

ASA+PC UL94 VO

- In order to maintain our delivery capability, we reserve the right to make changes to our standard plastics and/or use materials from different manufacturers at any time and without prior notice.
- We currently use the following ASA+PC-V0 materials:

- LURAN S KR 2867C WU (UL File No: E108538) - ROMILOY 8170 UV (UL File No: E148878) - GELOY HRA 222F (UL File No: E45329)

- For material data sheets, see the following pages
- MSDS available on request
- ASA+PC contains SVHCs

Important note regarding the information in material data sheets:

 These data sheets contain guideline values and do not constitute a guarantee of specific properties. The user is responsible for conducting his or her own tests and trials before using our products. This applies in particular to suitability for a specific purpose. We accept no liability for the accuracy or completeness of this information.

No responsibility is accepted for the correctness of this information





Luran® S KR2867C WU (ASA+PC)

INEOS Styrolution

Easy flowing injection moulding grade containing bromine-, chlorine- and antimony-free flame retardant. Available in Europe only.

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	45	cm ³ /10min	ISO 1133
Temperature	260	°C	-
Load	5	kg	-
Molding shrinkage, parallel	0.5	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2600	MPa	ISO 527
Yield stress	61	MPa	ISO 527
Yield strain	4	%	ISO 527
Nominal strain at break	50	%	ISO 527
Impact Strength (Charpy), +23°C	no break	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	no break	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	16	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	9	kJ/m²	ISO 179/1eA

Thermal Properties	Value	Unit	Test Standard
ISO Data			
Temp. of deflection under load (1.80 MPa)	96	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	100	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	105	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	75	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	V-0	class	UL 94
Thickness tested	1.6	mm	-
UL recognition	yes	-	-
Burning Behav. at thickness h	V-0	class	UL 94
Thickness tested	3.0	mm	-
UL recognition	yes	-	-
Oxygen index	30	%	ISO 4589-1/-2

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.1	=	IEC 62631-2-1
Relative permittivity, 1MHz	3	-	IEC 62631-2-1
Dissipation Factor, 100Hz	60	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	100	E-4	IEC 62631-2-1
Volume Resistivity	1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	1E14	Ohm	IEC 62631-3-2
Comparative tracking index	250	-	IEC 60112

Other Properties	Value	Unit	Test Standard
ISO Data			
Water Absorption	0.4	%	Sim. to ISO 62
Humidity absorption	0.15	%	Sim. to ISO 62
Density	1190	kg/m³	ISO 1183

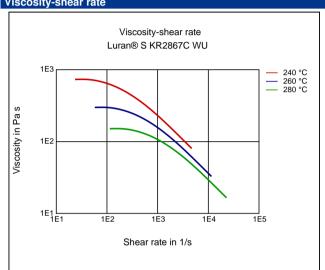
Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Ejection temperature	100	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	280	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

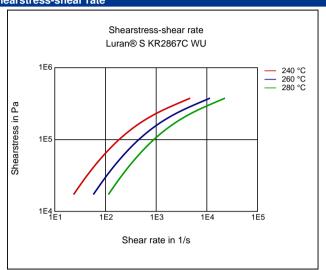
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	85 - 95	°C	-
Pre-drying - Time	2 - 4	h	-
Melt temperature	260 - 280	°C	-
Mold temperature	40 - 60	°C	-

