

Ultraform® (POM)

Product Range Brochure



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Ultraform® (POM)

Ultraform® is the trade name for the range of thermoplastic polyoxymethylene copolymers from BASF.

The Ultraform® product family encompasses versatile engineering plastics with a wide variety of characteristics, which are designed for use in complex and heavy-duty components. Ultraform® grades offer everything you need from an engineering material: they combine high rigidity and strength with superb resilience, favorable sliding friction characteristics and good dimensional stability, even under the influence of mechanical forces, in contact with many chemicals, fuels and other media, and at elevated temperatures.

Main Application Areas of Ultraform®

- Automotive applications (e.g. sensor components, loudspeaker grids, clips and fasteners, spring elements)
- Everyday articles (e.g. shower head inserts, furniture fittings, coffee machine brewing units, zippers, pipe connectors, functional parts in door/window handles and toys)
- Industrial applications (e.g. ball bearings, gear wheels, links and connecting elements in conveyor chains and belts)
- Functional elements in medical devices (e.g. inhalers, Auto-injectors, Insulin pens, clips and clamps)

Ultraform® (POM)

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Product Range Overview

Unreinforced grades

H4320 AT	High-molecular-weight grade for extruding semifinished products. Thick-walled semifinished products in particular can be extruded at high output rates. High thermal stability and low discoloration tendency.
H2320 006 AT	High-molecular-weight grade with slightly increased flowability for injection molding of thick-walled moldings.
N2320 003 AT	Rapid-solidifying standard grade for injection molding.
N2320 003 SC AT	Rapid-solidifying standard grade for injection-molding, optimized for self-coloring.
S1320 003 AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding. Increased rigidity and heat resistance.
S2320 003 AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding.
W2320 003 AT	Very free-flowing, rapid-solidifying grade for use where processing is demanding but mechanical requirements are lower.

Reinforced grades

N2200 G23 AT	10% GF reinforced POM; injection molding grade for parts requiring high rigidity, strength, and whiteness.
N2200 G43 AT	20% GF reinforced POM; injection-molding grade for parts requiring high rigidity and strength along with good mold release. Food contact approved.
N2200 G43 R01 AT	20% GF reinforced POM; injection molding grade for parts requiring high rigidity, strength, and whiteness.
N2200 G53 AT	25% GF reinforced POM; injection-molding grade for parts requiring high rigidity and strength along with good mold release. Food contact approved.
N2200 G53 R01 AT	25% GF reinforced POM; injection molding grade for parts requiring high rigidity and strength.
N2720 M210 AT	Product with increased rigidity and strength together with good wear characteristics, used e.g. for sliding chains and conveyor systems.
N2720 M63 AT	Mineral-reinforced product for low-warping moldings with high rigidity, strength, and hardness.

Impact-modified grades

N2640 Z2 AT N2640 Z4 AT	Elastomer-modified injection-molding grades with high-impact strength for clips, snap-on and fixing elements, and for components subject to impact stress.
N2640 Z6 AT	Elastomer-modified injection-molding grade for applications requiring maximum impact strength together with low rigidity.
N2644 Z9 AT	Elastomer-modified injection-molding grade for applications requiring maximum impact strength and a low modulus of elasticity. Good acoustic damping.

Grades for drinking water applications

Ultraform® AQUA AT grades are suitable for plastic components for which drinking water or food contact approval of the material is essential.

N2320 AQUA AT	Rapid-solidifying grade for injection molding.
S2320 AQUA AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding.

Low-emission grades

N2320 003 LEV AT	Rapid-solidifying grade with moderate flowability for injection molding, with reduced emission potential. Food contact approved.
N2320 0035 LEV AT	Rapid-solidifying grade with moderate flowability for injection molding, with reduced emission potential.
N2320 U035 LEV AT	UV-stabilized, rapid-solidifying grade with moderate flowability for injection molding, with reduced emission potential.
S2320 003 LEV AT	Free-flowing, rapid-solidifying standard grade for injection molding, with reduced emission potential. Food contact approved.
W2320 003 LEV AT	Very free-flowing, rapid-solidifying grade for injection molding, with reduced emission potential. Food contact approved.
W2320 0035 LEV AT	Very free-flowing, rapid-solidifying grade for injection molding, with reduced emission potential.
W2320 U035 LEV AT	UV-stabilized, very free-flowing and rapid-solidifying grade for injection-molding, with reduced emission potential.

