

2017

TECHNICAL DATA

POLYMERS





S- PVC

Suspension- Polyvinyl Chloride

Properties									test method	test method
	A	B	C	D	E	F	G	H	DIN	ISO
	S-5831	S-6031	S-6532	S-6732	S-6542	S-7042	S-7242	S-8040		
K-Value	58±1	60±1	65±1	67±1	65±1	70±1	72±1	80±1		1628-2
Viscosity number(ml/g)	79-86	84-92	101-109	108-117	101-109	120-129	127-137	163-175	60	1682-2
Bulk density (g/l)	540-600	520-580	550-610	550-610	460-520	450-510	430-490	420-480		60
Sieve analysis										
> 63 µm (%)	95-100	95-100	95-100	95-100	95-100	95-100	95-100	95-100		4610
> 250 µm (%)	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1		4610
Retained on 0.4 mm sieve (%)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		4610
Porosity (plasticiser absorption)	14-20	16-22	19-25	18-24	24-30	29-35	30-35	30-35		4608
Volatile matter (%)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		1269
Flowability (S/150 g) (10 mm nozzle)	≤ 25	≤ 25	≤ 25	≤ 25	≤ 35	≤ 35	≤ 35	≤ 35		6186
Residual VCM(ppm)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	53743	6401
Dark resin particles	≤ 20	≤ 20	≤ 20	≤ 20	≤ 20	≤ 20	≤ 10	≤ 10	vinnolit F5	in powder
Fish eyes	≤ 5	≤ 5	≤ 20	≤ 20	≤ 2	≤ 2	≤ 2	≤ 2	vinnolit H1	felttest per 25cm ² 3451-1
Sulfate ash (wt%)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		



E-PVC

Paste grade

Properties	Unit	Value	Test Method
K- Value	67-69	ISO 1628/2	DIN 53726
Sieve analysis $\geq 63\mu$ (%)	≤ 2	ISO 565	DIN 53724
Volatile matter (%)	≤ 0.3	ISO 1269	DIN 7764/2
Methanol extract (%)	≤ 2.2	ISO 6427	DIN 53738
Residual VCM (ppm)	≤ 2	ISO 6401	DIN 53743
Thermostability (min)	≥ 15	Vinnolit THMA 180	Vinnolit THMA 180
Paste Viscosity, after 1 h (Pas)	≤ 6	ISO 3219	DIN EN 11468



LDPE LF0200

FILM GRADE

Properties	Unit	Value	Test Method
MFI (190°C/2.16KG)	gr/10 min	1.7-2.3	ASTM D-1238
DENSITY	gr/ml	0.918-0.922	TSTM 209 B
SOFTENING POINT	°C	92-96	ASTM D-1525
HAZE	%	15 MAX	ASTM D-1003
GLOSS @ 60°C	gu	60 min	ASTM D-523
Elongation @Break (MD)	%	330 min	ASTM D-882
Elongation @Break (TD)	%	600 min	ASTM D-882
tensile @Break (MD)	kg/cm2	160 min	ASTM D-882
dart impact	gr	100 min	ASTM D-1709



LPDE LH0075

FILM GRADE

Properties	Unit	Value	Test Method
MFI (190°C/2.16KG)	gr/10 min	0.68-0.85	ASTM D-1238
DENSITY	gr/ml	0.917-0.922	TSTM 209 B
Vicat SOFTENING Temp	°C	93-97	ASTM D-1525
Elongation @Break(MD)	%	300 min	ASTM D-882
Elongation @Break(TD)	%	450 min	ASTM D-882
tensile @Break (MD)	kg/cm2	170 min	ASTM D-882
HDT	°C	30-36	ASTM D-648
Dart Impact	gr	120 min	ASTM D-1709



HDPE HB0035

BLOW MOLDING

Properties	Unit	Value	Test Method
MFI (190°C/2.16KG)	gr/10 min	0.7-1.5	ASTM D-1238
DENSITY	gr/cm ³	0.953-0.959	ASTM D-1505
IZOD Impact Strenght	kg.cm/cm	14 min	ASTM D-256
Tensile Strenght @Break	kg/cm ²	290 min	ASTM D-638
Elongation	%	900 min	ASTM D-638
Yellow Index	-	4 max	ASTM D-1925
Ash Content	wt.%	0.06 max	ASTM D-1063
Volatile Matter	wt.%	0.05 max	ASTM D-1960



SBR 1500

Properties	Unit	Value	Test Method
Volatile Matter	%wt	0.75 max	ASTM D-1416
Ash	%wt	1.5 max	ASTM D-1416
Organic Acid	%wt	5-7.25	ASTM D-1416
Soap	%wt	0.5 max	ASTM D-1416
Bound Styrene	%wt	22.5-24.5	ASTM D-1416
Raw Viscosity (ML 1+4 @ 100°C)	-	46-58	ASTM D-1646
Compound Viscosity (ML 1+4 @ 100°C)	-	84 max	ASTM D-1646
tensile Strenght (35 Minutes Cure)	kg/cm2	250 min	ASTM D-412
Ultimate Elogation (35 Minutes Cure)	%	470 min	ASTM D-412
300% Modulus (35 Minutes Cure)	kg/cm2	119-159	ASTM D-412



SBR 1502

Properties	Unit	Value	Test Method
Volatile Matter	%wt	0.75 max	ASTM D-1416
Ash	%wt	1.5 max	ASTM D-1416
Organic Acid	%wt	4.75-7	ASTM D-1416
Soap	%wt	0.5 max	ASTM D-1416
Bound Styrene	%wt	22.5-24.5	ASTM D-1416
Raw Viscosity (ML 1+4 @ 100°C)	-	46-58	ASTM D-1646
Compound Viscosity (ML 1+4 @ 100°C)	-	84 max	ASTM D-1646
tensile strength (35 minutes cure)	kg/cm2	250 min	ASTM D-412
Ultimate Elogation (35 Minutes Cure)	%	350 min	ASTM D-412
300% Modulus (35 Minutes Cure)	kg/cm2	167-207	ASTM D-412



SBR 1712

Properties	Unit	Value	Test Method
Volatile Matter	%wt	0.75 max	ASTM D-1416
Ash	%wt	1.5 max	ASTM D-1416
Organic Acid	%wt	3.9-5.7	ASTM D-1416
Soap	%wt	0.5 max	ASTM D-1416
Bound Styrene	%wt	22.5-24.5	ASTM D-1416
Raw Viscosity (ML 1+4 @ 100°C)	-	42-52	ASTM D-1646
Compound Viscosity (ML 1+4 @ 100°C)	-	62 max	ASTM D-1646
Tensile Strength (35 Minutes Cure)	kg/cm2	200 min	ASTM D-412
Ultimate Elogation (35 Minutes Cure)	%	530 min	ASTM D-412
300% Modulus (35 Minutes Cure)	kg/cm2	79-109	ASTM D-412



