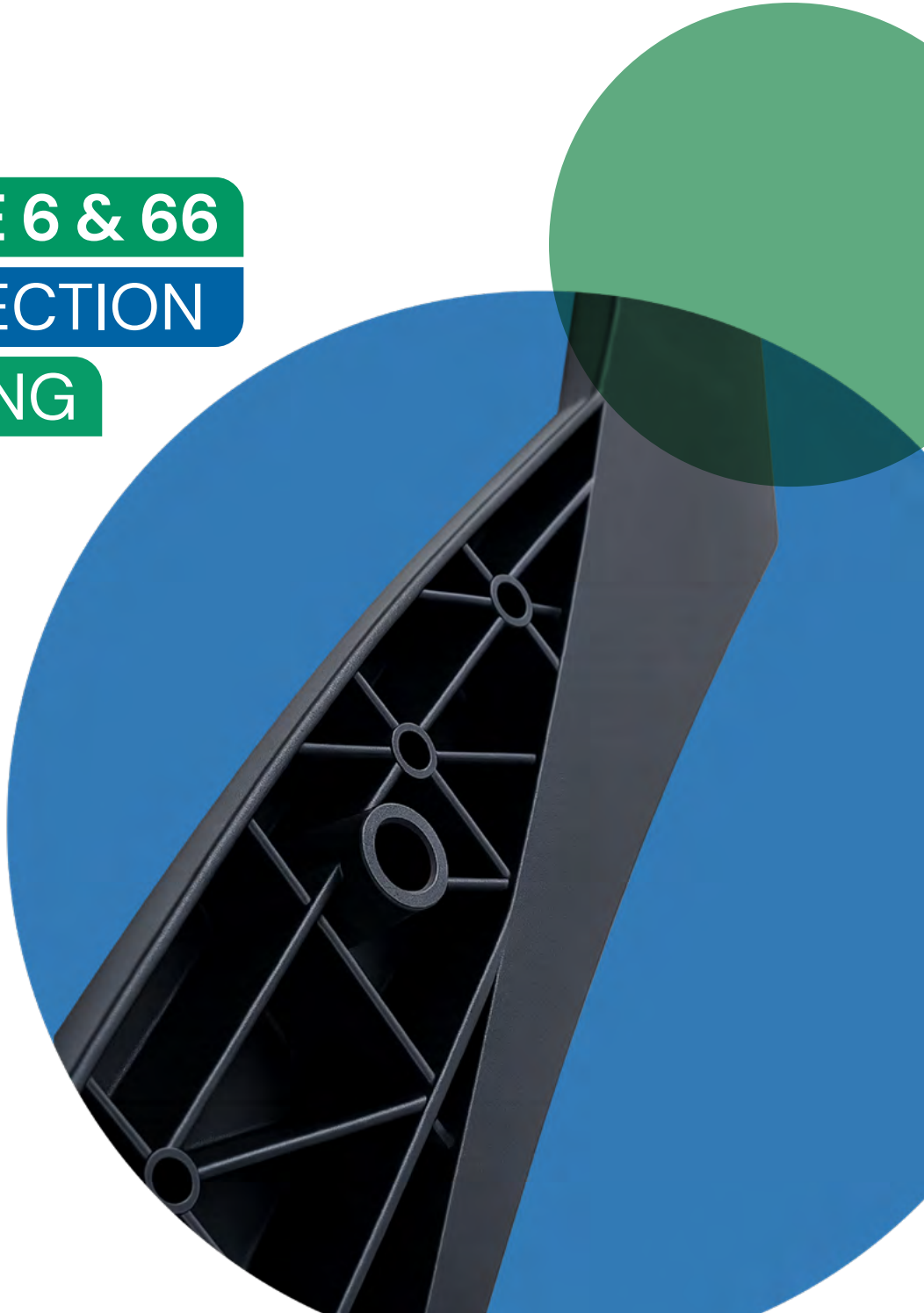
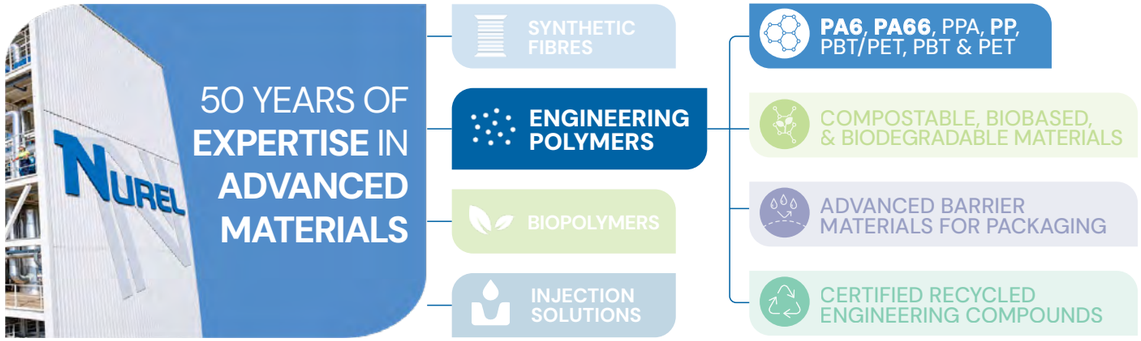
Promyde®
POLYAMIDE 6 & 66

POLYAMIDE 6 & 66 FOR INJECTION MOULDING



NUREL
ENGINEERING POLYMERS



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

Building on decades of expertise in polyamide technology, **our in-house polyamide polymerisation** and **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 moulding, 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 CENTRE 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 **POLYMERISATION** PLANT

2 PILOT SCALE **COMPOUNDING EXTRUDERS**

2 INJECTION MOULDING LINES

CAST & THERMOFORMING PILOT LINE

7-LAYER BLOWN COEXTRUSION LINE

MATERIAL CHARACTERISATION

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 AGEING

OPTICAL: COLOUR AND HAZE

SUSTAINABILITY APPROACH

SUSTAINABLE DEVELOPMENT

NUREL is dedicated to sustainable development and environmental responsibility. Our operational centre 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 ASSESSMENT

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 16,560 MWh. Through this new facility, **NUREL prevents the emission of 11,000 tonnes 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

RECOMYDE® offers high-quality recycled PA6 and PA66 compounds produced from carefully selected pre-consumer and post-consumer polyamide waste.