Grades for medical applications

Ultraform® PRO AT grades offer a comprehensive service package (including long-term formulation consistency), specifically tailored to requirements in the medical sector.

N2320 003 PRO AT	Rapid-solidifying grade for injection molding, for applications demanding outstanding mechanical performance.
S1320 003 PRO AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding. Increased rigidity and heat resistance.
S2320 003 PRO AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding.
S2320 003 PRO TR AT	Free-flowing, rapid-solidifying grade with specialty lubricant to minimize friction, stick-slip and squeaking.
W2320 003 PRO AT	Very free-flowing, rapid-solidifying grade for use where processing is demanding but mechanical requirements are lower.
W2320 003 PRO TR AT	Very free-flowing, rapid-solidifying grade with specialty lubricant for use where processing is demanding, but mechanical requirements are lower. Minimizes friction, stick-slip and squeaking in contact with plastic surfaces.

Tribological grades

Ultraform® tribological grades are suitable for plastic components in applications where optimized sliding and/or abrasion characteristics are necessary.

N2310 P AT	Standard injection-molding grade with special lubricant. Extremely low coefficient of friction and sliding abrasion when combined with smooth metal surfaces (low roughness).
N2770 K AT	Injection-molding grade with improved wear characteristics for sliding elements.
S2320 003 TR R01 AT	Free-flowing, rapidly solidifying grade with special lubricant to minimize friction, stick-slip and squeaking.
W2320 003 TR AT	Very free-flowing, rapid-solidifying grade with specialty lubricant for use where processing is demanding, but mechanical requirements are lower. Minimizes friction, stick-slip and squeaking in contact with plastic surfaces.
W2310 TR AT	Very free-flowing grade with special tribological modification to minimize friction, stick-slip and squeaking. Suitable for tribological systems where the part is in contact with metal or plastic counter materials.

Biomass balance and LowPCF grades

Ultraform® LowPCF and BMB solutions focus on Low Product Carbon Footprint (PCF) solutions: BMB Certification by ISCC PLUS and Green electricity with 0CO₂ emission.

H2320 006 BMB AT	High-molecular-weight grade with slightly increased flowability for injection molding of thickwalled molding. Same performance as our unreinforced grades with biomass balance benefit.
N2320 003 BMB AT	Rapid-solidifying standard grade for injection molding. Same performance as our unreinforced grades with biomass balance benefit.
S1320 003 BMB AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding. Increased rigidity and heat resistance. Same performance as our unreinforced grades with biomass balance benefit.
S2320 003 BMB AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding. Same performance as our unreinforced grades with biomass balance benefit.
W2320 003 BMB AT	Very free-flowing and rapid-solidifying grade for use where processing is demanding but mechanical requirements are lower. Same performance as our unreinforced grades with biomass balance benefit.
N2640 Z2 BMB AT	Elastomer-modified injection-molding grades with high-impact strength for clips, snap-on and fixing elements, and for components subject to impact stress, same performance as reinforced grades with biomass balance benefit.
N2640 Z6 BMB AT	Elastomer-modified injection-molding grade for applications requiring maximum impact strength together with low rigidity, same performance as reinforced grades with biomass balance benefit.
N2720 M210 BMB AT	Product with increased rigidity and strength together with good wear characteristics, same performance as reinforced grades with biomass balance benefit.
N2200 G23 BMB AT	10% GF reinforced POM; injection molding grade for parts requiring high rigidity, strength, and whiteness. Same performance as reinforced grades with biomass balance benefit.
N2200 G43 BMB AT	20% GF reinforced POM; injection-molding grade for parts requiring high rigidity and strength along with good mold release. Food contact approved. Same performance as reinforced grades with biomass balance benefit.
N2200 G53 R01 BMB AT	25% GF reinforced POM; injection molding grade for parts requiring high rigidity and strength. Same performance as reinforced grades with biomass balance benefit.
N2320 003 LowPCF AT	Rapid-solidifying standard grade for injection molding. Same performance as our unreinforced grades with biomass balance benefit.
S2320 003 LowPCF AT	Free-flowing, rapid-solidifying grade for thin-walled moldings that are difficult to produce by injection molding. Same performance as our unreinforced grades with biomass balance benefit.
W2320 003 LowPCF AT	Very free-flowing and rapid-solidifying grade for use where processing is demanding but mechanical requirements are lower. Same performance as our unreinforced grades with biomass balance benefit.

Addition of further grades to be evaluated based on customer requests.



