Pipe & industrial sheet: *Hostalen* HDPE and *Petrothene* HDPE

Property	Physical			Mechanical					Thermal	Other		Specific Characteristics	Typical Customer Applications
	MFR 190°c / 5 kg	MFR 190°c / 21.6 kg	Density	Tensile modulus (sec., v=1mm/min)	Tensile stress at yield (v=50mm/min)	Hardness shore D (3 sec.)	Charpy notched impact strength 23°C	Charpy notched impact strength -30°C	Vicat softening point (49 N)	OIT (210 °C)	FNCT (4 MPa, 2% Arcopal, 80 °C)		
Test Method	ISO 1183-1		ISO 1183 A	ISO 527		ISO 868	ISO 179-1/1eA		ISO 306/B	ISO 11357-6	ISO 16770		
Units	g/10 min		g/cm³	MPa			kJ/m²		°C	min	h		
Product grades - *Hostalen*													
GM 5010 T3 Black	0.43	9.0	0.957	1050	22	59	24	8	70	30	> 100	PE80 HDPE black color with high impact and stiffness; pellets	Water, gas, wastewater and industrial pressue pipe systems; pipe lining; spiral wound and corrugated non-pressure pipes
CRP 100 Black	0.23	6.4	0.959	1100	23	63	26	13	74	30	> 1000	PE100 black color; excellent processing, good ESCR; pellets	Water, gas, wastewater and industrial pressue pipe systems; pipe lining; spiral wound and corrugated non-pressure pipes
CRP 100 RESIST CR Black	0.23	6.4	0.958	1100	23	63	26	13	74	30	> 8760	PE100-RC black color;; high ESCR; pellets	Water, gas, wastewater and industrial pressure pipes in challenging applications such as with sandless bedding; no dig installation and pipe lining
CRP100 Black (XL)	0.23	6.4	0.959	1100	23	63	26	13	74	30	> 1000	PE100 black color (RAL9004), high melt viscosity; low sag; pellets	Larger diameter and thick-walled pressure pipe systems
CRP 100 RCD Black	0.23	6.4	0.959	1100	23	63	26	13	74	30	> 8760	PE100-RC black color; high resistance to disinfectants and raised temperatures, high ESCR; pellets	Drinking water and industrial pipe systems exposed to higher disinfectant concentrations and/or higher temperature, power cable ducts
CRP 100 RT Black	0.45	9.5	0.957	1050	22	59	24	8	70	40	350	PE100 black color (RAL9004), high melt viscosity; low sag; pellets	Power cable conduits and industrial pipes at temperatures above 40°C
CRP 100 W Blue	0.27	7.6	0.950	1050	23	62	26	13	74	30	> 1000	PE100 dark blue color (similar RAL 5005); good ESCR, pellets	Drinking water pressure pipe systems acc. EN12201 / ISO4427 inc. pipe lining
CRP 100 RESIST CR W blue	0.27	7.3	0.950	1050	23	63	26	13	74	30	> 8760	PE100-RC dark blue color (similar RAL5005); high ESCR; pellets	Drinking water pressure pipe systems acc. EN12201 / ISO4427 in challenging apps.
CRP 100 RESIST CR Orange	0.27	7.3	0.950	1050	23	62	29	15	74	30	> 8760	PE100-RC orange color (similar RAL1033); high ESCR; pellets	Gas pressure pipe systems acc. EN1555 / ISO4437 in challenging applications
CRP 100 Orange	0.23	6.4	0.951	1050	23	62	29	15	74	30	> 1000	PE100, orange color (similar RAL1033); good ESCR, pellets	Gas distribution pressure pipe systems acc. EN1555 / ISO4437 inc. pipe lining
CRP 100 RC-HT	0.24	7.3	0.947	950	23	62	26	13	74	30	> 8760	HDPE, natural color, high heat ageing resistance and ESCR, pellets	High voltage power cable conduits and gravity pipes at elevated temperatures
5052 B	0.2 - 0.9	6-20	0.956	1000	20				74	20		HDPE black color (RAL 9004); pellets	Cable conduits and non pressure pipes
GM 9310 C Black		4.5	1.000	1250	26	66	5	3	83	20		Semiconductive; HDPE black color (RAL 9004); pellets	Pipes and sheets with lower surface resistivity for explosion-proof areas
ACP 5831 AGRI	2.4	36	0.956	1200	28	64		6.2				HDPE, natural color, pellets, combination of high stiffness and good ESCR	Corrugated pipes for agricultural land drainage and telecomunication ducts
Product grades – *Petrothene*													
KR52828E	1.1	21	0.956	900	23	61				30	40	HDPE, black color, good weather resistance, good heat ageing resistance	jacketing of wire & cable, pressureless sewage pipes, cable conduits, microducts, extruded sheets, injection molded fittings
LR52800E	1.1	21	0.950	900	23	61				30	40	HDPE, natural color, good heat ageing resistance	jacketing of wire & cable, pressureless sewage pipes, cable conduits, microducts, extruded sheets, injection molded fittings