POLIRAN HI0500

Properties	Unit	Value	Test Method
MELT FLOW INDEX (190°C/2.16 Kg)	gr/10 min	4~6	ASTM D-1238
DENSITY	gr/cm ³	0.963-0.967	ASTM D-1505
ESCR	hr	min 4	ASTM D-1693
VICAT SOFTENING POINT	°C	124-128	ASTM D-1525
ASH CONTENT	% wt	max 0.06	ASTM D-1063
VOLTILE MATTER	% wt	max 0.05	ASTM D-1960
TENSILE STRENGTH @ BREAK	Kg/cm ²	min 170	ASTM D-638
ELONGATION	%	min 300	ASTM D-638
TENSILE STRENGTH @ YIELD	Kg/cm ²	min 170	ASTM D-638
MELTING POINT	°C	130-134	ASTM D-2117
HARDNESS SHORE D	-	62-64	ASTM D-2240
YELLOW INDEX	-	max -5	ASTM D-1925
IZOD IMPACT	Kg.cm/cm	min 5	ASTM D-256
Ca STEARATE CONTENT	wt ppm	150(+/-)375	X-RAY
IRGANOX 1076 CONTENT	wt ppm	300(+/-)75	X-RAY
IRGANOX 1010 CONTENT	wt ppm	150(+/-)37.5	X-RAY



POLYETHYLENE TEREPHTHALATE

PARS PET-BG732 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.73 ± 0.03	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG761 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	≥ 0.750 ≤ 0.775	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤ 1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥ 90 ≤ 2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	249±3	ASTM D3418-3 in combination with WN-B010-7089E
Acetaldehyde	ppm	≤ 1	ASTM F2013-5 in combination with WN-B010-9013E
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-BG781 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.78 ± 0.02	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥90 ≤2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	249±3	ASTM D3418-3 in combination with WN-B010-7089E
Acetaldehyde	ppm	≤ 1	ASTM F2013-5 in combination with WN-B010-9013E
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-BG800 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.8 ± 0.02	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥90 ≤2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	249±3	ASTM D3418-3 in combination with WN-B010-7089E
Acetaldehyde	ppm	≤ 1	ASTM F2013-5 in combination with WN-B010-9013E
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-BG821 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.8 ± 0.02	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥90 ≤2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	249±3	ASTM D3418-3 in combination with WN-B010-7089E
Acetaldehyde	ppm	≤ 1	ASTM F2013-5 in combination with WN-B010-9013E
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-FG841 (Film Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	>0.84	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥90 ≤2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	249±3	ASTM D3418-3 in combination with WN-B010-7089E
Acetaldehyde	ppm	≤ 1	ASTM F2013-5 in combination with WN-B010-9013E
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-FG641 (Film Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.64 ± 0.015	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	≤1.5	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥75 ≤2.0	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤ 32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	255±3	ASTM D3418-3 in combination with WN-B010-7089E
Chips Weight	g/100EA	1.7±0.1	
Water Content	wt%	≤ 0.3	ASTM D6869-3 in combination with WN-B010-7159E



POLYETHYLENE TEREPHTHALATE

PARS PET-TG641 (Textile Grade) / Super Bright

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.64 ± 0.015	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	0.9 - 1.3	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥75 ≤4.5	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	255±3	ASTM D3418-3 in combination with WN-B010-7089E
Water Content	wt%	≤0.3	ASTM D6869-3 in combination with WN-B010-7159E
Chips Weight	g/100EA	2.5±0.1	



POLYETHYLENE TEREPHTHALATE

PARS PET-TG641 (Textile Grade) / Semi Dull

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.64 ± 0.015	ISO 1628-5 in combination with NVPET05
DEG Content	wt%	0.9 - 1.3	ASTM E2409-4 in combination with WN-B010-9008E
Color (CIE Lab)	L* b*	≥90 ≤4.5	ASTM D6290-5 in combination with WN-B010-7110E
Carboxyl End Group	meq / Kg	≤32	ASTM D7409-7 in combination with WN-B010-7013E
Melting Point	°C	255±3	ASTM D3418-3 in combination with WN-B010-7089E
TiO2 Content	wt%	0.3 ± 0.05	WN-B010-7061E
Water Content	wt%	≤0.3	ASTM D6869-3 in combination with WN-B010-7159E
Chips Weight	g/100EA	2.5±0.1	



POLYETHYLENE TEREPHTHALATE

PARS PET-F AMORPHOUS CHIPS

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.6 ± 0.02	UBBELHODE
DEG Content	wt%	Max 2	GC
IPA CONTENT	wt%	1.4 ± 0.3	GC
Color (CIE Lab)	L* b*	≥80 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 40	AUTO TITRATION
Melting Point	°C	249±3	DSC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-HT 1005(HIGH TENACITY CHIPS)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	1 ± 0.02	UBBELHODE
Color (CIE Lab)	L* b*	≥84 ≤4.5	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	≤25	AUTO TITRATION
Melting Point	°C	≥253	DSC
Chips Weight	g/100EA	1.7±0.1	----
Water Content	wt%	<0.5	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG785 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.78 ± 0.02	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG805 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.8 ± 0.02	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG805 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.8 ± 0.02	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG825 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.82 ± 0.02	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-BG845 (Bottle Grade)

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	≥0.84	UBBELHODE
DEG Content	wt%	Max 2	GC
Color (CIE Lab)	L* b*	≥90 ≤2.0	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	meq / Kg	Max 32	AUTO TITRATION
Melting Point	°C	249±3	DSC
Acetaldehyde	ppm	Max 1	HEAD SPACE-GC
Water Content	wt%	Max 0.3	KARL-FISHER



POLYETHYLENE TEREPHTHALATE

PARS PET-TG645 (Textile Grade) / Super Bright

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.64 ± 0.015	UBBELHODE
DEG Content	wt%	1.4±0.4	GC
Color (CIE Lab)	L* b*	≥75 ≤4.5	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	mmol / Kg	≤32	AUTO TITRATION
Water Content	wt%	≤0.3	KARL-FISHER
Melting Point	°C	255±3	DSC
Chips Weight	g/100EA	2.2 ± 0.1	----



POLYETHYLENE TEREPHTHALATE

PARS PET-BG825 (Bottle Grade) / Semi Dull

Properties	Unit	Value	Test Method
Intrinsic Viscosity	dl/g	0.64 ± 0.015	UBBELHODE
DEG Content	wt%	1.4±0.4	GC
Color (CIE Lab)	L* b*	≥90 ≤4.5	SPECTROSCOPY SPECTROSCOPY
Carboxyl End Group	mmol / Kg	≤32	AUTO TITRATION
Water Content	wt%	≤0.3	KARL-FISHER
Melting Point	°C	255±3	DSC
TiO2 Content	wt%	0.34 ± 0.06	SPECTROSCOPY
Chips Weight	g/100EA	2.2 ± 0.1	----