Ultraform® AT Grades

Unreinforced grades

Typical values for uncolored products at 23°C	Unit	Test method	H4320 AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,400	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	1	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.25	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M, E	
Melting point, DSC	°C	ISO 11357-1/-3	163	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	2.2	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	2.6	
Melt temperature range, injection molding	°C	–	190 - 230	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,400	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	60	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	11	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	31 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,300	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	280N
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	250
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6.5
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5.5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6.5
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	6
Ball indentation hardness H 358/30	MPa	ISO 2039-1	125	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	90	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	120	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+11	
Surface resistivity	Ω	IEC 62631-3-2	1E+13	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

H2320 006 AT	N2320 003 AT	N2320 003 SC AT	S1320 003 AT	S2320 003 AT	W2320 003 AT
POM	POM	POM	POM	POM	POM
1,410	1,410	1,410	1,410	1,410	1,410
0.9	0.9	0.9	0.9	0.9	0.8
0.2	0.2	0.2	0.2	0.2	0.2
M, E	M	M	M	M	M
165	166	166	170	167	166
2.9	7.5	7.5	11	11	25
3.4	8.8	8.8	12.9	13	29.4
190 - 230	190 - 230	190 - 230	190 - 230	190 - 230	190 - 230
60 - 120	60 - 120	60 - 120	60 - 120	60 - 120	60 - 120
2,600	2,700	2,700	3,000	2,700	2,850
62	64	64	67	64	65
*	*	*	*	*	*
11	10.7	10	10.5	10	8
30 (*)	32 (*)	29 (*)	25 (*)	29 (*)	24 (*)
1,300	1,400	1,400	1,450	1,300	1,350
270	270	270	230	250	190
260	250	220	210	230	190
6.5	6.5	6.5	6	6	4.5
5.5	5.5	5.5	5.5	5.5	4
6.5	6	6	5.5	5.5	5
7	5.5	5.5	5	5.5	5
135	135	135	150	145	145
95	95	95	100	100	100
150	166	150	150	150	150
100	100	100	100	100	100
120	110	110	110	110	110
3.8 (3.8)	3.8 (3.8)	3.8 (3.8)	3.7 (3.7)	3.8 (3.8)	3.8 (3.8)
10 (50)	10 (50)	10 (50)	20 (50)	10 (50)	10 (50)
1E+11	1E+11	1E+11	1E+11	1E+11	1E+11
1E+13	1E+13	1E+13	1E+15	1E+13	1E+13
600	600	600	600	600	600
600	600	600	600	600	600

Ultraform® AT Grades

Reinforced grades

Typical values for uncolored products at 23°C	Unit	Test method	N2200 G23 AT	
Product Features				
Abbreviation	–	–	POM-GF10	
Density	kg/m ³	ISO 1183	1,440	
Water absorption, saturation in water at 23°C	%	similar to ISO 62		
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62		
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–		
Melting point, DSC	°C	ISO 11357-1/-3	165	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	6	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	–	
Melt temperature range, injection molding	°C	–	190 - 220	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	5,000	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	–	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	92	
Elongation at yield	%	ISO 527-1/-2	–	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	– (3.3)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	–	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	42
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	–
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	5.3
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	–
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	–
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	–
Ball indentation hardness H 358/30	MPa	ISO 2039-1	–	
Ball indentation hardness H 961/30	MPa	ISO 2039-1	–	
Ball indentation hardness H 132/30	MPa	ISO 2039-1	–	
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	–	
Vicat softening temperature VST/B/50	°C	ISO 306	–	
Max. service temperature, up to a few hours ¹⁾	°C	–	–	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	–	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	– (-)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	– (-)	
Volume resistivity	Ω·cm	IEC 62631-3-1	–	
Surface resistivity	Ω	IEC 62631-3-2	–	
Comparative tracking index CTI, test solution A	–	IEC 60112	–	
Comparative tracking index CTI, test solution B	–	IEC 60112	–	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