Thanks to NUREL's vertically integrated production site, recycling and compounding are carried out on-site using 100% renewable energy.

RECOMYDE® production generates 90% lower CO_2 emissions than standard PA compounds, based on primary-data calculations.

MORE INFO

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

Reco-line
RECYCLED TECHNICAL POLYMERS

PROMYDE® PRODUCT OVERVIEW

UNREINFORCED PA6

Unreinforced **PROMYDE®** is produced in NUREL's polymerisation process in which **unique additive packages and polymer chain modifications** are made combining cost effectiveness and distinctive 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 and 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 overmoulding.
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 down to -30°C. Applications in ski equipment and automotive shock absorbers.
B30 P2 HI60	Highly impact-modified polyamide 6 with a Charpy Notched value higher than 60 kJ/m² at 23° C.
B300 P2 HI	For applications requiring extra impact resistance and improved flowability.
B300 P2 HI60	Highly impact-modified polyamide 6 with a Charpy Notched value higher than 60 kJ/m² at 23°C and improved flowability.

FLAME-RETARDANT	
B30 P2 UO	For standard unfilled V-0 requirements. UL certified.
B30 P2 UO T	For V-0 requests with high mechanical strength and improved toughness. HL3 to **EN-45545-2**.

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 PA6 and PA66 compound portfolio is designed to deliver **consistent processing and product performance.**

PROMYDE® Reinforced Products:

10-60% GLASS-FILLED

Excellent flow processing & smooth surface appearance.

GLASS-BEADS AND SPECIAL GLASS-FIBRES

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 applications: V-0 ratings, no flame up to 825°C. UL Certified. Halogen-free.

COLOURING

RAL colours and customised colour matching available on request.

UV, HS, HR

Improved UV stabilisation, heat resistance and/or hydrolysis resistance.

LASER MARKING

All our grades are also laser-markable on request.

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 from 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 range includes **unreinforced grades, 15–60% glass-fibre-reinforced grades and other reinforced** PA6 solutions to achieve an easier and smoother injection process.

KEY ADVANTAGES

- **Processing at temperatures 30–45 °C lower:**
  The polymer enters the mould at a lower temperature and can be ejected earlier.
- **Remarkable cycle time improvement:**
  Its higher fluidity allows lower injection temperatures and faster cooling, delivering up to 30% cycle time reduction.
- **Significant clamping-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.**

These advantages **make PROMYDE® B300** a highly suitable **alternative to PA66** and conventional **unreinforced PA6 grades.**

COMPARATIVE MOULD-FLOW STUDY

PROMYDE® HIGH-FLOW POLYAMIDES

A mould-flow 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 an **automotive front bumper** with **two injection points**, under identical processing conditions.

REDUCED CYCLE TIME

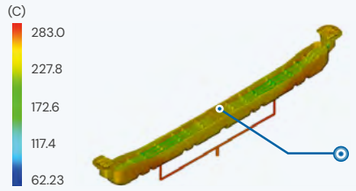
By setting the processing temperature **45 °C lower** with **PROMYDE® B300 P2 G30** compared to a competitor's standard PA6 G30, the following benefits are achieved:

FILLING TEMPERATURE

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

SAME CLAMPING FORCE FOR BOTH MATERIALS

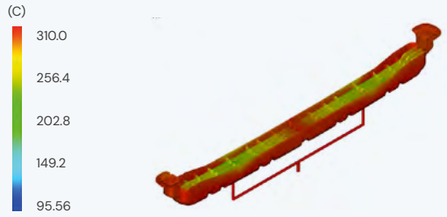
PROMYDE B300 P2 G30 20 s*



Using a 250 °C processing temperature reduces cycle time by 30%, saving energy and boosting productivity.

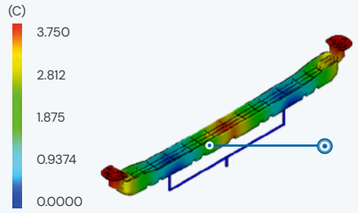
COMPETITOR'S PA6 G30 29 s*

* Time to reach ejection temperature



REDUCED CLAMPING FORCE COMPARATIVE TEST

FILLING TIME PROGRAMMED: 3.65 s

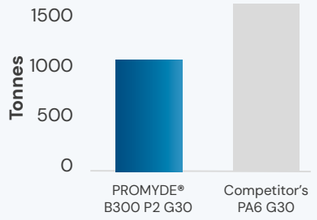


Clamping force is **reduced by 30%** with **PROMYDE® B300**

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: 3.65 s



Melt temperature
270 °C

Holding pressure
80 MPa (15 s)

PA6 HS FOR PA66 REPLACEMENT

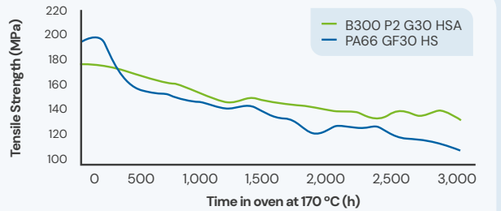
PROMYDE® HEAT STABILISED

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

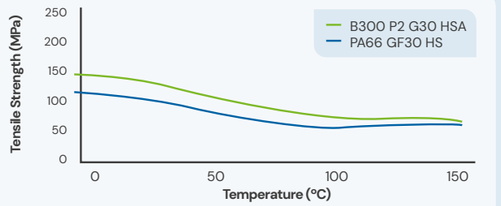
For applications with continuous use temperatures up to 185 °C, **PROMYDE® HSA** grades retain their mechanical properties with minimal variations after ageing.