POY-SPEC

DENIER/FILAMENT 250/48*(150/48)

Grade	A	B	C	WP13	WP12
DENIER	Set ± 2%	Set ± 2%	Set ± 4%	Set ± 7%	Set ± 10%
%ELONGATION	128± 5(123-133)	128 ± 8(120-136)	128 ± 11 (117-139)	128 ± 15 (113-143)	128 ± 20 (108-148)
%CV	≤ 5	≤ 5	6_ 8	9_ 12	≥ 12
TENACITY	≥ 1.95	1.85_ 1.94	1.8_ 1.894	1.7_ 1.799	≤ 1.7
%USTER	≤ 1.5	1.51_ 1.6	1.61_ 1.8	1.81_ 2.2	≤ 2.2
DRAW FORCE	value ± 5	value ± 8	value ± 10	value ± 12	value ± 16
%CV	≤ 5	≤ 5	≤ 8	≤ 11	≤ 20
%OPU	Set ± 0.05 (0.4-0.5)	Set ± 0.08 (0.37-0.53)	Set ± 0.12 (0.33-0.57)	Set ± 0.15 (0.3-0.6)	No finish
%BWS	65 ± 5	65 ± 8	65 ± 10	65 ± 12	65 ± 20
NODS	≥ 3	≥ 3	0_ 2	-	-
HARDNESS	50_ 55	50_ 55	45_ 60	-	-



POY-SPEC

DENIER/FILAMENT 160/36*(100/36)

Grade	A	B	C	WP13	WP12
DENIER	Set ± 2%	Set ± 2%	Set ± 4%	Set ± 7%	Set ± 10%
%ELONGATION	128± 5 (123-133)	128 ± 8 (120-136)	128 ± 11 (117-139)	128 ± 15 (113-143)	128 ± 20 (108-148)
%CV	≤ 5	≤ 5	6 _ 8	9 _ 12	≥ 12
TENACITY	≥ 2	1.9 _ 1.999	1.8 _ 1.899	1.7 _ 1.799	≤ 1.7
%USTER	≤ 1.5	1.51 _ 1.6	1.61 _ 1.8	1.81 _ 2.2	≤ 2.2
DRAW FORCE	value ± 5	value ± 8	value ± 10	value ± 12	value ± 16
%CV	≤ 5	≤ 5	≤ 8	≤ 11	≤ 20
%OPU	Set ± 0.05 (0.35-0.45)	Set ± 0.08 (0.32-0.48)	Set ± 0.12 (0.28-0.52)	Set ± 0.15 (0.25-0.55)	No finish
%BWS	65 ± 5	65 ± 8	65 ± 10	65 ± 12	65 ± 20
NODS	≥ 3	≥ 3	0 _ 2	-	-
HARDNESS	50 _ 55	50 _ 55	45 _ 60	-	-



POY-SPEC

DENIER/FILAMENT 250/48*(150/48)

Grade	A	B	C	WP13	WP12
DENIER	Set ± 2%	Set ± 2%	Set ± 4%	Set ± 7%	Set ± 10%
%ELONGATION	128 ± 5 (123-133)	128 ± 8 (120-136)	128 ± 11 (117-139)	128 ± 15 (113-143)	128 ± 20 (108-148)
%CV	≤ 5	≤ 5	6 _ 8	9 _ 12	≥ 12
TENACITY	≥ 1.95	1.85 _ 1.94	1.8 _ 1.894	1.7 _ 1.799	≤ 1.7
%USTER	≤ 1.5	1.51 _ 1.6	1.61 _ 1.8	1.81 _ 2.2	≤ 2.2
DRAW FORCE	value ± 5	value ± 8	value ± 10	value ± 12	value ± 16
%CV	≤ 5	≤ 5	≤ 8	≤ 11	≤ 20
%OPU	Set ± 0.05(0.4-0.5)	Set ± 0.08 (0.37-0.53)	Set ± 0.12 (0.33-0.57)	Set ± 0.15 (0.3-0.6)	No finish
%BWS	65 ± 5	65 ± 8	65 ± 10	65 ± 12	65 ± 20
NODS	≥ 3	≥ 3	0 _ 2	-	-
HARDNESS	50 _ 55	50 _ 55	45 _ 60	-	-



POLYESTER POY YARN (120/36/SD)

PARS POY A

Properties	Unit	Specification	Method
Denier	120	Set $\pm 2.0\%$	NVT001
%Elongation	%	130 \pm 5	NVT002
%Cv	%	≤ 5.0	NVT002
Tenacity	CN/dtex	≥ 2.00	NVT002
%Uster	U%	≤ 1.50	NVT003
Draw force		value ± 5	-
%Cv	%	≤ 5.0	-
%OPU	wt%	Set ± 0.05 (0.32 - 0.42)	NVT017
%BWS	%	65 \pm 5	NVT004
Nods	No/m	≥ 3	NVT008
Bobbin weight	kg	12-14	-
Surface Problems	-	None	Visual check



POLYESTER POY YARN (160/36/SD)

PARS POY A

Properties	Unit	Specification	Method
Denier	160	Set $\pm 2.0\%$	NVT001
%Elongation	%	128 ± 5	NVT002
%Cv	%	≤ 5.0	NVT002
Tenacity	CN/dtex	≥ 2.00	NVT002
%Uster	U%	≤ 1.50	NVT003
Draw force	-	value ± 5	-
%Cv	%	≤ 5.0	-
%OPU	wt%	Set ± 0.05 (0.35 - 0.45)	NVT017
%BWS	%	65 ± 5	NVT004
Nods	No/m	≥ 3	NVT008
Bobbin weight	kg	12-14	-
Surface Problems	-	None	Visual check



POLYESTER POY YARN (160/48/SD)

PARS POY A

Properties	Unit	Specification	Method
Denier	160	Set $\pm 2.0\%$	NVT001
%Elongation	%	130 ± 5	NVT002
%Cv	%	≤ 5.0	NVT002
Tenacity	CN/dtex	≥ 1.95	NVT002
%Uster	U%	≤ 1.50	NVT003
Draw force		value ± 5	-
%Cv	%	≤ 5.0	-
%OPU	wt%	Set ± 0.05 (0.40 - 0.50)	NVT017
%BWS	%	65 ± 5	NVT004
Nods	No/m	≥ 3	NVT008
Bobbin weight	kg	12-14	-
Surface Problems	-	None	Visual check