N2200 G43 AT	N2200 G43 R01 AT	N2200 G53 AT	N2200 G53 R01 AT	N2720 M210 AT	N2720 M63 AT
POM-GF20	POM-GF20	POM-GF25	POM-GF25	POM-MD10	POM-MD30
1,550	1,540	1,580	1,580	1,490	1,650
1		1.1	1.1	0.8	0.9
0.2		0.2	0.2	0.2	0.15
M		M		M	M
165	164	168	166	166	167
4	4	4	4.5	7	3.8
-	-	5.5	-	8.8	6.5
190 - 220	190 - 220	190 - 220	190 - 230	190 - 230	190 - 220
60 - 120	60 - 120	60 - 120	60 - 120	60 - 120	60 - 120
7,500	7,700	8,500	9,000	3,800	7,000
*	-	*	-	63	75
115	130	125	160	*	*
*	-	*	-	9.5	5
* (3)	- (2.9)	* (2.5)	- (3.1)	18 (*)	6 (*)
-	-	-	-	-	2,750
50	58	45	65	90	55
50	-	50	-	90	55
7.5	9	8	11.5	3.5	3.5
7.5	-	7.5	-	3.5	3
5	-	7.8	-	-	3.5
5	-	8.7	-	-	-
164	-	-	-	145	-
	-	185	-	-	190
	-	-	-	-	-
161	160	163	160	115	140
160	-	160	-	150	155
110	-	110	-	100	110
50	-	40	-	80	45
4 (4.1)	- (-)	4 (4)	- (-)	3.9 (3.8)	4 (4.2)
40 (70)	- (-)	40 (70)	- (-)	50 (60)	70 (50)
10,000,000,000	-	10,000,000,000	-	10,000,000,000	10,000,000,000
1E+14	-	1E+14	-	1E+14	1E+14
600	-	600	-	600	600
600	-	600	-	600	600

Ultraform® AT Grades

Impact-modified grades

Typical values for uncolored products at 23°C	Unit	Test method	N2640 Z2 AT	
Product Features				
Abbreviation	–	–	POM + PUR	
Density	kg/m ³	ISO 1183	1,380	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	1	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.25	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	8.1	
Melt temperature range, injection molding	°C	–	190 - 215	
Mold temperature range	°C	–	60 - 80	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,000	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	51	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	11	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	40 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	–	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	NC
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	–
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	13
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	7
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	10
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	7
Ball indentation hardness H 358/30	MPa	ISO 2039-1	105	
Ball indentation hardness H 961/30	MPa	ISO 2039-1	–	
Ball indentation hardness H 132/30	MPa	ISO 2039-1	–	
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	85	
Vicat softening temperature VST/B/50	°C	ISO 306	140	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	130	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	4 (4)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	100 (140)	
Volume resistivity	Ω · cm	IEC 62631-3-1	10,000,000,000	
Surface resistivity	Ω	IEC 62631-3-2	1E+14	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

N2640 Z4 AT	N2640 Z6 AT	N2644 Z9 AT
POM + PUR	POM + PUR	POM + PUR
1,360	1,330	1,280
1	1.1	1.1
0.25	0.3	0.3
M	M	M
166	165	164
5.5	4.5	12
6.4	5.2	-
190-215	190-215	180-210
60-80	60-80	40-80
1,700	1,400	770
44	37	23
*	*	*
14	17	32
>50 (*)	>50 (*)	>50 (*)
-	-	-
N	N	N
N	NC	NC
15	18	25
8	9	5
13	15	15.5
8	10	5.5
85	60	
		27
75	70	60
130	110	-
100	100	100
130	140	140
4.2 (4.2)	4.5 (4.3)	5.1 (4.9)
110 (190)	100 (250)	70 (350)
1,000,000,000	1,000,000,000	1,000,000,000
1E+14	1E+12	1E+13
600	600	600
600	600	600

Ultraform® AT Grades

Grades for drinking water applications

Typical values for uncolored products at 23°C	Unit	Test method	N2320 Aqua AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,410	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	0.9	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.2	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7.5	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	8.8	
Melt temperature range, injection molding	°C	–	190 - 230	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,700	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	64	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	10.7	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	32 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,400	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	270
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	250
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6.5
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5.5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	5.5
Ball indentation hardness H 358/30	MPa	ISO 2039-1	135	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	95	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	110	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+11	
Surface resistivity	Ω	IEC 62631-3-2	1E+13	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

S2320 Aqua AT

POM
1,410
0.9
0.2
M
167
11
13
190 - 230
60 - 120
2,700
64
*
10
29 (*)
1,300
250
230
6
5.5
5.5
5.5
145
100
150
100
110
3.8 (3.8)
10 (50)
1E+11
1E+13
600
600

