

# Thermal Separation KS-A01

## Technical Datasheet

The thermal separation is made of 33% Valox Resin 357X and 67% Valox Resin 553. Durable sealing between thermal separation and the backup-gutter due to O-ring (EPDM - 70) seal. It is used as thermal separation and sealing between the keder system Electra A KS-P01 and the backup-gutter / secondary structure. Following datasheet refers to the physical properties the used base materials.



Valox Resin 357X (33%)

Typical Properties	Test Method	Units	Typical Value
Taber abrasion, CS-17, 1 kg	SABIC Method	mg/1000cy	33
Tensile stress, yield, 50 mm/min	ISO 527	MPa	50
Tensile stress, break, 50 mm/min	ISO 527	MPa	40
Tensile strain, yield, 50 mm/min	ISO 527	%	5
Tensile strain, break, 50 mm/min	ISO 527	%	30
Tensile modulus, 1 mm/min	ISO 527	MPa	2200
Flexural stress, yield, 2 mm/min	ISO 178	MPa	80
Flexural modulus, 2 mm/min	ISO 178	MPa	2000
Hardness H385/30	ISO 2039-1	MPa	111
Hardness, Rockwell R	ISO 2039-2		117
Izod impact, unnotched 80*10*4 +23°C	ISO 180/1 U	kJ/m <sup>2</sup>	NB
Izod impact, unnotched 80*10*4 -30°C	ISO 180/1 U	kJ/m <sup>2</sup>	NB
Izod impact, notched 80*10*4 +23°C	ISO 180/1 A	kJ/m <sup>2</sup>	45
Izod impact, notched 80*10*4 -30°C	ISO 180/1 A	kJ/m <sup>2</sup>	10
Charpy 23°C, V-notch edgew 80*10*4 sp=62mm	ISO 179/1 eA	kJ/m <sup>2</sup>	45
Charpy impact, notched, 23°C	ISO 179/2 C	kJ/m <sup>2</sup>	15
Charpy -30°C, V-notch edgew 80*10*4 sp=62mm	ISO 179/1 eA	kJ/m <sup>2</sup>	20
Charpy 23°C, unnotch edgew 80*10*4 sp=62mm	ISO 179/1 eU	kJ/m <sup>2</sup>	NB
Charpy -30°C, unnotch edgew 80*10*4 sp=62mm	ISO 179/1 eU	kJ/m <sup>2</sup>	NB
Thermal conductivity	ISO 8302	W/mk	0,17
CTE, 23°C to 80°C, flow	ISO 11359-2	1/K	1.E-04
CTE, 23°C to 80°C, xflow	ISO 11359-2	1/K	1.E-04
Ball pressure test, 125°C +/-2°C	IEC 60695-10-2		PASSES
Vicat softening temp, rate A/50	ISO 306	°C	180
Vicat softening temp, rate B/50	ISO 306	°C	145
Vicat softening temp, rate B/120	ISO 306	°C	150
HDT/Be, 0,45 Mpa edgew 120*10*4 sp=100mm	ISO 75/Be	°C	135

Valox Resin 357X (33%)

Typical Properties	Test Method	Units	Typical Value
HDT/Ae, 1,8 Mpa edgew 120*10*4 sp=100mm	ISO 75/Ae	°C	85
Relative temp index, elec	UL 746B	°C	120
Relative temp index, mech w/impact	UL 746B	°C	120
Relative temp index, mech w/o impact	UL 746B	°C	140
Mold shrinkage on tensile bar, flow (2)	SABIC Method	%	1,1 - 1,8
Mold shrinkage on tensile bar, xflow (2)	SABIC Method	%	0,9 - 1,8
Density	ISO 1183	g/cm <sup>3</sup>	1,34
Water absorption (23°C/sat)	ISO 62	%	0,5
Moisture absorption (23°C / 50% RH)	ISO 62	%	0,15
Melt volume rate, MVR at 250°C / 5,0 kg	ISO 1133	cm <sup>3</sup> /10 min	8
Volume resistivity	IEC 60093	Ohm x cm	>1.E+15
Surface resistivity, ROA	IEC 60093	Ohm	>1.E+15
Dielectric strength, in oil, 0,8 mm	IEC 60243-1	kV/mm	34
Dielectric strength, in oil, 1,6 mm	IEC 60243-1	kV/mm	26
Dielectric strength, in oil, 3,2 mm	IEC 60243-1	kV/mm	18
Relative permittivity, 50/60 Hz	IEC 60250		3
Relative permittivity, 1 MHz	IEC 60250		2,9
Dissipation factor, 50/60 HZ	IEC 60250		0,002
Dissipation factor, 1 MHz	IEC 60250		0,007
Comparative tracking index	IEC 60112	V	225
Comparative tracking index, M	IEC 60112	V	100
UL recognized, 94V-0 flame class rating (3)	UL 94	mm	0,75
UL recognized, 94-5VA rating (3)	UL 94	mm	2,5
Glow wire flammability indec 960°C, passes at	IEC 60695-2-12	mm	1
Oxygen index (LOI)	ISO 4589	%	30