Diagrams

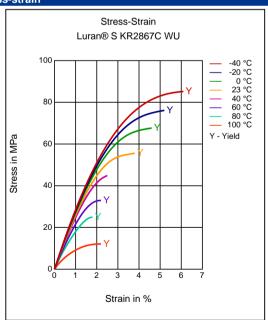
Viscosity-shear rate



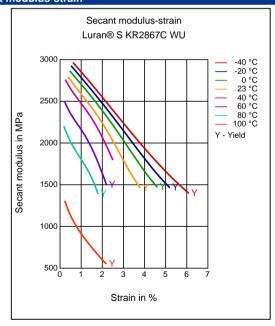




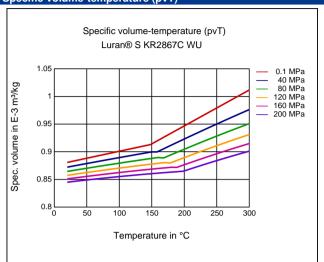
Stress-strain



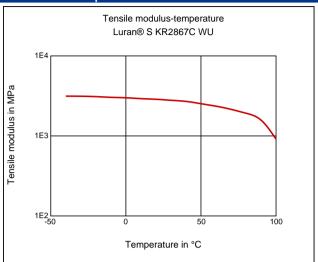
Secant modulus-strain



Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Characteristics

Processing

Injection Molding

Delivery form

Pellets

Additives

Release agent

Special Characteristics

Light stabilized or stable to light, UV stablized, Heat aging stabilized

Injection Molding

PREPROCESSING

Pre/Post-processing, Pre-drying, Temperature: 85 - 95 $^{\circ}\text{C}$

Pre/Post-processing, Pre-drying, Time: 2 - 4 h

PROCESSING

injection molding, Melt temperature, range: 260 - 280 °C injection molding, Melt temperature, recommended: 280 °C injection molding, Mold temperature, range: 40 - 60 °C injection molding, Mold temperature, recommended: 80 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)
- ✓ Citric Acid solution (10% by mass) (23°C)
- ✓ Lactic Acid (10% by mass) (23°C)
- ✓ Nitric Acid (40% by mass) (23°C)
- ✓ Sulfuric Acid (38% by mass) (23°C)
- ✓ Sulfuric Acid (5% by mass) (23°C)
- ✓ Chromic Acid solution (40% by mass) (23°C)

Alcohols

- ✓ Isopropyl alcohol (23°C)
- ✓ Methanol (23°C)
- ✓ Ethanol (23°C)

Hydrocarbons

- ✓ n-Hexane (23°C)
- ✓ iso-Octane (23°C)

Mineral oils

✓ SAE 10W40 multigrade motor oil (23°C)

Standard Fuels

- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)

Salt solutions

- ✓ Sodium Chloride solution (10% by mass) (23°C)
- ✓ Sodium Hypochlorite solution (10% by mass) (23°C)
- ✓ Sodium Carbonate solution (20% by mass) (23°C)
- ✓ Sodium Carbonate solution (2% by mass) (23°C)
- ✓ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✓ Water (23°C)
- ✓ Deionized water (90°C)

Disclaimer

Liability Exclusion

These guide values are measured and provided by the product manufacturer and have been determined on standardised test specimens and can be affected by pigmentation, mould design and processing conditions. M-Base has taken the guide values from the producer's original Technical Data Sheet. ALBIS AND M-BASE ARE THEREFORE NOT RESPONSIBLE FOR THE ACCURACY OF THE GUIDE VALUES AND CANNOT GIVE ANY WARRANTY WITH REGARD TO THEIR CORRECTNESS.

Any information given on the chemical and physical characteristics of our products, including, without limitation, technical advice on applications, whether verbally, in writing or by testing the product, is given to the best of our knowledge and in good faith and does not exempt the buyer from carrying out their own investigations and tests in order to ascertain the product's specific suitability for the purpose intended.

The buyer is solely responsible for confirming the suitability of the product for a particular application, its utilization and processing and must observe any applicable laws and government regulations. NO EXPRESS OR IMPLIED RECOMMENDATION OR WARRANTY IS GIVEN WITH REGARD TO THE SUITABILITY OF THE PRODUCT FOR A PARTICULAR APPLICATION, SUCH AS, BUT NOT LIMITED TO, SAFETY-CRITICAL COMPONENTS OR SYSTEMS.

Healthcare uses: the supply of any product by ALBIS for any medical, pharmaceutical or diagnostic application is conditional to an assessment by ALBIS in terms of compliance with ALBIS' internal risk management policy – even for products which are in general designated for use in Healthcare applications.

Important: irrespective of product type or designation, ALBIS does not recommend or support the use of any products it supplies which fall into the following medical, pharmaceutical or diagnostic application categories:

- risk class III applications according to EU directive 93/42/EEC
- any bodily implant application for greater than 30 days
- any critical component in any medical device that supports or sustains human life.

At all times, our standard terms and conditions of sale apply.

TECHNICAL DATA SHEET ROMILOY®8170 UV



PC/ASA, injection moulding grade, UV stabilized, chlorine-, bromine- and antimon-free flame retardant

PROPERTY	Test Method	Condition	Unit	Value*
MECHANICAL				
Tensile Modulus	DIN EN ISO 527	1 mm/min 23 °C	MPa	2,400
Tensile Strength	DIN EN ISO 527	50 mm/min 23 °C	MPa	63
Elongation at Break	DIN EN ISO 527	50 mm/min 23 °C	%	30
Flexural Modulus	DIN EN ISO 178	2 mm/min 23 °C	MPa	2,600
Flexural Strength	DIN EN ISO 178	2 mm/min 23 °C	MPa	98
Notched Impact Strength (Charpy)	DIN EN ISO 179/1eA	80 x 10 x 4 mm 23 °C	kJ/m²	21
Impact Strength (Charpy)	DIN EN ISO 179/1eU	80 x 10 x 4 mm 23 °C	kJ/m²	n.b.
PHYSICAL				
Density	DIN EN ISO 1183	23 °C	g/cm³	1.18
Water Absorption	DIN EN ISO 62	23 °C, 50 % RH, 24 h	%	-
THERMAL				
Heat deflection temperature (HDT/A)	DIN EN ISO 75-1	1,8 MPa	°C	76
Vicat Softening Temperature (B 50)	DIN EN ISO 306	50 N, 50 °C/h	°C	102
Melt Mass-Flow Rate (MFR)	DIN EN ISO 1133	240 °C, 5 kg	g/10 min	25
Processing Shrinkage	DIN EN ISO 294-4	23 °C	%	0.4 - 0.7
Glow Wire Flammability Index (GWFI)	DIN EN 60695-2-12	3.0 mm	°C	960
Flammability (File No.: 148878 → UL listed)	UL94	1.5 mm		V-0, 5VB
ELECTRICAL				
Dielectric Strength	DIN EN 60243-1	1 mm	kV/mm	28