POLYESTER POY YARN (250/48/SD)

PARS POY A

Properties	Unit	Specification	Method
Denier	250	Set $\pm 2.0\%$	NVT001
%Elongation	%	128 ± 5	NVT002
%Cv	%	≤ 5.0	NVT002
Tenacity	CN/dtex	≥ 1.95	NVT002
%Uster	U%	≤ 1.50	NVT003
Draw force		value ± 5	-
%Cv	%	≤ 5.0	-
%OPU	wt%	Set ± 0.05 (0.40 - 0.50)	NVT017
%BWS	%	65 ± 5	NVT004
Nods	No/m	≥ 3	NVT008
Bobbin weight	kg	12-14	-
Surface Problems	-	None	Visual check



STAPLE

Properties	Grade PSF A	Grade PSF B	Unit	Test Method
Titer	1.48 ± 0.1	1.48 ± 0.1	dtex	NVT020
Tenacity at Break	≥6.1	≥ 5.5	cN/ dtex	NVT021
Elongation at Break	≤ 30	≤ 35	%	NVT021
Shrinkage in hot Air at 180 °C/ 15 min	4.5 ± 2	4.5 ± 2	%	NVT022
Crimp Number	4 ± 0.5	4 ± 1	N/cm	NVT026
Crimp Stability	≥65	≥ 55	%	NVT027
Decp Dyeing Defects	≤ 0.005	≤ 0.5	%	NVT028
Oil Pick Up	0.2 ± 0.02	0.15_ 0.179	%	NVT017
Length	38 ± 1	38 ± 3	mm	NVT029
Over Length Fiber	max 0.02	max 0.2	%	NVT030



POLY CARBONATE

PGPC-0710

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	7.1-10	1.2 Kg load	ASTM D 1238
Density	g/cm ³	1.2	25C	ASTM D 792
tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
Modulus of Elasticity	Mpa	2000-2400	-	ASTM D 638
Elongation	%	≥ 90	at Break	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 6110
Vicat soft. Temp.	C	142-146	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.3000	-	GC (int-st)



POLY CARBONATE

PGPC-1012

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	10.1-12	1.2 Kg load	ASTM D 1238
Density	g/cm ³	1.2	25C	ASTM D 792
tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
Modulus of Elasticity	Mpa	2000-2400	-	ASTM D 638
Elongation	%	≥ 90	at Break	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 6110
Vicat soft. Temp.	C	142-146	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.3000	-	GC (int-st)



POLY CARBONATE

PGPC-1215

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	12.1-15	1.2 Kg load	ASTM D 1238
Density	g/cm ³	1.2	25C	ASTM D 792
tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
Modulus of Elasticity	Mpa	2000-2400	-	ASTM D 638
Elongation	%	≥ 80	at Break	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 6110
Vicat soft. Temp.	C	141-145	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.3000	-	GC (int-st)



POLYCARBONATE

PGPC-1518

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	15.1-18	1.2 Kg load	ASTM D 1238
Density	g/cm ³	1.2	25C	ASTM D 792
Tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
Modulus of Elasticity	Mpa	2000-2400	-	ASTM D 638
Elongation	%	≥ 80	at Break	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 6110
Vicat soft. Temp.	C	141-145	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.3000	-	GC (int-st)



POLYCARBONATE

PGPC-1822

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	18.1-22	1.2 Kg load	ASTM D 1238
Density	g/cm ³	1.2	25C	ASTM D 792
Tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
Modulus of Elasticity	Mpa	2000-2400	-	ASTM D 638
Elongation	%	≥ 80	at Break	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 6110
Vicat soft. Temp.	C	140-144	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.3000	-	GC (int-st)



POLYCARBONATE

PGPC-2230

Properties	Unit	Value	Condition	Test Method
MFI (300C)	g/10 min	22.1-30	1.2 Kg load @ 300 °C	ASTM D 1238
Density	g/cm ³	1.2	---	ASTM D 792
tensile Strength	Mpa	≥ 60	at yield	ASTM D 638
tensile Stress	Mpa	55-70	at yield	ASTM D 638
Elongation Strain	%	> 50	at Break	ASTM D 638
Modulus of Elasticity	Mpa	2200-2400	-	ASTM D 638
Dielectric Strength	Kv/mm	≥ 20	at 50 Hz Diameter=50mm & Thickness=2	ASTM D 149
Charpy Impact Strength	Kj/m ²	≥ 20	Notched	ASTM D 256
Vicat soft. Temp.	°C	140-150	50 N, 50 C/h	ASTM D 1525
Transmittance	%	≥ 80	at Thickness 2 mm	ASTM D 1003
Solvent Content	ppm	Max.500	-	GC (int-st)



EPIRAN-05

LIQUID EPOXY RESIN SPECIAL

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Liquid	Visual
Epoxy Equivalent	g/eq	192-204	ASTM D1652
Epoxy Value	mol/100gr	0.49-0.521	ASTM D1652
Color	Pt-Co (APHA)	Max.100	ASTM 1209 (APHA)
Viscosity at 25 °C	Mpas	15000-20000	ASTM D2983
Hydrolysable Chlorine	% wt	Max. 0.2	ASTM 1726
Non-Volatile	% wt	Min 99	DIN EN ISO 3251



EPIRAN-06(SPL)

LIQUID EPOXY RESIN SPECIAL

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Liquid	Visual
Epoxy Equivalent	g/eq	185-192	ASTM D1652
Epoxy Value	mol/100gr	0.52-0.54	ASTM D1652
Color	Pt-Co (APHA)	Max. 50	ASTM 1209
Viscosity at 25 °C	Mpas	10000-14000	ASTM D2983
Hydrolysable Chlorine	% wt	Max. 0.1	ASTM 1726
Non-Volatile	% wt	Min 99.3	DIN EN ISO 3251



EPIRAN-06

LIQUID EPOXY RESIN

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Liquid	Visual
Epoxy Equivalent	g/eq	185-196	ASTM D1652
Epoxy Value	mol/100gr	0.51-0.54	ASTM D1652
Color	Pt-Co (APHA)	Max. 100	ASTM 1209 (APHA)
Viscosity	Mpas	<15000	ASTM D2983
Hydrolysable Chlorine	% wt	Max. 0.2	ASTM 1726
Non-Volatile	% wt	Min 99	DIN EN ISO 3251



EPIRAN-01 X-75LC

SOID EPOXY RESIN IN MIXED XYLENE

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Liquid	Visual
Epoxy Equivalent	g/eq	434-555	ASTM D1652
Epoxy Value	mol/100gr	0.18-0.23	ASTM D1652
Color	Pt-Co (APHA)	Max. 40	ASTM 1209 (APHA)
Viscosity	Mpas	6000-12000	ASTM D2983
Hydrolysable Chlorine	% wt	Max. 0.1	ASTM 1726
%Non-Volatile	% wt	74-76	DIN EN ISO 3251