HSA technology can be incorporated into **PROMYDE®** glass-fibre-reinforced grades **with fibre contents from 10% to 60%**.



After ageing, **PROMYDE® B300 P2 G30 HSA maintains higher tensile strength than the tested PA66 GF30 HS reference** across the evaluated temperature range.

AFTER AGEING (3,000 h AT 170 °C)

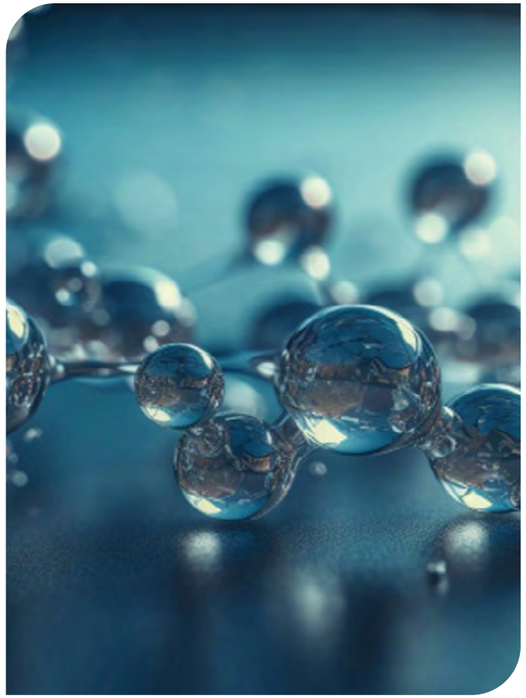


PA6 HR FOR PA66 REPLACEMENT

HYDROLYSIS RESISTANCE

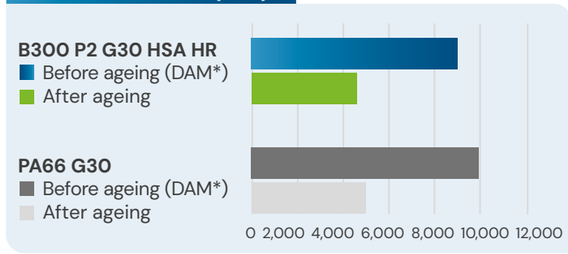
NUREL has recently developed special hydrolysis-resistant PA6 grades. Our **PROMYDE® HSA HR glass-fibre-reinforced grades** have been specially designed for **components requiring exceptional hydrolysis resistance**.

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



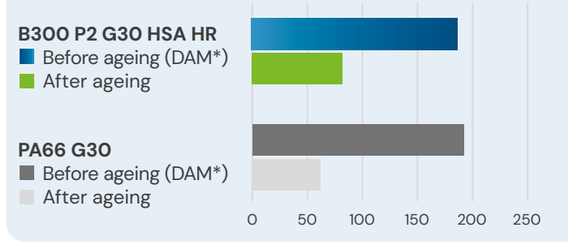
TENSILE MODULUS (MPa)

*DAM = dry as moulded



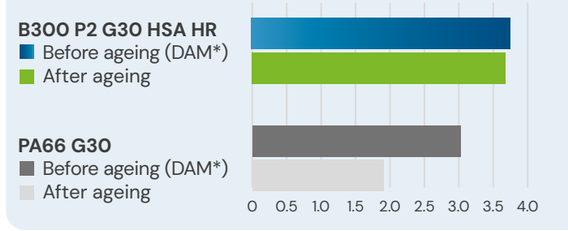
TENSILE STRENGTH (MPa)

*DAM = dry as moulded



ELONGATION AT BREAK (%)

*DAM = dry as moulded



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

PA6 & PA66 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 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 can achieve **UL 94-certification 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 U0	PROMYDE® B30 P2 U2 RAL7035
Class UL 94 V-0	Class UL 94 V-2
GWFI = 960 °C	GWFI = 960 °C
CTI > 600 V	CTI > 600 V
EN 45545-2	EN 45545-2
Halogen-free	Halogen-free
Yellow Card available	Electric Grey RAL 7035

Glass-Fibre-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 U0
Class UL 94 V-0
GWFI = 960 °C
CTI > 600 V
High-flow
Halogen-free
Yellow Card available

PA6 & PA66 REINFORCED AND UNREINFORCED

FLAME-RETARDANT DEVELOPMENTS

NEW FR Reinforced PA with Enhanced Dimensional Stability

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

These materials are particularly appealing for applications involving electrical switches and electrical housings.

PROMYDE® B30 P2 G20 S2 U2
Class UL 94 V-2
GWFI = 960 °C
CTI > 600 V
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 **colour stability requirements**. By employing **cutting-edge orange pigments** and simultaneously incorporating **halogen-free flame retardant** additives, we meet stringent safety requirements in this emerging field of sustainable mobility.

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

THERMAL & ELECTRICAL CONDUCTIVITY

THERMOELECTRIC COMPOUNDS

Conductive Compounds customised 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 **polymerisation 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).