ROMIRA GMBH

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^{* =} The given values are guide values only and no binding minimal values or product specifications. Factors as the mould design, processing conditions and colouring of the product may influence the properties. The information is given in good faith and based on our current knowledge, but the actual application is beyond our control. Thus the processors is responsible for carrying out their own tests and experiments. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed. Unless otherwise stated, tests were carried out in a standard atmosphere (23/50).



GELOY[™] RESIN HRA222F

REGION EUROPE

DESCRIPTION

PC/ASA flame retardant, excellent weatherability.

TYPICAL PROPERTY VALUES

Revision 20190925

RECHANICAL UNISA TESTMETHODS TESTISS STRES, MI, Type I, 50 mm/min 63 MR3 ASTM D G38 Tesnils Stress, Dirt, Type I, 50 mm/min 66 MR3 ASTM D G38 Tesnils Stress, Dirt, Type I, 50 mm/min 69 MR3 ASTM D G38 Tesnils Stress, Dirt, Type I, 50 mm/min 60 MR3 ASTM D G38 Tesnils Strain, July Type I, 50 mm/min 42 8 ASTM D G38 Tesnils Strain, July Type I, 50 mm/min 42 8 ASTM D G38 Tesnils Strain, July Type I, 50 mm/min 42 8 ASTM D G38 Tesnils Strain, July Type I, 50 mm/min 60 MR3 ASTM D G38 Tesnils Strain, July Type I, 50 mm/min 60 MR3 O5 27 Tesnils Strain, July Type I, 50 mm/min 60 MR3 O5 27 Tesnils Strain, July E, 50 mm/min 40 S0 527 Tesnils Strain, Dirk Type I, 50 mm/min 40 S0 527 Tesnils Strain, Dirk Type I, 50 mm/min 40 S0 527 Tesnils Strain, July E, 50 mm/min 40 S0 527 Tesnils Strain, July E, 50 mm/min				
Tensile Stress, Inf., Type 1, 50 mm/min 63 MPG ASTM 0638 Tensile Stress, Inf., Type 1, 50 mm/min 59 MPG ASTM 0638 Tensile Stress, Inf., Type 1, 50 mm/min 66 MPG ASTM 0638 Tensile Stress, Inf., Type 1, 50 mm/min 43 3 ASTM 0638 Tensile Strain, Jul., Type 1, 50 mm/min 42 8 ASTM 0638 Tensile Strain, Jul., Type 1, 50 mm/min 100 % ASTM 0638 Tensile Strain, Jul., Type 1, 50 mm/min 100 % ASTM 0638 Tensile Strain, Jul., Type 1, 50 mm/min 100 % ASTM 0638 Tensile Strain, Jul., Type 1, 50 mm/min 100 MPG ASTM 0638 Tensile Strain, Jul., 50 mm/min 50 MPG S0 527 Tensile Strain, Jul., 50 mm/min 40 MPG S0 527 Tensile Strain, Juled, 50 mm/min 40 S0 527 Tensile Strain, Juled, 50 mm/min 50 S0 527 Tensile Strain, Juled, 50 mm/min 50 S0 527 Tensile Strain, Juled, 50 mm/min 50 S0 527 Tensile Strain	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Ternile Stress, birk, Type I, 50 mm/min 56 MPa ASTM D638 Tensile Stress, yidt, Type I, 5 mm/min 59 MPa ASTM D638 Tensile Striss, Lync I, Type I, 5 mm/min 43 8 ASTM D638 Tensile Strain, Judt, Type I, 50 mm/min 43 8 ASTM D638 Tensile Strain, Judt, Type I, 50 mm/min 42 8 ASTM D638 Tensile Strain, Judt, Type I, 50 mm/min 290 MPa ASTM D638 Tensile Strain, Judt, Type I, 50 mm/min 290 MPa 50 527 Tensile Stress, Ired, 50 mm/min 60 MPa 50 527 Tensile Stress, Ired, 50 mm/min 60 MPa 50 527 Tensile Stress, Ired, 50 mm/min 43 MPa 50 527 Tensile Stress, Ired, 50 mm/min 43 MPa 50 527 Tensile Stress, Ired, 50 mm/min 43 MPa 50 527 Tensile Stress, Ired, 50 mm/min 43 MPa 50 527 Tensile Strein, Ired, 50 mm/min 40 MPa 50 527 Tensile Strein, Ired, 50 mm/min 50 527 MPa	MECHANICAL			