Ultraform® AT Grades

Low-emission grades

Typical values for uncolored products at 23°C	Unit	Test method	N2320 003 LEV AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,410	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	0.9	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.2	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7.5	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	8.8	
Melt temperature range, injection molding	°C	–	190 - 220	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,700	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	64	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	11	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	30 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,400	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	330
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	270
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6.5
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5.5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	5.5
Ball indentation hardness H 358/30	MPa	ISO 2039-1	135	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	95	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	110	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+11	
Surface resistivity	Ω	IEC 62631-3-2	1E+13	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

³⁾ Preliminary data

⁴⁾ highly dependent on the processing conditions

⁵⁾ ISO 3915 4-Point-Measurement

N2320 0035 LEV AT N2320 U035 LEV AT S2320 003 LEV AT W2320 003 LEV AT W2320 0035 LEV AT W2320 U035 LEV AT

POM	POM	POM	POM	POM	POM
1,410	1,410	1,410	1,410	1,410	1,410
0.9	0.9	0.9	0.8	0.8	0.8
0.2	0.2	0.2	0.2	0.2	0.2
M	M	M	M	M	M
166	165	167	166	165	166
7.5	7.5	11	25	25	25
8.8	8.8	13	29.4	29.4	29.4
190 - 220	190 - 220	190 - 220	190 - 220	190 - 220	190 - 220
60 - 120	60 - 120	60 - 120	60 - 120	60 - 120	60 - 120
2,700	2,600	2,700	2,850	2,700	2,800
63	63	64	65	64	65
*	*	*	*	*	*
11	10.5	10	8	9	8.5
28 (*)	26 (*)	29 (*)	24 (*)	25 (*)	25 (*)
1,200	1,300	1,300	1,350	–	1,300
260	300	250	190	180	200
250	250	230	190	–	190
6.5	6.5	6	4.5	5	4
5.5	6	5.5	4	–	4
6.5	5.5	5.5	5	5	–
6	5.5	5.5	5	5	–
140	145	145	145	–	145
95	95	100	100	95	95
150	150	150	150	150	150
100	100	100	100	100	100
110	110	110	110	110	110
3.9 (3.8)	3.8 (3.8)	3.8 (3.8)	3.8 (3.8)	3.8 (3.8)	3.9 (3.8)
30 (60)	10 (50)	10 (50)	10 (50)	10 (60)	30 (60)
1E+11	1E+11	1E+11	1E+11	>1E13	1E+11
1E+15	1E+13	1E+13	1E+13	>1E15	1E+15
600	600	600	600	600	600
600	600	600	600	600	600

Ultraform® AT Grades

Grades for medical applications

Typical values for uncolored products at 23°C	Unit	Test method	N2320 003 PRO AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,410	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	0.9	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.2	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7.5	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	8.8	
Melt temperature range, injection molding	°C	–	190-230	
Mold temperature range	°C	–	60-120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,700	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	64	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	10.7	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	32 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,400	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	270
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	250
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6.5
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5.5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	5.5
Ball indentation hardness H 358/30	MPa	ISO 2039-1	135	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	95	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	110	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+11	
Surface resistivity	Ω	IEC 62631-3-2	1E+13	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

S1320 003 PRO AT	S2320 003 PRO AT	S2320 003 PRO TR AT	W2320 003 PRO AT	W2320 003 PRO TR AT
POM	POM	POM	POM	POM
1,410	1,410	1,400	1,410	1,380
0.9	0.9	0.8	0.8	0.8
0.2	0.2	0.2	0.2	0.2
M	M	M	M	M
170	167	167	166	167
11	11	11	25	25
12.9	13	–	29.4	29.4
190 - 230	190 - 230	190 - 230	190 - 230	190 - 230
60 - 120	60 - 120	60 - 120	60 - 120	60 - 120
3,000	2,700	2,600	2,850	2,500
67	64	62	65	50
*	*	*	*	*
10.5	10	9	8	5.5
25 (*)	29 (*)	35 (*)	24 (*)	37 (*)
1,450	1,300	–	1,350	–
230	250	180	190	110
210	230	145	190	95
6	6	5.5	4.5	5
5.5	5.5	6	4	4.4
5.5	5.5	7	5	5
5	5.5	6.5	5	5
150	145	135	145	125
100	100	100	100	92
150	150	–	150	–
100	100	100	100	100
110	110	120	110	125
3.7 (3.7)	3.8 (3.8)	3.6 (3.6)	3.8 (3.8)	3.5 (3.5)
20 (50)	10 (50)	11 (56)	10 (50)	9 (55)
1E+11	1E+11	1E+12	1E+11	1E+11
1E+15	1E+13	1E+15	1E+13	1E+14
600	600	600	600	600
600	600	600	600	600