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Pipe & industrial sheet: Crosslinkable HDPE and PE-RT

Property	Physical				Mechanical				Thermal		Specific Characteristics	Typical Customer Applications
	MFR 190°c / 2.16 kg	MFR 190°c / 5 kg	MFR 190°c / 21.6 kg	Density	Tensile modulus (sec., v=1mm/min)	Tensile stress at yield (v=50mm/min)	Hardness shore D (3 sec.)	Ball indentation hardness H132/30	Vicat softening point (9.8 N)	Vicat softening point (49 N)		
Test Method	ISO 1183-1			ISO 1183 A	ISO 527		ISO 868	ISO 2039-1	ISO 306/A	ISO 306/B		
Units	g/10 min			g/cm³	MPa			MPa	°C	°C		
Product grades - *Lupolen*												
4261A Q416		0.5	8.5	0.946	850	24	62	40	125	75	x-linkable (Radiation); PE-Xc; HDPE; natural colour; pellets	Heating; plumbing and multilayer pipes (EN ISO 15875 / DIN 16892 / EN ISO 21003)
5261Z Q456			2.0	0.954	1100	27	65	52	132	80	HMW-PE (PE500) with a typical average molar mass of 380.000 g/mol; x-linkable (Peroxide); PE-Xa (Engel/RAM process); HDPE; natural color; powder, no stabilization	Compression-molded sheets, Heating and plumbing pipes, customers report to fullfill EN ISO 15875 / DIN 16892 by addind appropriate amount of peroxide and stabilizer
5261Z Q456 B			3.0	0.954	1200	27	65	52	132	80	x-linkable (Peroxide); PE-Xa (Engel/RAM process); HDPE; natural color; powder; lower viscosity than 5261Z Q456, no stabilization	Heating, plumbing and industrial pipes, customers report to fullfill EN ISO 15875 / DIN 16892 by addind appropriate amount of peroxide and stabilizer
5461B Q471		0.5	10.0	0.953	1100	28	64	49	130	79	x-linkable (Peroxide); PE-Xa (twin screw process); HDPE; natural color; powder, basic stabilization	Heating, plumbing and industrial pipes, customers report to fullfill EN ISO 15875 / DIN 16892 by addind appropriate amount of peroxide and stabilizer
5461B Q471 B		0.7	15	.0953	1100	28	64	49	130	79	x-linkable (Peroxide); PE-Xa (twin screw process); HDPE; color: natural; powder; lower viscosity than 5461B Q471, basic stabilization	Heating, plumbing and industrial pipes, customers report to fullfill EN ISO 15875 / DIN 16892 by addind appropriate amount of peroxide and stabilizer
UHM 5000				0.931	800	20	65			82	UHMW-PE with a typical average molar mass of 5 million g/mol; natural color; powder	Compression moulded sheets and ram extruded products
Product grades – *Hostalen*												
4731B		0.45	9.5	0.947	850	22	59		128	70	PE-RT Type II; PE 100; natural color; pellets; good processability, extremely high resistance to ageing	Heating; plumbing; multilayer pipes (ISO 24033 / EN ISO 22391 / DIN 16833 / EN ISO 21003)
4131B		2.2	18	0.941	650	23	58		125	70	PE-RT Type II with higher flexibility; natural color; pellets; good processability, extremely high resistance to ageing	Underfloor heating; plumbing; multilayer pipes (ISO 24033 / EN ISO 22391 / DIN 16833 / EN ISO 21003)
3531B		0.6	12	0.936	650	18	56		123	68	PE-RT Type I / PE80 with higher flexibility; natural color; pellets; extremely high resistance to ageing	Underfloor heating; pipes for heating and cooling; multilayer pipes (ISO 24033 / EN ISO 22391 / DIN 16833 / EN ISO 21003)