Tensile Stress, bfd, Type I, 5 mm/min 99 MPe ASTM D638 Tensile Stress, bfd, Type I, 5 mm/min 66 MPe ASTM D638 Tensile Strain, bfd, Type I, 5 mm/min 100 8 ASTM D638 Tensile Strain, bfd, Type I, 5 mm/min 120 8 ASTM D638 Tensile Strain, bfd, Type I, 5 mm/min 120 8 ASTM D638 Tensile Strain, bfd, Type I, 5 mm/min 120 MPe ASTM D638 Tensile Strain, bfd, Type I, 5 mm/min 2 MPe SO527 Tensile Strain, bfd, Type I, 5 mm/min 6 MPe SO527 Tensile Strain, brak, 5 mm/min 6 MPe SO527 Tensile Strain, yled, 5 mm/min 4 MPe SO527 Tensile Strain, yled, 5 mm/min 4 MPe SO527 Tensile Strain, yled, 5 mm/min 4 MPe SO527 Tensile Strain, yled, 5 mm/min 5 MP SO527 Tensile Strain, yled, 5 mm/min 4 MP SO527 Tensile Strain, yled, 5 mm/min 5 MP SO527	Tensile Stress, yld, Type I, 50 mm/min	63	MPa	ASTM D 638
Tensile Stress, br. Y. Type I, 5 mm/min 66 MPa ASTM D 638 Tensile Strain, Jrd, Type I, 50 mm/min 43 5 ASTM D 638 Tensile Strain, Jrd, Type I, 50 mm/min 100 8 ASTM D 638 Tensile Strain, Jrd, Type I, 5 mm/min 100 % ASTM D 638 Tensile Strain, Jrd, Type I, 5 mm/min 250 MPa ASTM D 638 Tensile Strain, Jrd, Type I, 5 mm/min 62 MPa ASTM D 638 Tensile Strain, Jrd, Spe I, 5 mm/min 62 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 61 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 43 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 43 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 43 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 44 MPa OS 527 Tensile Strain, Jrd, 5 0 mm/min 550 MPa OS 527 Tensile Strain, Jrd, 10 mm/min 520 MPa OS 527 Tensile Strain, Jeak, 5 0 mm/min 43 MPa OS	Tensile Stress, brk, Type I, 50 mm/min	56	MPa	ASTM D 638
Tensile Strain, Iyd., Type I, 50 mm/min 43 87 ASTM D638 Tensile Strain, Iyd., Type I, 50 mm/min 2100 8 ASTM D638 Tensile Strain, Uyd., Type I, 5 mm/min 2100 8 ASTM D638 Tensile Strain, Uyd., Type I, 5 mm/min 2100 MPa ASTM D638 Tensile Stress, Jield, 5 mm/min 62 MPa ASTM D638 Tensile Stress, Jield, 50 mm/min 60 MPa 0527 Tensile Stress, Jield, 50 mm/min 60 MPa 0527 Tensile Stress, Jield, 50 mm/min 43 8 0527 Tensile Strain, Jield, 50 mm/min 43 8 0527 Tensile Strain, Jield, 50 mm/min 44 8 0527 Tensile Strain, Jield, 50 mm/min 45 0527 0527 Tens	Tensile Stress, yld, Type I, 5 mm/min	59	MPa	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min >100 \$ ASTM D638 Tensile Strain, brk, Type I, 5 mm/min 22 \$ ASTM D638 Tensile Strain, brk, Type I, 5 mm/min 2100 % ASTM D638 Tensile Strean, brk, Type I, 5 mm/min 2100 % ASTM D638 Tensile Stress, yield, 5 mm/min 62 MPa 05 527 Tensile Stress, yield, 5 mm/min 62 MPa 05 527 Tensile Stress, yield, 5 mm/min 43 05 527 Tensile Stress, yield, 5 mm/min 43 05 527 Tensile Strain, yield, 5 mm/min 44 50 527 Tensile Strain, yield, 5 mm/min 50 527 05 527 Tensile Strain, yield, 5 mm/min 40 50 527 05 527 Tensile Strain, yield, 5 mm/min 40 50 527 05 527 Tensile Strain, yield, 5 mm/min 50	Tensile Stress, brk, Type I, 5 mm/min	66	MPa	ASTM D 638
Tensile Strain, yid, Type 5 mm/min 4.2 5 mm 5 mm 6 mm	Tensile Strain, yld, Type I, 50 mm/min	4.3	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min >100 % ASTM D 638 Tensile Modulus, 5 mm/min 2590 MPa ASTM D 638 Tensile Stress, yleld, 5 mm/min 62 MPa 150 527 Tensile Stress, yleld, 5 mm/min 60 MPa 150 527 Tensile Stress, break, 50 mm/min 43 MPa 150 527 Tensile Strain, yleld, 5 mm/min 43 3 150 527 Tensile Strain, preak, 5 mm/min 43 3 150 527 Tensile Strain, preak, 5 mm/min 44 3 150 527 Tensile Strain, preak, 5 mm/min 44 4 50 527 Tensile Strain, preak, 5 mm/min 44 4 50 527 Tensile Strain, preak, 5 mm/min 50 4 80 527 Tensile Strain, preak, 5 mm/min 50 4 90 527 Tensile Strain, preak, 5 mm/min 50 90 MPa 10 72 Tensile Strain, preak, 5 mm/min 50 50 50 50 Berlain Strain, preak, 5 mm/min 50 50 50 50	Tensile Strain, brk, Type I, 50 mm/min	>100	%	ASTM D 638
