260	260	260	260	260
250	250	255	255	250	250	250	250
10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{11} / 10^{10}
10^{14} / 10^{11}	10^{14} / 10^{11}	10^{14} / 10^{11}	10^{14} / 10^{11}	10^{14} / 10^{11}	10^{14} / 10^{11}	10^{14} / 10^{11}	10^{12} / 10^{10}
600	600	575	550	600	600	600	600
				Impact Modified	Food Contact Approved	Hydrolysis Resistant	Halogen Free
Reinforced							

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Promyde®
POLYAMIDE 6 & 66

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