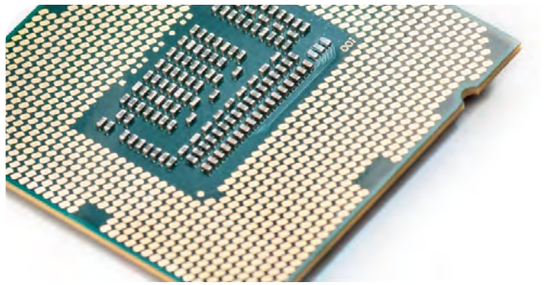
Applications include **electrostatic painting components**, **precision electronic parts and electrostatic surfaces for medical devices**.

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/(m·K)**, 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-fibre, 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-stabilised PA6 & PA66 grades to extend durability of outdoor components exposed to sunlight.

HEAT STABILISATION

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 & PA66 grades that meet the most demanding fire safety and electrical standards. Halogen-free solutions are available.

THERMAL CONDUCTIVITY

Thermally conductive PA6 compounds combining efficient heat dissipation with lightweight design, with conductivity values from 2 to 10 W/(m·K) for demanding electrical and electronic applications.

ELECTRICAL CONDUCTIVITY

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

ELECTROMAGNETIC INTERFERENCE (EMI) SHIELDING

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	B20 P	B30 P	B30 PN	B33 BR1	B36 BR1	B40 BR1	B730 P	B735 P	B930 P
Density	23 °C	ISO 1183	g/cm³	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.15	1.11	1.11
Viscosity number	25 °C	ISO 307	cm³/g	120	125	145	145	203	228	263	–	–	125
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Water absorption	23 °C/saturation	ISO 62	%	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Flammability	1.5 mm	UL 94	Class	V-2	V-2	V-2	V-2	V-2	V-2	V-2	V-2	HB	V-2
Glow wire flammability index	1.5 mm	IEC 60695-2-12	°C	850	850	850	–	–	–	–	800	800	800
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	700	700	725	–	–	–	–	825	825	675
PROCESSING CONDITIONS													
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10 min	260	226	145	145	35	25	14	180	100	180
Melt temperature, injection moulding			°C	250 - 270	250 - 270	250 - 270	250 - 270	260 - 280	260 - 280	260 - 280	210 - 290	220 - 250	220 - 290
Mould temperature			°C	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	0 - 80	0 - 80	0 - 30
Mould shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10	0.90 - 1.10	1.20 - 1.40	0.90 - 1.10	0.90 - 1.10	0.90 - 1.10	0.16 - 0.24	–	0.80 - 1.00
	transverse		%	0.80 - 1.10	0.80 - 1.10	0.80 - 1.10	1.08 - 1.40	0.80 - 1.10	0.80 - 1.10	0.80 - 1.10	0.00 - 0.08	–	0.70 - 0.90
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	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
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 40	85 / 40	85 / 40	75 / 40	85 / 40	85 / 40	90 / 40	60 / 30	60 / 50	40 / 20
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	3.5 / 25	3.5 / 25	3.5 / 25	4.0 / 25	4.0 / 25	4.0 / 25	4.0 / 25	2.5 / 5	2.5 / 5	1.5 / 15
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	18 / >50	18 / >50	18 / >50	50 / >70	50 / >50	60 / >50	70 / >50	3.0 / >20	2.0 / >10	1.5 / >10
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,800 / 1,000	2,800 / 1,000	2,800 / 1,000	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
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	110 / 30	110 / 30	110 / 30	105 / 30	110 / 30	115 / 30	115 / 30	112 / 60	105 / 55	210 / 40
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	100 / NB	100 / NB	115 / 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	7.5 / 35	5.4 / 32	6.0 / 35	6.2 / 38	5.0 / 40	4.0 / 30	4.0 / 210
	-30 °C	ISO 179/1eA	kJ/m²	4.5	4.5	4.5	4.5	–	–	–	–	–	– / –
THERMAL PROPERTIES													
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	222	222	222	222	222	222	222	185	190-195	210
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	65	65	65	65	65	65	65	60	50	50
	0.45 MPa	ISO 75-1/-2	°C	187	187	187	197	197	197	197	60	60	55
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/K	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/K	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ELECTRICAL PROPERTIES			(dry/cond.)*										
Dielectric constant	1 MHz	IEC 60250		3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	3.5 / 7.0	–	–	3.5 / 7.0
Dissipation factor	1 MHz	IEC 60250		300 / 3,000	300 / 3,000	300 / 3,000	230 / 3,000	300 / 3,000	300 / 3,000	300 / 3,000	–	–	300 / 3,000
Volume resistivity		IEC 60093	Ω.m	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}
Surface resistivity		IEC 60093	Ω	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}
Comparative tracking index		IEC 60112		600	600	600	600	600	600	600	–	–	600

Unreinforced
Lubricated
Nucleated

High viscosity

Extra improved transparency

Improved transparency

(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.

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values.
As processing and application conditions may vary, individual testing is recommended to determine the suitability of the product for the intended use.