Tensile Modulus, 5 mm/min 2590 MPa ASTM D 638 Tensile Stress, yield, 5 mm/min 62 MPa ISO 527 Tensile Stress, break, 5 mm/min 51 MPa ISO 527 Tensile Stress, break, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 43 8 ISO 527 Tensile Strain, yield, 5 mm/min 43 8 ISO 527 Tensile Strain, break, 50 mm/min 44 8 ISO 527 Tensile Strain, preak, 50 mm/min 50 2 ISO 527 Tensile Strain, preak, 50 mm/min 95 4 ISO 527 Tensile Strain, preak, 50 mm/min 95 4 ISO 527 Tensile Strain, preak, 50 mm/min 95 4 ISO 527 Tensile Strain, preak, 50 mm/min 95 MPa ISO 527 Tensile Strain, preak, 50 mm/min 95 MPa ISO 527 Tensile Strain, preak, 50 mm/min 93 MPa ISO 527 Tensile Strain, preak J 50 mm/min 93 MPa MPa ISO 178	Tensile Strain, yld, Type I, 5 mm/min	4.2	%	ASTM D 638
Tensile Stress, yield, 5 mm/min 62 MPa ISO 527 Tensile Stress, break, 5 mm/min 60 MPa ISO 527 Tensile Stress, yield, 50 mm/min 45 MPa ISO 527 Tensile Stress, break, 50 mm/min 43 MPa ISO 527 Tensile Strain, yield, 50 mm/min 43 3 ISO 527 Tensile Strain, yield, 50 mm/min 44 3 ISO 527 Tensile Strain, break, 50 mm/min 44 4 ISO 527 Tensile Strain, break, 50 mm/min 55 MPa ISO 527 Tensile Strain, break, 50 mm/min 44 MPa ISO 527 Tensile Strain, break, 50 mm/min 50 MPa ISO 527 Tensile Strain, break, 50 mm/min 44 MPa ISO 527 Tensile Strain, break, 50 mm/min 44 MPa ISO 527 Tensile Strain, break, 50 mm/min 44 MPa ISO 527 Tensile Strain, break, 50 mm/min 45 MPa ISO 178 Tensile Strain, break, 50 mm/min 45 MPa ISO 178 Tensi	Tensile Strain, brk, Type I, 5 mm/min	>100	%	ASTM D 638
Fersile Stress, break, 5 mm/min 51 MPa R0527 Tensile Stress, yield, 50 mm/min 60 MPa R0527 Tensile Stress, break, 50 mm/min 45 MPa R0527 Tensile Strain, yield, 5 mm/min 43 8 80.527 Tensile Strain, preak, 55 mm/min 50 8 80.527 Tensile Strain, preak, 50 mm/min 44 8 80.527 Tensile Strain, preak, 50 mm/min 50 80.72 80.72 Tensile Strain, preak, 50 mm/min 8 90.52 80.72 80.72 Elevard Stress, yield, 2 mm/min 80.52 80.72 80.72 80.72 80.7	Tensile Modulus, 5 mm/min	2590	MPa	ASTM D 638
Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 43 MPa ISO 527 Tensile Strain, yield, 5 mm/min 43 % ISO 527 Tensile Strain, break, 5 mm/min 44 % ISO 527 Tensile Strain, break, 50 mm/min 44 % ISO 527 Tensile Strain, break, 50 mm/min 50 MPa ISO 527 Tensile Strain, break, 50 mm/min 250 MPa ISO 527 Tensile Modulus, 1 mm/min 250 MPa ISO 178 Televarla Stress, yield, 2 mm/min 251 MPa ISO 178 Televarla Stress, yield, 2 mm/min 251 MPa ISO 178 Televarla Stress, yield, 2 mm/min 251 MPa SO 178 Televarla Stress, yield, 2 mm/min 251 MPa SO 178 Televarla Stress, yield, 2 mm/min 251 MPa SO 178 Televarla Stress, yield, 2 mm/min 251 MPa SO 178 Televarla Stress, yield, 2 mm/min 35 MPa So 178 So 178	Tensile Stress, yield, 5 mm/min	62	MPa	ISO 527
Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 5 mm/min 43 3 150 527 Tensile Strain, break, 5 mm/min 44 3 150 527 Tensile Strain, break, 50 mm/min 44 3 150 527 Tensile Strain, break, 50 mm/min 250 MPa 150 527 Tensile Modulus, 1 mm/min 250 MPa 150 178 Televarla Stress, yield, 2 mm/min 250 MPa 150 178 Televarla Modulus, 2 mm/min 210 MPa 150 178 Televarla Modulus, 2 mm/min 210 MPa 250 178 Televarla Modulus, 2 mm/min 210 MPa 250 178 Televarla Modulus, 2 mm/min 210 MPa 250 178 Televarla Tensile Strain, piedel, 23°C 350 178 250 178 Izabel Impact, notched, 23°C 350 178 351 179 351 179 Izabel Impact, notched 80°10°4 9°C 250 179 250 179 250 179 250 179 250 179 250 179 250 179 250 179 250 179 250 179 <	Tensile Stress, break, 5 mm/min	51	MPa	ISO 527