Ultraform® AT Grades

Tribological grades

Typical values for uncolored products at 23°C	Unit	Test method	N2310 P AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,410	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	0.9	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.2	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7.5	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	9	
Melt temperature range, injection molding	°C	–	190 - 230	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,600	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	61	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	10	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	31 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,300	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	200
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	180
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6.5
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	6
Ball indentation hardness H 358/30	MPa	ISO 2039-1	135	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	90	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	110	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+12	
Surface resistivity	Ω	IEC 62631-3-2	1E+12	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

N2770 K AT	S2320 003 TR R01 AT	W2320 003 TR AT	W2310 TR AT
	POM	POM	POM
1,430	1,400	1,380	1,390
0.9		0.8	0.8
0.2		0.2	0.2
M	M	M	
166	167	167	166
7.5	13	25	25
-	-	29.4	-
190 - 230	190 - 230	190 - 230	190 - 220
60 - 120	60 - 120	60 - 120	60 - 120
2,700	2,400	2,500	2,500
61	45	50	56
*	*	*	-
9.5	6	5.5	9
26 (*)	45 (*)	37 (*)	10 (-)
1,400	-	-	-
100	110	110	65
100	-	95	-
5	4.5	5	3.5
4	-	4.4	-
-	-	5	-
-	-	5	-
140	-	125	-
90	86	92	90
-	-	-	-
100	-	100	100
110	-	125	
- (3.8)	- (-)	3.5 (3.5)	- (-)
- (50)	- (-)	9 (55)	- (-)
1E+13	-	1E+11	-
1E+13	-	1E+14	1E+16
600	-	600	-
-	-	600	-

Ultraform® AT Grades

Biomass balance and LowPCF grades

Typical values for uncolored products at 23°C	Unit	Test method	H2320 006 BMB AT	
Product Features				
Abbreviation	–	–	POM	
Density	kg/m ³	ISO 1183	1,410	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	0.9	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.2	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M, E	
Melting point, DSC	°C	ISO 11357-1/-3	165	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	2.9	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	3.4	
Melt temperature range, injection molding	°C	–	190 - 230	
Mold temperature range	°C	–	60 - 120	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,600	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	62	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	11	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	30 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	1,300	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	270
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	260
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	6.5
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	5.5
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	6.5
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	7
Ball indentation hardness H 358/30	MPa	ISO 2039-1	135	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	95	
Vicat softening temperature VST/B/50	°C	ISO 306	150	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	120	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	3.8 (3.8)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	10 (50)	
Volume resistivity	Ω·cm	IEC 62631-3-1	1E+11	
Surface resistivity	Ω	IEC 62631-3-2	1E+13	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

N2320 003 BMB AT	S1320 003 BMB AT	S2320 003 BMB AT	W2320 003 BMB AT
POM	POM	POM	POM
1,410	1,410	1,410	1,410
0.9	0.9	0.9	0.8
0.2	0.2	0.2	0.2
M	M	M	M
166	170	167	166
7.5	11	11	25
8.8	12.9	13	29.4
190 - 230	190 - 230	190 - 230	190 - 230
60 - 120	60 - 120	60 - 120	60 - 120
2,700	3,000	2,700	2,850
64	67	64	65
*	*	*	*
10.7	10.5	10	8
32 (*)	25 (*)	29 (*)	24 (*)
1,400	1,450	1,300	1,350
270	230	250	190
250	210	230	190
6.5	6	6	4.5
5.5	5.5	5.5	4
6	5.5	5.5	5
5.5	5	5.5	5
135	150	145	145
95	100	100	100
166	150	150	150
100	100	100	100
110	110	110	110
3.8 (3.8)	3.7 (3.7)	3.8 (3.8)	3.8 (3.8)
10 (50)	20 (50)	10 (50)	10 (50)
1E+11	1E+11	1E+11	1E+11
1E+13	1E+15	1E+13	1E+13
600	600	600	600
600	600	600	600