EPIRAN-01 X-75

SOID EPOXY RESIN IN MIXED XYLENE

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Liquid	Visual
Epoxy Equivalent	g/eq	434-555	ASTM D1652
Epoxy Value	mol/100gr	0.18-0.23	ASTM D1652
Color	Pt-Co (APHA)	Max.100	ASTM 1209 (APHA)
Viscosity	Mpas	6000-12000	ASTM D2983
Hydrolysable Chlorine	% wt	Max. 0.1	ASTM 1726
%Non-Volatile	% wt	74-76	DIN EN ISO 3251



EPIRAN-10

SOID EPOXY RESIN

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Flakes	Visual
Epoxy Equivalent	g/eq	588-714	ASTM D1652
Epoxy Value	mol/100gr	0.14-0.17	ASTM D1652
Color	Pt-Co (APHA)	Max.100	ASTM 1209 (APHA)
Softening Point	°C	75-90	DIN 52011
Hydrolysable Chlorine	% wt	Max. 0.1	ASTM 1726



EPIRAN-11

SOID EPOXY RESIN

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Flakes	Visual
Epoxy Equivalent	g/eq	715-870	ASTM D1652
Epoxy Value	mol/100gr	0.115-0.14	ASTM D1652
Color	Pt-Co (APHA)	Max.100	ASTM 1209 (APHA)
Softening Point	°C	84-98	DIN 52011
Hydrolysable Chlorine	% wt	Max. 0.1	ASTM 1726



EPIRAN-12

SOID EPOXY RESIN

Properties	Unit	Guarantee value	Test Method
Appearance	Visual	Clear Light Yellow Flakes	Visual
Epoxy Equivalent	g/eq	800-1000	ASTM D1652
Epoxy Value	mol/100gr	0.1-0.125	ASTM D1652
Color	Pt-Co (APHA)	Max.100	ASTM 1209 (APHA)
Softening Point	°C	93-105	DIN 52011
Hydrolysable Chlorine	% wt	Max. 0.2	ASTM 1726



POLYCARBONATE RESIN

PGPC-0407

Properties	Unit	Guarantee value	Condition	Test Method
MFI (300 C)	g/10 min	4.1 - 7	1.2 Kg load	ASTM D1238
Density	g/cm ³	1.2	25 C	ASTM D792
Tensile Strength	Mpa	≥ 60	@ yield	ASTM D638
Modulus of Elasticity	Mpa	2000-2400	--	ASTM D638
Elongation	%	≥ 90	@ Break	ASTM D638
Dielectric Strength	Kv/mm	> 20	@ 50 Hz	ASTM D149
Charpy Impact Strength	Kj/m ²	> 20	Notched	ASTM D6110
Vicat soft. Temp.	C	142-147	50 N , 50C/h	ASTM D1525
Transmittance	%	≥ 80	Thickness 2mm	ASTM D1003
Solvent Content	ppm	Max. 3000	--	GC (int-st)
Pre - Drying	120 °C / 4 hours			



LDPE LFI 2129 (LTM 2119X)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	1.9	ISO 1133
Density	Kg/m3	921	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	26	ASTM D 4272
Tear strength (TD)	KN/m	25	ISO 6383-2
Tear Strength (MD)	KN/m	60	ISO 6383-2
Yield stress (TD)	MPa	11	ISO 527
Yield stress (MD)	MPa	13	ISO 527
Tensile stress at break (TD)	MPa	20	ISO 527
Tensile stress at break (MD)	MPa	35	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	>150	ISO 527
Modulus of Elasticity (TD)	MPa	200	ISO 527
Modulus of Elasticity (MD)	MPa	190	ISO 527
Coefficient of friction		>1	ASTM D 1894
Blocking	g	20	SABTEC method
Re-blocking	g	100	SABTEC method
Optical properties			
Haze	%	9	ASTM D 1003A
Gloss (45o)	%	55	ASTM D 2457
Clarity	mV	26	SABTEC method



LDPE LFI 2125A (LTM 2125/37)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	2.5	ISO 1133
Density	Kg/m3	921	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	23	ASTM D 4272
Tear strength (TD)	KN/m	25	ISO 6383-2
Tear Strength (MD)	KN/m	70	ISO 6383-2
Yield stress (TD)	MPa	11	ISO 527
Yield stress (MD)	MPa	13	ISO 527
Tensile stress at break (TD)	MPa	19	ISO 527
Tensile stress at break (MD)	MPa	30	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	>100	ISO 527
Modulus of Elasticity (TD)	MPa	180	ISO 527
Modulus of Elasticity (MD)	MPa	190	ISO 527
Coefficient of friction		0.2	ASTM D 1894
Blocking	g	<5	SABTEC method
Re-blocking	g	0	SABTEC method
Optical properties			
Haze	%	9	ASTM D 1003A
Gloss (45o)	%	60	ASTM D 2457
Clarity	mV	30	SABTEC method



LDPE LFI 2130 (LTL 2130)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	0.3	ISO 1133
Density	Kg/m3	921	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	31	ASTM D 4272
Tear strength (TD)	KN/m	45	ISO 6383-2
Tear Strength (MD)	KN/m	20	ISO 6383-2
Yield stress (TD)	MPa	10	ISO 527
Yield stress (MD)	MPa	11	ISO 527
Tensile stress at break (TD)	MPa	24	ISO 527
Tensile stress at break (MD)	MPa	22	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	>350	ISO 527
Modulus of Elasticity (TD)	MPa	150	ISO 527
Modulus of Elasticity (MD)	MPa	140	ISO 527
Coefficient of friction		0.7	ASTM D 1894
Blocking	g	<5	SABTEC method
Re-blocking	g	20	SABTEC method
Optical properties			
Haze	%	12	ASTM D 1003A
Gloss (45o)	%	55	ASTM D 2457
Clarity	mV	50	SABTEC method



LDPE LFI 2185A (LTL 2185)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	0.85	ISO 1133
Density	Kg/m3	921	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	28	ASTM D 4272
Tear strength (TD)	KN/m	30	ISO 6383-2
Tear Strength (MD)	KN/m	40	ISO 6383-2
Yield stress (TD)	MPa	11	ISO 527
Yield stress (MD)	MPa	12	ISO 527
Tensile stress at break (TD)	MPa	21	ISO 527
Tensile stress at break (MD)	MPa	24	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	>200	ISO 527
Modulus of Elasticity (TD)	MPa	170	ISO 527
Modulus of Elasticity (MD)	MPa	160	ISO 527
Coefficient of friction		1	ASTM D 1894
Blocking	g	40	SABTEC method
Re-blocking	g	140	SABTEC method
Optical properties			
Haze	%	9	ASTM D 1003A
Gloss (45o)	%	60	ASTM D 2457
Clarity	mV	27	SABTEC method