Tensile Strain, yield, 5 mm/min 4.3 \$0.527 Tensile Strain, break, 5 mm/min 5.0 \$0.00 \$0.527 Tensile Strain, yield, 50 mm/min 4.4 \$0.00 \$0.00 \$0.00 Tensile Strain, break, 50 mm/min 5.0 \$0.00 \$0.00 \$0.00 \$0.00 Tensile Modulus, 1 mm/min 25.0 MPa \$0.00	Tensile Stress, yield, 50 mm/min	60	MPa	ISO 527
Tensile Strain, break, 5 mm/min >50 % 150 527 Tensile Strain, yield, 50 mm/min 4.4 % 150 527 Tensile Strain, break, 50 mm/min >50 % 150 527 Tensile Modulus, 1 mm/min 2520 MPa 150 527 Flexural Stress, yield, 2 mm/min 93 MPa 150 178 Bebural Modulus, 2 mm/min 2510 MPa 150 178 Impact V V 150 178 Impact 2510 MPa 150 178 Impact V V 150 178 Impact V V 250 178 Impact V V 250 178 Impact MPa 251 178 251 178 Impact ASTM D 256 251 178 251 178 Impact MSIM D 256 251 178 251 178 251 178 Impact MSIM D 256 251 178 251 178 251 178 251 178 251 178 251 178 251 178 251 178 251 178 251 178 251 178<	Tensile Stress, break, 50 mm/min	45	MPa	ISO 527
Tensile Strain, yield, 50 mm/min 4.4 % 150 527 Tensile Strain, break, 50 mm/min >50 % 150 527 Tensile Modulus, 1 mm/min 250 MPa 150 527 Flexural Stress, yield, 2 mm/min 93 MPa 150 178 MPACT WPa 150 178 150 178 Izod Impact, notched, 23°C 385 1/m ASTM D 256 Izod Impact, notched, 0°C 290 1/m ASTM D 256 Izod Impact, notched 80°10°4 +23°C 17 kl/m² 150 180/1A Izod Impact, notched 80°10°4 +23°C 12 kl/m² 150 180/1A Izod Impact, notched 80°10°4 +23°C 12 kl/m² 150 180/1A Izod Impact, notched 80°10°4 +23°C 15 kl/m² 150 180/1A Izod Impact, notched 80°10°4 +23°C 25 15 17°C 150 180/1A Izod Impact, notched 80°10°4 +23°C 15 16 17°C 150 1359-2 Izod Impact, notched 80°10°4 +30°C 15 15 17°C 150 1359-2 Izod Impact, notched 80°10°4 +30°C 15	Tensile Strain, yield, 5 mm/min	4.3	%	ISO 527
Tensile Strain, break, 50 mm/min >50 % S05 27 Tensile Modulus, 1 mm/min 2520 MPa S05 27 Flexural Stress, yield, 2 mm/min 93 MPa S0 178 Flexural Modulus, 2 mm/min 2510 MPa S0 178 IMPACT W W ASTM D 256 Izod Impact, notched, 0°C 385 J/m ASTM D 256 Izod Impact, notched 80°10°4 + 23°C 17 kl/m² S0 180/1A Izod Impact, notched 80°10°4 - 30°C 2 kl/m² S0 180/1A Izod Impact, notched 80°10°4 - 30°C 9 kl/m² S0 180/1A Izod Impact, notched 80°10°4 - 30°C 9 kl/m² S0 180/1A Izod Impact, notched 80°10°4 - 30°C 9 kl/m² S0 190/1A Izod Impact, notched 80°10°4 - 30°C 9 kl/m² S0 190/1A Izod Impact, notched 80°10°4 - 30°C 50 180/1A S0 180/1A Izod Impact, notched 80°10°4 - 30°C 80 180/1A S0 180/1A Izod Impact, notched 80°10°4 - 30°C 80 180/1A S0 180/1A Izod Son Son Son Son Son Son S	Tensile Strain, break, 5 mm/min	>50	%	ISO 527
Flesiel Modulus, 1 mm/min 2520 MPa ISO 178 Flexural Stress, yield, 2 mm/min 93 MPa ISO 178 I Ekural Modulus, 2 mm/min 2510 MPa ISO 178 IMPACT V V V Izod Impact, notched, 23°C 385 J/m ASTM D 256 Izod Impact, notched, 0°C 290 J/m ASTM D 256 Izod Impact, notched 80°10°4 23°C 12 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 kl/m² ISO 180/1A Chary 23°C, V-notch Edgew 80°10°4 45°C 9 10°C ISO 180/1A TERRMAL 1°C ISO 11359-2 CE, 30°C to 80°C, filow 5 10°C ISO 11359-2 CE, 20°C to 80°C, filow 7 10°C ISO 1359-10-2 CE, 20°C to 80°C, filow 5	Tensile Strain, yield, 50 mm/min	4.4	%	ISO 527