Pipe & industrial sheet: *Hostalen* PP

Property	Physical		Mechanical						Thermal	Specific Characteristics	Type	Color	Typical Customer Applications
	MFR 190°c / 5 kg	MFR 190°c / 21.6 kg	Tensile modulus (sec., v=1mm/min)	Tensile stress at yield (v=50mm/min)	Tensile strain at Yield (v=50mm/min)	Notched Charpy impact			Vicat softening point A				
						23°C	0°C	-30°C					
Test Method	ISO 1133		ISO 527-2			ISO 179-1/1eA			ISO 306/A				
Units	g/10 min		MPa		%	kJ/m²			°C				
Product grades - *Hostalen* PP													
H2150	0.3	1.3	1500	36	11	30	4.3	-	158	High heat and extraction stability	PP-H	natural	Pipes; sheets; rods; fittings; profiles; punching boards;filterplates; blow molded parts
H2150 304850	0.3	1.3	1500	36	10	38	5	-	156	High heat and extraction stability	PP-H	grey (RAL 7032)	Pipes; sheets; rods; fittings; profiles; punching boards;filterplates; blow molded parts
H2450	0.3	1.3	1450	36	11	20	5	-	157	High heat and extraction stability; non-nucleated	PP-H	natural	Pipes; sheets; rods; fittings; profiles; punching boards;filterplates; blow molded parts
H2250 36	0.3	1.3	1500	36	12	26	6	-	157	High heat and extremely high extraction stability	PP-H	grey (RAL 7032)	Press. pipes ; sheets; rods; housings; filterplates; fittings
H7350FLS 303064	0.4	2.0	1500	35	11	18	5	-	158	Flame retardant; not food approved	PP-H	grey (RAL 7037)	House drain-pipes; semifinished products
EPD60R	0.4	1.6	1100	26	15	54	18	3.5	151	Exc. impact strength; long-term heat & detergent resistance	PP-B	natural	Sheets; corrugated hoses; industrial pipes; conduits; profiles
H2464	0.3	1.3	1350	28	13	85	25	5	155	Excellent balance rigidity/impact; dimesional stability	PP-B	natural	Sewage/drainage pipes (EN1852/EN13476) profiles; blown and injection molded parts
H2483	0.3	1.3	1800	32	8	60	15	4.3	159	High stiffness, high impact; dimensional stability;	PP-B	natural	Sewage/drainage pipes (EN1852/EN13476) profiles; blown and injection molded parts
H2493	0.25	1.3	2000	38	8	45	4	2.5	-	Very high stiffness; impact; dimensional stability	PP-B	natural	Sewage/drainage pipes (EN1852/EN13476 profiles; blown and injection molded parts
H1022	0.3	1.3	1300	30	13	50	15	3	159	Basic stabilization; good heat aging resistance	PP-B	natural	Pipes; fittings; sheets; profiles; blow molded parts
H1022 12	0.3	1.3	1400	31	12	117	21	4	158	Basic stabilization; good heat aging resistance	PP-B	black	Pipes; fittings; sheets; profiles; blow molded parts
H2222 36	0.3	1.3	1350	30	12	50	13	5.8	158	High heat stability; extreme extraction stability	PP-B	grey (RAL 7032)	Press. pipes; sheets; profiles; filterplates; fittings
H2142 12	0.3	1.4	1500	34	12	54	5	2	150	High heat stability; weather resistance; low creep	PP-B	black	Mechanical-joint compression fittings (ISO14236); classified by ISO9080 as PP100
H4122 103220	0.3	1.3	1400	30	13	110	20	5.8	159	High heat, weather and extreme extraction stability	PP-B	black	Pipes; solar heat absorbers; corrugated pipes; fittings
XN125-P	0.2	1.1	850	26	12	-	8	-	-	High heat stability; extreme extraction stability;	PP-RCT	natural	Press. pipes (EN ISO15874); hot/cold water pipes; sheets and parts in chemical apparatus; classified by ISO9080 as PP125/PP-RCT
XN112-I	0.2	1.1	800	24	32	-	9.5	-	-	High heat stability; extreme extraction stability;	PP-RCT	natural	Press. pipes (EN ISO15874); hot/cold water pipes; sheets and parts in chemical apparatus; classified by ISO9080 as PP112/PP-RCT
H5416	0.3	1.3	850	24	13	89	12	-	132	High heat stability; extreme extraction stability; good impact	PP-R	natural	Press. pipes (EN ISO15874); hot/cold water pipes; sheets and parts in chem. apparatus; classified by ISO9080 as PP100