PROMYDE® PROPERTIES

POLYAMIDE 6 REINFORCED

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	REINFORCED PA6 B30 P2 G10	B30 P2 G15	B30 P2 G20	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
Density	23 °C	ISO 1183	g/cm³	1.20	1.22	1.28	1.36	1.40	1.46	1.56	1.22	1.36	1.36	1.36	1.46
Viscosity number	25 °C	ISO 307	cm³/g	145	145	145	145	145	145	145	145	145	145	145	145
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.8	2.6	2.3	2.1	2.0	1.8	1.5	2.6	2.1	2.1	2.1	1.8
Water absorption	23 °C/saturation	ISO 62	%	8.5	8.0	6.9	6.7	6.2	6.0	4.5	8.0	6.7	6.7	6.7	5.7
Flammability	1.5 mm	UL 94	Class	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12	°C	-	-	-	-	-	-	-	-	-	-	-	750
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	-	-	-	-	-	-	-	-	-	-	-	700
PROCESSING CONDITIONS															
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10 min	75	60	55	45	35	26	25	60	45	45	45	70
Melt temperature, injection moulding			°C	260 - 290	260 - 290	260 - 290	260 - 290	270 - 290	270 - 290	270 - 290	260 - 290	260 - 290	260 - 290	260 - 290	270 - 290
Mould temperature			°C	40 - 80	40 - 80	40 - 80	80 - 95	80 - 95	80 - 95	80 - 95	40 - 80	80 - 95	80 - 95	40 - 80	40 - 80
Mould shrinkage	longitudinal		%	0.40 - 0.80	0.40 - 0.70	0.40 - 0.70	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	- / -	- / -
	transverse		%	0.70 - 1.00	0.60 - 0.90	0.60 - 0.90	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	- / -	- / -
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	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
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	110 / 68	150 / 78	145 / 85	190 / 110	195 / 130	205 / 138	215 / 150	150 / 78	190 / 110	60 / 40	80 / 50	90 / 60
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	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
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	4,300 / 2,400	5,000 / 2,400	5,500 / 3,500	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
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	160 / 90	180 / 90	195 / -	250 / 180	275 / -	285 / 180	340 / -	180 / 90	250 / 180	120 / 70	94 / 50	145 / 110
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	40 / 80	50 / 90	70 / 95	85 / 95	90 / 100	95 / 100	95 / 110	50 / 90	85 / 95	50 / 75	- / -	- / -
	-30 °C	ISO 179/1eU	kJ/m²	30	43	-	75	-	-	-	43	75	40	-	-
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5.0 / 8.0	5.5 / 12	8.0 / 26	13 / 25	14 / 25	16 / 22	19 / 27	5.5 / 12	13 / 25	4.0 / 10	5.3 / 25	4.0 / 20
	-30 °C	ISO 179/1eA	kJ/m²	4.0	5.0	-	10.0	-	-	-	5.0	10.0	3.0	4.0	3.0
THERMAL PROPERTIES															
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	222	222	222	222	222	222	222	222	222	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	190	190	205	210	213	213	215	190	210	90	100	100
	0.45 MPa	ISO 75-1/-2	°C	215	215	215	215	215	215	215	215	215	180	-	-
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/K	0.30	0.30	0.20	0.20	0.18	0.16	0.13	0.30	0.20	0.20	0.20	0.30
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/K	0.70	0.70	0.60	0.60	0.60	0.60	0.50	0.70	0.60	0.60	0.60	0.60
ELECTRICAL PROPERTIES			(dry/cond.)*												
Dielectric constant	1 MHz	IEC 60250		3.6 / 6.9	3.6 / 6.9	3.8 / 6.8	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
Dissipation factor	1 MHz	IEC 60250		250 / 2,200	250 / 2,200	250 / 2,200	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
Volume resistivity		IEC 60093	Ω.m	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}
Surface resistivity		IEC 60093	Ω	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}
Comparative tracking index		IEC 60112		500	500	500	500	500	500	500	500	500	500	500	500
				Reinforced			Reinforced						Glass-bead-reinforced	Mineral-reinforced	
											Food contact approved				

(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.

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values.
As processing and application conditions may vary, individual testing is recommended to determine the suitability of the product for the intended 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	B30 P2 HI	B30 P2 HI C	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
Density	23 °C	ISO 1183	g/cm³	1.13	1.10	1.10	1.08	1.05	1.08	1.10	1.21	1.33	1.43	1.21	1.21
Viscosity number	25 °C	ISO 307	cm³/g	110	125	125	125	125	100	100	145	110	145	100	100
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.3	2.5	2.4	2.4	2.4	2.4	2.6	2.2	2.0	1.5	2.2	2.0
Water absorption	23 °C/saturation	ISO 62	%	9.5	8.5	8.1	7.6	7.6	7.6	8.1	7.0	6.3	4.9	7.0	6.8
Flammability	1.5 mm	UL 94	Class	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12	°C	850	-	-	-	-	-	-	-	-	-	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	800	-	-	-	-	-	-	-	-	-	-	-
PROCESSING CONDITIONS															
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10 min	130	100	120	70	80	140	190	35	30	30	100	90
Melt temperature, injection moulding			°C	250 - 270	250 - 270	250 - 270	250 - 270	250 - 270	240 - 270	230 - 270	260 - 290	260 - 290	260 - 290	240 - 290	240 - 290
Mould temperature			°C	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	80 - 95	80 - 95	80 - 95	40 - 80	40 - 80
Mould shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10	0.80 - 1.00	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
	transverse		%	0.80 - 1.10	0.80 - 1.10	0.70 - 1.00	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
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	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
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	75 / 35	75 / 35	60 / 35	65 / 35	60 / 30	65 / 35	60 / 35	90 / 50	160 / 90	170 / 115	90 / 50	110 / 70
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	4.0 / 25	5.0 /25	4.5 / 35	4.5 / 35	5.0 / 35	4.5 / 35	4.5 / 35	- / -	- / -	- / -	- / -	- / -
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	50 / 180	25 / 180	35 / >50	35 / > 50	35 / >50	35 / >50	35 / >50	10 / -	4.0 / 6.0	4.5 / 9.5	10 / -	4.5 / -
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,400 / 700	2,300 / 750	1,700 / 900	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
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	98 / 32	85 / 25	70 / 35	65 / 20	65 / 20	70 / 35	70 / 35	137 / 70	240 / -	240 / 140	137 / 70	150 / 85
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	NB / NB	75 / 100	100 / 105	100 / 130	75 / 100	75 / -
	-30 °C	ISO 179/1eU	kJ/m²	-	NB	NB	NB	NB	NB	NB	60	90	95	60 / -	- / -
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	13 / NB	14 / NB	65 / 125	100 / 125	80 / NB	65 / 125	65 / 125	16 / 30	20 / 30	22 / 40	16 / 30	20 / 40
	-30 °C	ISO 179/1eA	kJ/m²	10.0	12.0	20.0	31.5	60.0	32.0	20.0	10.0	16.0	17.0	10.0	10.0
THERMAL PROPERTIES															
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	222	222	222	222	222	222	222	222	222	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	60	55	50	50	50	50	50	182	200	205	182	195
	0.45 MPa	ISO 75-1/-2	°C	150	150	-	-	-	-	-	200	215	215	200	200
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/K	0.70	0.70	1.20	0.70	0.70	0.70	1.20	0.30	0.20	0.15	0.30	0.30
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/K	1.00	1.00	1.20	1.00	1.00	1.00	1.20	0.70	0.60	0.50	0.70	0.70
ELECTRICAL PROPERTIES			(dry/cond.)*												
Dielectric constant	1 MHz	IEC 60250		3.5 / 6.5	3.5 / 7.0	2.7 / 4.0	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
Dissipation factor	1 MHz	IEC 60250		250 / 2,500	260 / 3,000	160 / 1,000	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
Volume resistivity		IEC 60093	Ω.m	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^{11}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}	10^{13} / 10^{10}
Surface resistivity		IEC 60093	Ω	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}
Comparative tracking index		IEC 60112		600	600	600	600	600	600	600	600	600	600	600	600
				Medium impact res.		High impact res.	High impact res.	High impact res. at low temp.	High impact resistance						
									High-flow		Reinforced			High-flow	