Ultraform® AT Grades

Biomass balance grades

Typical values for uncolored products at 23°C	Unit	Test method	N2640 Z2 BMB AT	
Product Features				
Abbreviation	–	–	POM + PUR	
Density	kg/m ³	ISO 1183	1,380	
Water absorption, saturation in water at 23°C	%	similar to ISO 62	1	
Moisture absorption, saturation under standard climatic cond. 23°C/50% r.h.	%	similar to ISO 62	0.25	
Processing				
Injection molding (M), extrusion (E), blow molding (B)	–	–	M	
Melting point, DSC	°C	ISO 11357-1/-3	166	
Melt volume rate MVR 190/2.16	cm ³ /10min	ISO 1133	7	
Melt flow rate MFR 190/2.16	g/10min	ISO 1133	8.1	
Melt temperature range, injection molding	°C	–	190 - 215	
Mold temperature range	°C	–	60 - 80	
Mechanical properties				
Tensile modulus	MPa	ISO 527-1/-2	2,000	
Tensile stress at yield (v=50mm/min)	MPa	ISO 527-1/-2	51	
Tensile stress at break (v=5mm/min)	MPa	ISO 527-1/-2	*	
Elongation at yield	%	ISO 527-1/-2	11	
Nominal elongation at break/elongation at break*	%	ISO 527-1/-2	40 (*)	
Tensile creep modulus, 1,000h	MPa	ISO 899-1	–	
Charpy impact strength ²⁾	+23°C	kJ/m ²	ISO 179/1eU	NC
Charpy impact strength ²⁾	-30°C	kJ/m ²	ISO 179/1eU	–
Charpy notched impact strength	+23°C	kJ/m ²	ISO 179/1eA	13
Charpy notched impact strength	-30°C	kJ/m ²	ISO 179/1eA	7
Izod notched impact strength	+23°C	kJ/m ²	ISO 180/A	10
Izod notched impact strength	-30°C	kJ/m ²	ISO 180/A	7
Ball indentation hardness H 358/30	MPa	ISO 2039-1	105	
Ball indentation hardness H 961/30	MPa	ISO 2039-1		
Ball indentation hardness H 132/30	MPa	ISO 2039-1		
Thermal properties				
Heat deflection temp. under 1.8MPa load (HDT A)	°C	ISO 75-1/-2	85	
Vicat softening temperature VST/B/50	°C	ISO 306	140	
Max. service temperature, up to a few hours ¹⁾	°C	–	100	
Coeff. of linear thermal expansion, long. (23-55)°C	10 ⁻⁵ /K	ISO 11359-1/-2	130	
Electrical properties				
Dielectric constant at 100Hz/1 MHz	–	IEC 62631-2-1	4 (4)	
Dissipation factor at 100Hz/1 MHz	10 ⁻⁴	IEC 62631-2-1	100 (140)	
Volume resistivity	Ω · cm	IEC 62631-3-1	10,000,000,000	
Surface resistivity	Ω	IEC 62631-3-2	1E+14	
Comparative tracking index CTI, test solution A	–	IEC 60112	600	
Comparative tracking index CTI, test solution B	–	IEC 60112	600	

¹⁾ Known values for parts that have to withstand this temperature repeatedly for several hours over the course of years of use, presupposing proper shaping and processing of the material.

²⁾ N = not broken

N2640 Z6 BMB AT	N2720 M210 BMB AT	N2200 G23 BMB AT	N2200 G43 BMB AT	N2200 G53 R01 BMB AT
POM + PUR	POM-M10	POM-GF10	POM-GF20	POM-GF25
1,330	1,490	1,440	1,550	1,580
1.1	0.8		1	1.1
0.3	0.2		0.2	0.2
M	M		M	
165	166	165	165	166
4.5	7	6	4	4.5
5.2	8.8	-	-	-
190 - 215	190 - 230	190 - 220	190 - 220	190 - 230
60 - 80	60 - 120	60 - 120	60 - 120	60 - 120
1,400	3,800	5,000	7,500	9,000
37	63	-	*	-
*	*	92	115	160
17	9.5	-	*	-
>50 (*)	18 (*)	-(3.3)	*(3)	-(3.1)
-	-	-	-	-
N	90	42	50	65
NC	90	-	50	-
18	3.5	5.3	7.5	11.5
9	3.5	-	7.5	-
15	-	-	5	-
10	-	-	5	-
60	145	-	164	-
70	115	-	161	164
110	150	-	160	-
100	100	-	110	-
140	80		50	32
4.5 (4.3)	3.9 (3.8)	- (-)	4 (4.1)	-(70)
100 (250)	50 (60)	- (-)	40 (70)	-(70)
1,000,000,000	10,000,000,000	-	10,000,000,000	1E+12
1E+12	1E+14	-	1E+14	1E+14
600	600	-	600	600
600	600	-	600	-