Flexural Stress, yield, 2 mm/min 93 MPa ISO 178 Flexural Modulus, 2 mm/min 2510 MPa ISO 178 IMPACT Izod Impact, notched, 23°C 385 J/m ASTM D 256 Izod Impact, notched, 0°C 290 J/m² ASTM D 256 Izod Impact, notched 80°10°4 +23°C 17 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 2 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 9 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 9 1 kl/m² ISO 180/1A Izod Impact, notched 80°10°4 o°C 9 9 kl/m² ISO 180/1A ISO 180/1A Izod Impact, notched 80°10°4 o°C 80 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Tensile Strain, break, 50 mm/min	>50	%	ISO 527
Flexural Modulus, 2 mm/min 2510 MPa ISO 178 IMPACT IMPACT J/m ASTM D 256 Izod Impact, notched, 23°C 385 J/m ASTM D 256 Izod Impact, notched, 0°C 290 J/m² ASTM D 256 Izod Impact, notched 80°10°4 +23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 29 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 10°C ISO 180/1A Izod Impact, notched 80°10°4 -30°C 10°C ISO 1359-12 Izod Impact, notched 80°10°4 -30°C 10°C ISO 1359-2 Izod Impact, notched 80°10°4 -30°C 10°C ISO 1359-2 Izod 10°C 10°C <td>Tensile Modulus, 1 mm/min</td> <td>2520</td> <td>MPa</td> <td>ISO 527</td>	Tensile Modulus, 1 mm/min	2520	MPa	ISO 527
IMPACT IXOD Impact, notched, 23°C 385 J/m ASTM D 256 Izod Impact, notched, 0°C 290 J/m ASTM D 256 Izod Impact, notched 80°10°4 + 23°C 17 I/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 I/m² ISO 180/1A Izod Impact, notched 80°10°4 30°C 9 I/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 15 I/m² ISO 180/1A THERMAL I/m² I/m² ISO 1359-2 CTE, -30°C to 80°C, flow 6.9E-05 1/m² ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/m² ISO 11359-2 GTE, 23°C to 80°C, xflow 7.5E-05 1/m² ISO 11359-2 Ball Pressure Test, 75°C +/- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	Flexural Stress, yield, 2 mm/min	93	MPa	ISO 178
Izod Impact, notched, 23°C 385 J/m ASTM D 256 Izod Impact, notched, 0°C 290 J/m ASTM D 256 Izod Impact, notched 80*10*4 +23°C 17 KJ/m² ISO 180/1A Izod Impact, notched 80*10*4 0°C 12 KJ/m² ISO 180/1A Izod Impact, notched 80*10*4 -30°C 9 KJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 15 KJ/m² ISO 179/1eA THERMAL TECT30°C to 80°C, flow 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C + /- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 11 °C ISO 306	Flexural Modulus, 2 mm/min	2510	MPa	ISO 178
Izod Impact, notched, 0°C 290 J/m ASTM D 256 Izod Impact, notched 80*10*4 +23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 o°C 12 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 -30°C 9 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 15 kJ/m² ISO 179/1eA THERMAL TECF30°C to 80°C, flow 9 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.16-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.56-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C +/- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	IMPACT			
Izod Impact, notched 80°10°4 +23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 0°C 12 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 9 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 15 kJ/m² ISO 179/1eA THERMAL CTE, -30°C to 80°C, flow 6.9E-05 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C +/- 2°C PASSES 1 IEC 60695-10-2 Vicat Softening Temp, Rate A/50 102 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	Izod Impact, notched, 23°C	385	J/m	ASTM D 256