(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.

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values.
As processing and application conditions may vary, individual testing is recommended to determine the suitability of the product for the intended use.

PROMYDE® PROPERTIES

POLYAMIDE 6 HIGH-FLOW

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	HIGH-FLOW PA6 B300 P	B300 P2 G30	B300 P2 G40	B300 P2 G50	B300 P2 G60	B300 P2 GFC15	B300 P2 GFC30	B300 P2 GFC50	B300 P2 G20 M15	B300 P2 M40
Density	23 °C	ISO 1183	g/cm³	1.13	1.36	1.46	1.56	1.69	1.22	1.36	1.56	1.42	1.45
Viscosity number	25 °C	ISO 307	cm³/g	100	100	100	100	–	100	–	–	100	100
Moisture absorption	23 °C/50% r.h.	ISO 62	%	3.0	2.1	1.8	1.5	1.2	2.6	2.1	1.5	2.0	1.8
Water absorption	23 °C/saturation	ISO 62	%	9.5	6.7	6.0	4.5	4.5	8.0	6.7	4.5	6.0	5.4
Flammability	1.5 mm	UL 94	Class	V-2	HB	HB	HB	HB	HB	HB	HB	HB	HB
Glow wire flammability index	1.5 mm	IEC 60695-2-12	°C	750	–	–	–	–	–	–	–	–	–
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	700	–	–	–	–	–	–	–	–	–
PROCESSING CONDITIONS													
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10 min	>300	90	57	37	35	135	90	35	100	300
Melt temperature, injection moulding			°C	230 - 280	235 - 250	235 - 260	235 - 260	235 - 270	230 - 260	235 - 250	235- 280	240 - 290	250 - 290
Mould temperature			°C	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 - 80	40 -80
Mould shrinkage	longitudinal		%	0.90 - 1.10	0.30 - 0.35	0.30 - 0.35	0.25 - 0.30	0.20 - 0.25	0.40 - 0.70	0.30 - 0.35	0.25 - 0.30	0.20 - 0.30	- / -
	transverse		%	0.80 - 1.10	0.40 - 0.45	0.40 - 0.45	0.35 - 0.40	0.30 - 0.35	0.60 - 0.90	0.40 - 0.45	0.35 - 0.4	0.30 - 0.40	- / -
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	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
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 40	195 / 115	235 / 150	230 / 160	240 / 190	150 / 80	195 / 115	230 / 160	135 / 75	90 / 60
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	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
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	2,800 / 1,000	8,400 / 5,200	12,000 / 6,000	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
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	115 / 40	275 / 180	340 / 200	370 / 195	406 / 300	180 / 90	275 / 180	370 / 195	181 / -	130 / 100
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	85 / 95	103 / 130	105/130	110 / 130	50 / 90	85 / 95	105 /130	70 / 95	- / -
	-30 °C	ISO 179/1eU	kJ/m²	–	75	–	–	–	43	75	–	–	–
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5.0 / 40	13 / 25	15 / 22	20 / 30	22 / 30	6.5 / 12	13 / 25	20/30	4.2 / 30	3.5 / 20
	-30 °C	ISO 179/1eA	kJ/m²	4.0	10.0	–	–	–	5.0	10.0	–	–	3.0
THERMAL PROPERTIES													
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	222	222	222	222	222	222	222	222	222	222
Heat Deflection Temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	65	210	213	215	220	190	210	215	205	160
	0.45 MPa	ISO 75-1/-2	°C	187	215	215	215	220	215	215	215	215	-
Thermal coefficient of linear expansion	23-80 °C long.	ISO 11359-1/-2	10^{-4}/K	0.70	0.20	0.16	0.13	0.13	0.30	0.20	0.13	0.20	0.30
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/K	1.00	0.60	0.60	0.50	0.50	0.70	0.60	0.50	0.60	0.60
ELECTRICAL PROPERTIES			(dry/cond.)*										
Dielectric constant	1 MHz	IEC 60250		3.5 / 7.0	3.8 / 6.8	3.9 / 6.5	4.2 / 6.3	-	3.6 / 6.9	3.8 / 6.8	4.2 / 6.3	3.8 / 6.8	3.9 / 6.2
Dissipation factor	1 MHz	IEC 60250		300 / 3,000	230 / 2,200	190 / 1,800	140 / 1,400	–	250 / 2,200	230 / 2,200	140 / 1,400	250 / 2,200	180 / 1,800
Volume resistivity		IEC 60093	Ω.m	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}
Surface resistivity		IEC 60093	Ω	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}
Comparative tracking index		IEC 60112		600	500	500	500	500	500	500	500	500	600
				Unreinforced	Reinforced		Reinforced					Glass-fibre and mineral-reinforced	Mineral-reinforced
							Food-contact approved						