Nomenclature

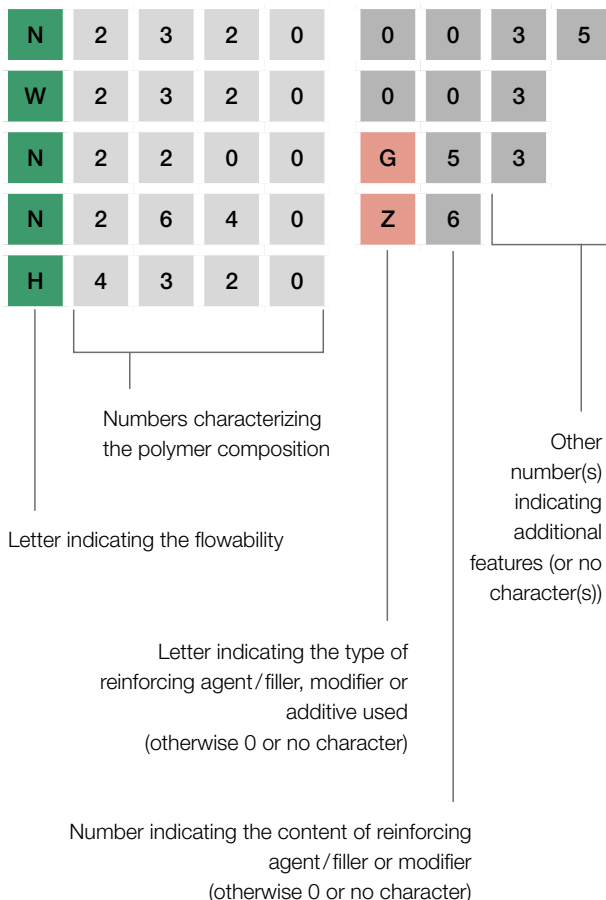
Structure

The name of Ultraform® commercial products generally follows the scheme below:



Technical ID

The technical ID is made up of a series of letters and numbers indicating the melt flow rate, the types of reinforcing agents, fillers, modifiers, or additives used, their content in the material, and special features where applicable. The following system is used for most products:



Letters indicating the melt flow rate

The melt flow rate corresponds to the position of the letter in the alphabet: the later the letter appears in the alphabet, the higher the melt flow rate. The letters H, N, S and W are most commonly used.

The following applies:

H lowest flow rate, lowest MVR value

W highest flow rate, highest MVR value

Letters indicating the type of reinforcing agent, filler, modifier or additive used

G Glass fibers

P Specialty lubricant

K Chalk

U UV-stabilized

M Mineral

Z TPU impact modified

Indices describing the content of reinforcing agents, fillers or modifiers

The numbers 2, 4, 5, 6 and 9 are most commonly used. The higher the number, the higher the content.

The following rule of thumb applies:

2 approx. 10 % by mass

4 approx. 20 % by mass

5 approx. 25 % by mass

6 approx. 30 % by mass

9 approx. 45 % by mass

Suffixes

Suffixes are optionally used to indicate specific processing or application-related properties. They are frequently acronyms whose letters are derived from the English term.

Examples of suffixes:

AQUA	Meets specific regulatory requirements for drinking water applications
BMB	Bio Mass Balanced
LEV	Low emission version; low-odor
LowPCF	Low Product Carbon Footprint
PRO	Profile covered raw materials only; meets specific regulatory requirements and needs for medical applications
TR	Tribological modified

Color

The color is generally made up of a color name and a color number.

Examples of colors:

Uncolored	
Black 00120	
Black 00140	(for products modified with TPU)

Selected Product Literature for Ultraform®:

- Ultraform® – Product Brochure
- Ultraform® – Product Range
- Ultramid®, Ultradur® and Ultraform® – Resistance to Chemicals
- Engineering Plastics for Medical Solutions – Ultraform® PRO (POM) and Ultradur® PRO (PBT)
- Ultraform® Sustainable Solutions for a Better Future

Note

The data contained in this publication is based on our current knowledge and experience. Considering the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (July 2023)

Further information on Ultraform® can be found on the internet:

www.ultraform.basf.com

Please visit our websites:

www.plastics.basf.com

www.plastics.basf.de

If you have any technical questions about the products, please contact our Ultra-Infopoints:

EMEA Infopoint



North America Infopoint



Asia Pacific Infopoint