LDPE LFI 2185A (LTL 2185/47)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	0.85	ISO 1133
Density	Kg/m3	921	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	30	ASTM D 4272
Tear strength (TD)	KN/m	30	ISO 6383-2
Tear Strength (MD)	KN/m	40	ISO 6383-2
Yield stress (TD)	MPa	11	ISO 527
Yield stress (MD)	MPa	12	ISO 527
Tensile stress at break (TD)	MPa	21	ISO 527
Tensile stress at break (MD)	MPa	24	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	>200	ISO 527
Modulus of Elasticity (TD)	MPa	170	ISO 527
Modulus of Elasticity (MD)	MPa	160	ISO 527
Coefficient of friction		0.1	ASTM D 1894
Blocking	g	10	SABTEC method
Re-blocking	g	30	SABTEC method
Optical properties			
Haze	%	11	ASTM D 1003A
Gloss (45o)	%	55	ASTM D 2457
Clarity	mV	37	SABTEC method



LDPE LFI2047A (LTM 2047/37)

Physical Properties	Unit	Value	Test Method
MFI (190 OC /2 .16 Kg)	dg/min	4.7	ISO 1133
Density	Kg/m3	920	ISO 1183 (A)
Mechanical properties			
Impact strength	KJ/m	15	ASTM D 4272
Tear strength (TD)	KN/m	25	ISO 6383-2
Tear Strength (MD)	KN/m	80	ISO 6383-2
Yield stress (TD)	MPa	11	ISO 527
Yield stress (MD)	MPa	12	ISO 527
Tensile stress at break (TD)	MPa	15	ISO 527
Tensile stress at break (MD)	MPa	27	ISO 527
Strain at Break (TD)	%	>500	ISO 527
Strain at Break (MD)	%	100	ISO 527
Modulus of Elasticity (TD)	MPa	200	ISO 527
Modulus of Elasticity (MD)	MPa	200	ISO 527
Coefficient of friction		0.2	ASTM D 1894
Blocking	g	20	SABTEC method
Re-blocking	g	10	SABTEC method
Optical properties			
Haze	%	9	ASTM D 1003A
Gloss (45o)	%	55	ASTM D 2457
Clarity	mV	21	SABTEC method



HDPE HF15110 (HCH 5110A)

Physical Properties	Unit	Value	Test Method
Density (23 oC)	Kg/m3	951	ISO 1183
MFI (190 oC /21.6Kg)	dg/min	10	ISO 1133
Mechanical properties			
Tensile Modulus of elasticity	MPa	1050	ISO527-1;2
Tensile Strength (MD)	MPa	55	ISO 527-1;3
Tensile Strength (TD)	MPa	55	ISO 527-1;3
Tensile Strain at Break (MD)	%	580	ISO 527-1
Tensile Strain at Break (TD)	%	620	ISO 527-1
Tensile stress at Yield	MPa	26	ISO 527-1
Tensile strain at Yield	%	10	ISO 527-1
Elemendorf tear strength(MD)	mN	250	ISO 6383-2
Elemendorf tear strength(TD)	mN	800	ISO 6383-2
Thermal Properties			
Melting Point	°C	132	ISO 3146
Vicat Temperature , (A50,50 oC/h , 10 N)	°C	127	ISO 306



HDPE MFI3313 (MCH 3313)

Physical Properties	Unit	Value	Test Method
Density (23 oC)	Kg/m3	933	ISO 1183
MFI (190 0C /2 .16 Kg)	dg/min	0.1	ISO 1133
MFI (190 oC /21.6Kg)	dg/min	13	ISO 1133
Mechanical properties			
Tensile Modulus of elasticity	MPa	620	ISO527-1;2
Max. Tensile Strength (MD)	MPa	55	ISO 527-1;3
Max. Tensile Strength (TD)	MPa	43	ISO 527-1;3
Tensile Strain at Break (MD)	%	600	ISO 527-1
Tensile Strain at Break (TD)	%	600	ISO 527-1
Elemendorf tear strength(MD)	mN	330	ISO 6383-2
Elemendorf tear strength(TD)	mN	2000	ISO 6383-2
Failure energy	J/mm	8.5	DIN 53373
Dart Drop Impact	g	160	ASTM D 1709
Thermal Properties			
Melting Point	°C	124	ISO 3146
Vicat Temperature , (A50,50 oC/h , 10 N)	°C	116	ISO 306



HDPE MFI3713 (MCH 3713)

Physical Properties	Unit	Value	Test Method
Density (23 oC)	Kg/m3	937	ISO 1183
MFI (190 oC /21.6Kg)	dg/min	13	ISO 1133
MFI (190 oC /2.16Kg)	dg/min	0.1	ISO 1133
Mechanical properties			
Tensile Modulus of elasticity	MPa	735	ISO527-1;2
Max. Tensile Strength (MD)	MPa	46	ISO 527-1;3
Max. Tensile Strength (TD)	MPa	46	ISO 527-1;3
Tensile Strain at Break (MD)	%	550	ISO 527-1
Tensile Strain at Break (TD)	%	650	ISO 527-1
Elemendorf tear strength(MD)	mN	210	ISO 6383-2
Elemendorf tear strength(TD)	mN	1100	ISO 6383-2
Failure energy	J/mm	7	DIN 53373
Dart Drop Impact	g	120	ASTM D 1709
Thermal Properties			
Melting Point	°C	127	ISO 3146
Vicat Temperature , (A50,50 oC/h , 10 N)	°C	121	ISO 306



HDPE HBM4265 (HCM 4265)

Physical Properties	Unit	Value	Test Method
Density (23 oC)	Kg/m3	942	ISO 1183
MFI (190 oC /21.6Kg)	dg/min	6.5	ISO 1133
Bulk Density	g/cm3	>0.50	ISO 60
Mechanical properties			
Tensile Modulus of elasticity	MPa	800	ISO527
Notched Tensile impact strength(-30 oC)	kJ/m2	160	ISO 8256
ESCR(bottle test)	h	4000	Basell



HDPE HBM5020 (HCH 5020)