(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.

Values have been established by standard tests. The data should be considered as a guide and not as binding minimum values.
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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	FLAME-RETARDANT PA6 B30 P2 G20 U0	FLAME-RETARDANT PA6 B300 P2 G30 U0	FLAME-RETARDANT PA6 B30 P2 G20 S2 U2	FLAME-RETARDANT PA6 B300 P2 G25 S2 U2	FLAME-RETARDANT PA6 B30 P2 M25 U2	FLAME-RETARDANT PA6 B300 P2 G30 S1 U2
Density	23 °C	ISO 1183	g/cm³	1.18	1.17	1.36	1.40	1.30	1.36	1.35	1.41
Viscosity number	25 °C	ISO 307	cm³/g	125	125	125	100	–	100	145	100
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.5	2.5	2.3	2.1	1.7	2.2	2.2	2.1
Water absorption	23 °C/saturation	ISO 62	%	9.0	9.0	6.9	6.5	6.5	6.5	7.0	6.5
Flammability	1.5 mm	UL 94	Class	V-0	V-0	V-0	V-0	V-2	V-2	V-2	V-2
Glow wire flammability index	1.5 mm	IEC 60695-2-12	°C	960	960	960	960	960	960	960	960
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	775	775	775	775	775	775	725	775
PROCESSING CONDITIONS											
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/10 min	145	–	–	–	–	–	–	
Melt temperature, injection moulding			°C	250 - 270	250 - 270	250 - 270	250 - 270	250 - 290	250 - 270	250 - 270	250 - 270
Mould temperature			°C	40 - 80	40 - 80	40 - 80	40 - 80	60 - 100	40 - 80	40 - 80	40 - 80
Mould shrinkage	longitudinal		%	0.90 - 1.10	0.90 - 1.10	0.20 - 0.50	0.20 - 0.50	0.4 - 0.7	0.20 - 0.50	0.90 - 1.10	0.20 - 0.50
	transverse		%	0.80 - 1.10	0.80 - 1.10	0.70 - 0.90	0.70 - 0.90	0.6 - 0.9	0.70 - 0.90	0.80 - 1.10	0.70 - 0.90
MECHANICAL PROPERTIES			(dry/cond.)*								
Tensile modulus	23 °C, 1 mm/min	ISO 527-1/-2	MPa	3,800 / 1,500	3,600 / -	8,300 / 5,000	9,900 / 6,500	5,200 / -	5,400 / -	6,000 / -	7,900 / -
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 40	85 / -	95 / 40	160 / 110	85 / -	76 / -	75 / -	95 / -
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 /-	2.5 / 5.0	3.3 / 6.0	3.5 / -	3.3 / -	3.0 / -	3.0 / -
Flexural modulus	23 °C, 2 mm/min	ISO 178	MPa	3,400 / 1,200	3,200 / -	7,200 / 3,500	9,300 / 5,800	4,200 / -	4,200 / -	5,200 / -	7,500 / -
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	116 / 50	110 /-	180 / 90	140 / 80	120 / -	100 / -	115 / -	130 / -
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	60 / -	120 /-	60 / 80	70 / 95	45 / -	35 / -	30 / -	38 / -
	-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 /-	6.5 / 25	6.5 / 20	4.0 / -	2.5 / -	3.0 / -	3.3 / -
	-30 °C	ISO 179/1eA	kJ/m²	-	-	-	-	-	-	-	-
THERMAL PROPERTIES											
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	222	222	222	220	222	221	222	221
Heat deflection temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	80	80	200	211	-	180	150	200
	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	0.20	0.20	-	0.20	0.20	0.20
	23-80 °C transv.	ISO 11359-1/-2	10^{-4}/K	0.90	0.90	0.60	0.60	-	0.60	0.60	0.60
ELECTRICAL PROPERTIES			(dry/cond.)*								
Dielectric constant	1 MHz	IEC 60250		3.5 / 7.0	3.5 / 7.0	3.7 / 6.8	3.7 / 6.8	-	3.7 / 6.8	3.7 / 6.8	3.7 / 6.8
Dissipation factor	1 MHz	IEC 60250		300 / 3,000	300 / 3,000	230 / 2,200	230 / 2,200	-	230 / 2,200	230 / 2,200	230 / 2,200
Volume resistivity		IEC 60093	Ω.m	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}
Surface resistivity		IEC 60093	Ω	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}
Comparative tracking index		IEC 60112		600	600	600	600	600	600	525	600
				Unreinforced		Reinforced				Mineral-reinforced	Reinforced
				Halogen-free		Halogen-free					
				Yellow Card	HL3 – EN 45545-2		Yellow Card		High-flow		High-flow
								Improved surface finish	Improved surface finish		Improved surface finish

(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.