Mechanical properties tested on Injection molded Specimen, molding conditions acc. to ISO 1873-2

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Pipe & industrial sheet: Polybutene-1

Property	Physical		Mechanical				Thermal	Color	Specific Characteristics	Typical Customer Applications
	MFR 190°c / 2.16 kg	Density	Flexural Modulus	Tensile stress at yield	Tensile stress at Break	Tensile strain at Break	Melting Temperature			
Test Method	ISO 1133-1	ISO 1183-1	ISO 178	ISO 527			DSC			
Units	g/10 min	g/cm³	MPa			%	°C			
Product grades										
Akoafloor PB R509 Brown	0.7	0.93	370	15	35	300	124 - 126	Brown	Random copolymer	Underfloor heating pipe
Akoafloor PB R509	0.7	0.92	370	15	35	300	124 - 125	Natural	Random copolymer	Underfloor heating pipe
Akoafloor PB 4235-1 Ivory	0.6	0.93	450	17	30	225	127 - 129	Ivory	Homopolymer	Non-potable heating water pipe for radiator connections or underfloor heating
Akoalit PB 4237 Grey	0.4	0.938	450	17	30	200	127 - 129	Grey	Homopolymer	High-performance pipe material for potable hot and cold water distribution applications
Akoalit PB 4238 White	0.4	0.938	450	17	30	200	127 - 129	White	Homopolymer	High-performance pipe material for potable hot and cold water distribution applications
Akoalit PB 4267 Grey	0.6	0.925	450	17	30	225	127 - 129	Grey	Homopolymer	High-performance pipe material for potable hot and cold water distribution applications where improved organoleptic properties are required
Akoalit PB 4268 White	0.6	0.925	450	17	30	225	127 - 129	White	Homopolymer	High-performance pipe material for potable hot and cold water distribution applications where improved organoleptic properties are required
Akoalit PB DKG 300	2.0	1.325	6000	75	72	4.5	127 - 129	Natural	Homopolymer	Glass fibre reinforced high flow polybutene-1, typically used for fitting applications such as fitting bodies, support rings, etc. in combination with hot and cold potable water pipe installations
Akoaflex MR05 B40	1.2	0.9	40	N.A.	18	530		Natural	PB-1 compound with unique characteristics	Flexible tubing
Akoaflex MR05 P40	2.5	0.9	66	127 - 129	22	> 800		Natural	PB-1 compound with unique characteristics	Flexible tubing

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