Physical Properties	Unit	Value	Test Method
Density (23 oC)	Kg/m3	950	ISO 1183
MFI (190 oC /21.6Kg)	dg/min	22	ISO 1133
MFI (190 oC /2.16Kg)	dg/min	0.3	ISO 1133
Bulk Density	g/cm3	>0.50	ISO 1133
Mechanical properties			
Tensile Modulus of elasticity	MPa	1000	ISO527-1
Tensile stress at Yield	MPa	25	ISO 527-1
Tensile strain Yield	%	9	ISO 527-1
Notched Tensile impact strength(-30 oC)	kJ/m2	110	ISO 8256/1A
Thermal Properties			
HDT,(0.45 MPa)	°C	75	ISO 75B-1
HDT,(1.80 MPa)	°C	43	ISO 75A-1
Melting Point	°C	131	ISO 11357
Vicat Temperature (B50,50 oC/h , 50 N)	°C	78	ISO 306
Hardness			
Ball indentation Hardness (H 132/30)	MPa	45	ISO 2039-1
FNCT (3.5MPa, 80°C, 2% Igepal BC/9)	h	6	ISO/CD 16770
ESCR(bottle test)	h	150	Basell



HDPE 2208J

Injection Grade

Properties	Unit	Value	Test Method
Resin Properties			
Melt flow rate	g/10 min	5.5	ASTM D 1238 @ 190 °C, 2.16 kg
Density	g/cm ³	0.961	ASTM D 1505
Melting Point	°C	133	ASTM D 2117
Vicat Softening Point	°C	127	ASTM D 1525
Brittleness Temperature	°C	-60	ASTM D 746
Heat deflection temperature(HDT)	°C	75	ASTM D 1693 @ 4.6 kg/cm ²
ESCR	hrs,F50	4	ASTM D 1693 @ 50 °C
Tensile Strength at yield	kg/cm ²	300	ASTM D 638 @crosshead speed 50 mm /min
Tensile Strength at break	kg/cm ²	240	ASTM D 638 @crosshead speed 50 mm /min
Elongation at Break	%	>1000	ASTM D 638 @crosshead speed 50 mm /min
Flexural modulus	kg/cm ²	13000	ASTM D 790
Notched IZOD impact	kg.cm/cm	3.5	ASTM D 256 @ 23 °C
Hardness	shore D	66	ASTM D 2240

note: Conversion factor for changing unit from kg/cm² to Mpa is divided by 10.2



HDPE 7000 F

Film Grade

Properties	Unit	Value	Test Method
Resin Properties			
Melt flow rate	g/10 min	0.04	ASTM D 1238 @ 190 °C, 2.16 kg
Density	g/cm ³	0.954	ASTM D 1505
Melting Point	°C	131	ASTM D 2117
Vicat Softening Point	°C	124	ASTM D 1525
Brittleness Temperature	°C	< -60	ASTM D 746
ESCR	hrs,F50	> 1000	ASTM D 1693 @ 50 °C
Film Properties			
Tensile Strength at yield	kg/cm ²	MD:_,TD:250*	ASTM D 638 @crosshead speed 50 mm /min
Tensile Strength at break	kg/cm ²	MD:620*,TD:310*	ASTM D 638 @crosshead speed 50 mm /min
Tensile Modulus, 2% secant	kg/cm ²	MD:8200*,TD:8000*	ASTM D 638 @crosshead speed 50 mm /min
Elongation at Break	%	MD:240*,TD:450*	ASTM D 638 @crosshead speed 50 mm /min
Elmendorf Tear Strength	g	MD:3*,TD:80*	ASTM D 1922
Dart Impact Strength	g	139*	ASTM D 1709

(*)Properties obtained from film produced on a pilot line, 12 micron,BUR 5:1, MD Machine Direction, TD= transverse direction note: Conversion factor for changing unit from kg/cm² to Mpa is divided by 10.2



HDPE 5200B

Blow Molding Grade

Properties	Unit	Value	Test Method
Resin Properties			
Melt flow rate	g/10 min	0.4	ASTM D 1238 @ 190 °C, 2.16 kg
HIMI	g/10 min	40	ASTM D 1238 @ 190 °C, 21.6 kg
Density	g/cm3	0.958	ASTM D 1505
Melting Point	°C	132	ASTM D 2117
Vicat Softening Point	°C	128	ASTM D 1525
Brittleness Temperature	°C	<-60	ASTM D 746
ESCR	hrs,F50	300	ASTM D 1693 @ 50 °C
Tensile Strength at yield	kg/cm2	280	ASTM D 638 @crosshead speed 50 mm /min
Tensile Strength at break	kg/cm2	350	ASTM D 638 @crosshead speed 50 mm /min
Elongation at Break	%	1000	ASTM D 638 @crosshead speed 50 mm /min
Flexural modulus	kg/cm2	12000	ASTM D 790
Notched IZOD impact	kg.cm/cm	10	ASTM D 256 @ 23 °C
Hardness	shore D	66	ASTM D 2240

note: Conversion factor for changing unit from kg/cm2 to Mpa is divided by 10.2



7000F

Properties	Unit	Required Range	Required Value	Required Value	Test Method
Melt Flow Rate at 190 °C/2.16Kg	g/10 min	0.030-0.050	0.041	± 8.00%	ISO 1133-1
Density	g/cm3	0.950-0.954	0.954	± 0.23%	ISO 1183-2
MNI	-	≥ 100	160	± 6.15%	HZ-F-122-5
Pellet Appearance	-	in range	in range	-	IFQ-WI-038-00
LC	-	≥ 75	88	± 0.81%	ASTM E 313
Particle Size Distribution (mesh size 2.50mm)	%Wt	≥ 95.0	97.2	-	IFQ-WI-037-00
FAR	-	≥ -10	+20	-	IFQ-WI-050-00
OUT PUT	kg/h	≥ 18.4	21.9	-	IFQ-WI-044-00



LOW POLYMER

Properties	Unit	Required Range	Measured Value	Expanded Uncertainty	Test Method
Density	g/cm3	0.90 - 0.94	0.92	± 0.16%	ISO 1183-2
Whitness index	-	≥ 45	68	± 1.52%	ASTM E313
Viscosity at 149 °C	CP	-	34.6	± 2.66%	ISO 3219
Appearance	-	in range	in range	-	VRM-WI-079-00



HDPE 1108J

Injection Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	8.1	ISO 1133
Density	kg/m ³	961	ISO 1183
Tensile Strength at yield	MPa	28	ISO 527-1, -2
Tensile Strength at break	MPa	>15	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	4	ISO 179-1
Shore hardness	D scale	65	ISO 868
Stress cracking resistance	hr	–	ASTM 1693
Melting temperature	°C	134	ISO 11357
Vicat softening temperature	°C	126	ISO 306