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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	°C	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-13	°C	-
PROCESSING CONDITIONS				
Melt volume rate	275 °C / 5 kg	ISO 1133	cm³/ 10 min	145
Melt temperature, injection moulding			°C	250 - 270
Mould temperature			°C	20 - 80
Mould shrinkage	longitudinal		%	0.70 - 0.85
	transverse		%	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/min	ISO 527-1/-2	MPa	100 / 52
Elongation at yield	23 °C, 50 mm/min	ISO 527-1/-2	%	3.5 / 25
Elongation at break	23 °C, 50 mm/min	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 11357-3	°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	1 MHz	IEC 60250		3.6 / 6.5
Dissipation factor	1 MHz	IEC 60250		250 / 2,500
Volume resistivity		IEC 60093	Ω.m	10^{13} / 10^{10}
Surface resistivity		IEC 60093	Ω	10^{14} / 10^{11}
Comparative tracking index		IEC 60112		550
				Nanoclay-reinforced

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

HYDROLYSIS-RESISTANT PA6

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	HYDROLYSIS-RESISTANT PA6 B300 P2 G30 HSA HR	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	°C	-	-
Glow wire ignitability temperature	1.5 mm	IEC 60695-2-12	°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
	transverse		%	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 11357-1	°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	1 MHz	ISO 60250		3.8 / 6.8	3.8 / 6.8
Dissipation factor	1 MHz	ISO 60250		230 / 2,200	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-resistant

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PROMYDE® PROPERTIES

POLYAMIDE 66

PHYSICAL PROPERTIES	CONDITIONS	TEST METHOD	UNIT	UNREINFORCED PA66 A30 P	A30 P2 MI	A30 P2 HI	A30 P2 U0	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 U0
Density	23 °C	ISO 1183	g/cm³	1.14	1.11	1.08	1.17	1.23	1.35	1.46	1.57	1.20	1.35	1.35	1.40
Viscosity number	25 °C	ISO 307	cm³/g	150	150	150	150	150	150	150	150	150	150	150	150
Melt volume rate	275 °C/ 5 kg	ISO 1133	cm³/10 min	100	80	60	150	60	40	25	20	50	40	40	50
Moisture absorption	23 °C/50% r.h.	ISO 62	%	2.7	2.5	2.2	2.5	2.5	1.9	1.5	1.2	2.2	1.9	1.8	1.5
Water absorption	23 °C/saturation	ISO 62	%	8.5	8.0	7.5	8.0	8.0	6.0	5.0	4.0	7.0	6.0	6.0	5.5
Mould shrinkage	longitudinal		%	1.2	1.0	0.9	1.1	0.7	0.5	0.3	0.2	0.7	0.5	0.5	0.3
	transverse		%	1.2	1.0	0.9	1.1	0.9	0.7	0.5	0.3	0.9	0.7	0.7	0.5
Flammability	1.5 mm	UL 94	Class	V-2	HB	HB	V-0	HB	HB	HB	HB	HB	HB	HB	V-0
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	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
Tensile strength	23 °C, 50 mm/min	ISO 527-1/-2	MPa	85 / 55	70 / 45	55 / 35	75 / 50	120 / 80	190 / 130	210 / 150	250 / 190	110 / 70	190 / 130	200 / 130	150 / 110
Elongation at break	23 °C, 50 mm/min	ISO 527-1/-2	%	15 / >50	>25 / >50	>25 / >50	>5 / >15	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
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	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
Flexural strength	23 °C, 2 mm/min	ISO 178	MPa	120 / 80	80 / 50	70 / 40	105 / 75	160 / 100	280 / 160	360 / 190	360 / 230	140 / 90	280 / 160	290 / 200	230 / 150
Charpy unnotched impact strength (1)	23 °C	ISO 179/1eU	kJ/m²	NB / NB	NB / NB	NB / NB	100 / 150	80 / 100	80 / 100	95 / 100	95 / 100	100 / 120	80 / 100	80 / 100	60 / 80
Charpy notched impact strength	23 °C	ISO 179/1eA	kJ/m²	5 /15	15 / 30	80 / 120	4 / 12	8.0 / 15	10 / 25	13.5 / 20	16 / 20	15 / 25	10 / 25	12 / 20	9 / 15
THERMAL PROPERTIES															
Melting temperature (DSC)	10 °C/min	ISO 11357-3	°C	260	260	260	260	260	260	260	260	260	260	260	260
Heat deflection temperature (HDT)	1.8 MPa	ISO 75-1/-2	°C	70	60	60	80	250	250	255	255	250	250	250	250
ELECTRICAL PROPERTIES			(dry/cond.)*												
Volume resistivity		IEC 60093	Ω.m	10^{13} / 10^{11}	10^{13} / 10^{11}	10^{13} / 10^{11}	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^{11} / 10^{10}
Surface resistivity		IEC 60093	Ω	10^{12} / 10^{10}	10^{12} / 10^{10}	10^{12} / 10^{10}	10^{12} / 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}
Comparative tracking index		IEC 60112		600	600	600	600	600	600	575	550	600	600	600	600
					Impact-modified	Impact-modified	Halogen-free					Impact-modified	Food-contact approved	Hydrolysis-resistant	Halogen-free
				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.

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Promyde®
POLYAMIDE 6 & 66

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