Izod Impact, notched 80*10*4 0°C 12 Izod Impact, notched 80*10*4 -30°C 15 Izod Impact, notched 80*10*4 sp=62mm 15 Izod Impact, notched 80*10*4 sp=62mm 15 Izod Impact, notched 80*10*4 sp=62mm Izod Impact, notched 80*10*4 sp=62mm 15 Izod Impact, notched 80*10*4 sp=62mm Izod Impact, notched 80*10*4 sp=62mm Izod Ixod Ixod Izod Ixod Ixod Ixod Ixod Ixod Ix	Izod Impact, notched, 0°C	290	J/m	ASTM D 256
Izod Impact, notched 80*10*4-30°C 9 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 15 kJ/m² ISO 179/1eA THERMAL CTE, -30°C to 80°C, flow 6.9E-05 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C +/-2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 102 °C ISO 306	Izod Impact, notched 80*10*4 +23°C	17	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 15 kJ/m² ISO 179/1eA THERMAL CTE, -30°C to 80°C, flow 6.9E-05 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C + /- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 102 °C ISO 306	Izod Impact, notched 80*10*4 0°C	12	kJ/m²	ISO 180/1A
THERMAL CTE, -30°C to 80°C, flow 6.9E-05 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C +/- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	Izod Impact, notched 80*10*4 -30°C	9	kJ/m²	ISO 180/1A
CTE, -30°C to 80°C, flow 6.9E-05 1/°C ISO 11359-2 CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C + /- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	15	kJ/m²	ISO 179/1eA
CTE, -30°C to 80°C, xflow 7.1E-05 1/°C ISO 11359-2 CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C + /- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	THERMAL			
CTE, 23°C to 80°C, xflow 7.5E-05 1/°C ISO 11359-2 Ball Pressure Test, 75°C +/- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	CTE, -30°C to 80°C, flow	6.9E-05	1/°C	ISO 11359-2
Ball Pressure Test, 75°C + /- 2°C PASSES - IEC 60695-10-2 Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	CTE, -30°C to 80°C, xflow	7.1E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50 111 °C ISO 306 Vicat Softening Temp, Rate B/50 102 °C ISO 306	CTE, 23°C to 80°C, xflow	7.5E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50 102 °C ISO 306	Ball Pressure Test, 75°C +/- 2°C	PASSES	-	IEC 60695-10-2
3 11 1	Vicat Softening Temp, Rate A/50	111	°C	ISO 306
Vicat Softening Temp, Rate B/120 104 °C ISO 306	Vicat Softening Temp, Rate B/50	102	°C	ISO 306
	Vicat Softening Temp, Rate B/120	104	°C	ISO 306

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CHEMISTRY THAT MATTERS"



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	99	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	88	°C	ISO 75/Ae
PHYSICAL			
Mold Shrinkage on Tensile Bar, flow	0.4 – 0.6	%	SABIC method
Density	1.17	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.6	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.2	%	ISO 62
Melt Volume Rate, MVR at 260°C/2.16 kg	13	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS			
UL Yellow Card Link	E45329-100183332	-	
UL Yellow Card Link 2	E45329-462200	-	
UL Compliant, 94V-0 Flame Class Rating	2	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Oxygen Index (LOI)	29	%	ISO 4589
UV-light, water exposure/immersion	F1	-	UL 746C
INJECTION MOLDING			
Drying Temperature	80 – 90	°C	
Drying Time	2 – 4	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	230 – 270	°C	
Nozzle Temperature	220 – 260	°C	
Front - Zone 3 Temperature	230 – 270	°C	
		°C	
Middle - Zone 2 Temperature	220 – 260	C	
Middle - Zone 2 Temperature Rear - Zone 1 Temperature	220 – 260 200 – 230	°C	
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