HDPE 1300J

Injection Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	12	ISO 1133
Density	kg/m ³	961	ISO 1183
Tensile Strength at yield	MPa	27	ISO 527-1, -2
Tensile Strength at break	MPa	>13	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	3.5	ISO 179-1
Shore hardness	D scale	65	ISO 868
Stress cracking resistance	hr	3	ASTM 1693
Melting temperature	°C	134	ISO 11357
Vicat softening temperature	°C	126	ISO 306



HDPE 1600J

Injection Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	18	ISO 1133
Density	kg/m ³	955	ISO 1183
Tensile Strength at yield	MPa	25	ISO 527-1, -2
Tensile Strength at break	MPa	15	ISO 527-1, -2
Elongation at Break	%	400	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	4.5	ISO 179-1
Shore hardness	D scale	65	ISO 868
Stress cracking resistance	hr	2	ASTM 1693
Melting temperature	°C	131	ISO 11357
Vicat softening temperature	°C	122	ISO 306



HDPE 2100J

Injection Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	5.8	ISO 1133
Density	kg/m3	953	ISO 1183
Tensile Strength at yield	MPa	21	ISO 527-1, -2
Tensile Strength at break	MPa	13	ISO 527-1, -2
Elongation at Break	%	370	ISO 527-1, -2
Charpy Impact strength	kJ/m2	4.2	ISO 179-1
Shore hardness	D scale	63	ISO 868
Stress cracking resistance	hr	8	ASTM 1693
Melting temperature	°C	131	ISO 11357
Vicat softening temperature	°C	121	ISO 306



HDPE 2200J

Injection Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	5.2	ISO 1133
Density	kg/m ³	964	ISO 1183
Tensile Strength at yield	MPa	28	ISO 527-1, -2
Tensile Strength at break	MPa	>17	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	7.2	ISO 179-1
Shore hardness	D scale	65	ISO 868
Stress cracking resistance	hr	4	ASTM 1693
Melting temperature	°C	135	ISO 11357
Vicat softening temperature	°C	130	ISO 306



HDPE 3000B

Blow Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.63	ISO 1133
Density	kg/m ³	961	ISO 1183
Tensile Strength at yield	MPa	31	ISO 527-1, -2
Tensile Strength at break	MPa	>18	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	5.5	ISO 179-1
Shore hardness	D scale	65	ISO 868
Stress cracking resistance	hr	24	ASTM 1693
Melting temperature	°C	134	ISO 11357
Vicat softening temperature	°C	128	ISO 306



HDPE 5200B

Blow Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.32	ISO 1133
Density	kg/m ³	960	ISO 1183
Tensile Strength at yield	MPa	31	ISO 527-1, -2
Tensile Strength at break	MPa	>21	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	NB	ISO 179-1
Shore hardness	D scale	64	ISO 868
Stress cracking resistance	hr	40	ASTM 1693
Melting temperature	°C	134	ISO 11357
Vicat softening temperature	°C	128	ISO 306



HDPE 5300B

Blow Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.4	ISO 1133
Density	kg/m ³	949	ISO 1183
Tensile Strength at yield	MPa	24	ISO 527-1, -2
Tensile Strength at break	MPa	>14	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	8.5	ISO 179-1
Shore hardness	D scale	64	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	130	ISO 11357
Vicat softening temperature	°C	121	ISO 306



HDPE 6008B

Blow Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.36	ISO 1133
Density	kg/m3	956	ISO 1183
Tensile Strength at yield	MPa	26	ISO 527-1, -2
Tensile Strength at break	MPa	>17	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m2	8.6	ISO 179-1
Shore hardness	D scale	64	ISO 868
Stress cracking resistance	hr	300	ASTM 1693
Melting temperature	°C	132	ISO 11357
Vicat softening temperature	°C	123	ISO 306



HDPE 8200B

Blow Molding Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.03	ISO 1133
Density	kg/m3	952	ISO 1183
Tensile Strength at yield	MPa	26	ISO 527-1, -2
Tensile Strength at break	MPa	>27	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m2	NB	ISO 179-1
Shore hardness	D scale	63	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	132	ISO 11357
Vicat softening temperature	°C	123	ISO 306



HDPE 7700M

Extrusion Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.28	ISO 1133
Density	kg/m ³	949	ISO 1183
Tensile Strength at yield	MPa	24	ISO 527-1, -2
Tensile Strength at break	MPa	>29	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	NB	ISO 179-1
Shore hardness	D scale	63	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	132	ISO 11357
Vicat softening temperature	°C	122	ISO 306



HDPE 6300M

Extrusion Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.11	ISO 1133
Density	kg/m3	951	ISO 1183
Tensile Strength at yield	MPa	23	ISO 527-1, -2
Tensile Strength at break	MPa	>31	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m2	17	ISO 179-1
Shore hardness	D scale	62	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	131	ISO 11357
Vicat softening temperature	°C	122	ISO 306



HDPE 7000F

Extrusion Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.04	ISO 1133
Density	kg/m ³	952	ISO 1183
Tensile Strength at yield	MPa	27	ISO 527-1, -2
Tensile Strength at break	MPa	>24	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	NB	ISO 179-1
Shore hardness	D scale	64	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	131	ISO 11357
Vicat softening temperature	°C	124	ISO 306



MDPE 5100E

Extrusion Grade

Properties	Unit	Value	Test Method
Melt flow rate	g/10 min.	0.24	ISO 1133
Density	kg/m ³	944	ISO 1183
Tensile Strength at yield	MPa	20	ISO 527-1, -2
Tensile Strength at break	MPa	>17	ISO 527-1, -2
Elongation at Break	%	>500	ISO 527-1, -2
Charpy Impact strength	kJ/m ²	NB	ISO 179-1
Shore hardness	D scale	60	ISO 868
Stress cracking resistance	hr	>600	ASTM 1693
Melting temperature	°C	127	ISO 11357
Vicat softening temperature	°C	120	ISO 306



7000F

White Flake

Properties	Unit	Value	Test Result	Test Method
Density	g/cm ³	0.88-0.92	0.92	ISO 1183-2
Whithness index	-	≥45	65	ASTM E313
rance	-	in range	in range	



HDPE7000F

Film Grade

Properties	Unit	Value	Test Method
Density (23°C)	g/cm3	0.952	ISO 1183
Melt Flow Rate (190°C/2.16kg)	g/10min	0.04	ISO 1133
Stress at Yield	Kg/cm2	250	ASTM D638
Stress at Break	Kg/cm2	390	ASTM D638
Elongation at Break	%	Above 500	ASTM D638
Stiffness	Kg/cm2	10000	ASTM D747
Izod Impact Strength	Kg.cm/cm	30	ASTM D256
Shore Hardness (D scale)		64	ASTM D2240
Stress Cracking Resistance(F50)	hr	Above 600	ASTM D1693
Melting Point	°C	131	ASTM D2117
Vicot Softening	°C	124	ASTM D1525