Valox Resin 553 (67%)

Typical Properties	Test Method	Units	Typical Value
Tensile stress, break, 5 mm/min	ISO 527	Mpa	140
Tensile strain, break, 5 mm/min	ISO 527	%	3
Tensile modulus, 1 mm/min	ISO 527	Mpa	10000
Flexural stress, break, 2 mm/min	ISO 178	Mpa	210
Flexural modulus, 2 mm/min	ISO 178	Mpa	8000
Hardness, H358/30	ISO 2039-1	Mpa	132
Hardness, Rockwell R	ISO 2039-1		118
Izod impact, unnotched 80*10*4 +23°C	ISO 180/1 U	kJ/m <sup>2</sup>	60
Izod impact, unnotched 80*10*4 -30°C	ISO 180/1 U	kJ/m <sup>2</sup>	60
Izod impact, notched 80*10*4 +23°C	ISO 180/1 A	kJ/m <sup>2</sup>	7
Izod impact, notched 80*10*4 -30°C	ISO 180/1 A	kJ/m <sup>2</sup>	7
Charpy 23°C, V-notch edgew 80*10*4 sp=62mm	ISO 179/1 eA	kJ/m <sup>2</sup>	8
Charpy -30°C, V-notch edgew 80*10*4 sp=62mm	ISO 179/1 eA	kJ/m <sup>2</sup>	8
Charpy 23°C, unnotch edgew 80*10*4 sp=62mm	ISO 179/1 eU	kJ/m <sup>2</sup>	NB
Charpy -30°C, unnotch edgew 80*10*4 sp=62mm	ISO 179/1 eU	kJ/m <sup>2</sup>	NB
Izod reverse impact, notched 80*10*4 23°C	ISO 180/1 C	kJ/m <sup>2</sup>	45
CTE, 23°C to 80°C, flow	ISO 11359-2	1/K	2.5E-05
CTE, 23°C to 80°C, xflow	ISO 11359-2	1/K	8,50E-05
Ball pressure test, 125°C +/-2°C	IEC 60695-10-2		PASSES
Vicat softening temp, rate A/50	ISO 306	°C	210
Vicat softening temp, rate B/50	ISO 306	°C	170
Vicat softening temp, rate B/120	ISO 306	°C	170
HDT/Be, 0,45 Mpa edgew 120*10*4 sp=100mm	ISO 75/Be	°C	205
HDT/Ae, 1,8 Mpa edgew 120*10*4 sp=100mm	ISO 75/Ae	°C	135
Relative temp index, elec	UL 746B	°C	125
Relative temp index, mech w/impact	UL 746B	°C	110
Relative temp index, mech w/o impact	UL 746B	°C	125
Mold shrinkage on tensile bar, flow (2)	SABIC Method	%	0,4 - 0,6
Mold shrinkage on tensile bar, xflow (2)	SABIC Method	%	0,5 - 0,9
Density	ISO 1183	g/cm <sup>3</sup>	1,58
Water absorption (23°C/sat)	ISO 62	%	0,26
Moisture absorption (23°C / 50% RH)	ISO 62	%	0,07
Melt volume rate, MVR at 250°C / 5,0 kg	ISO 1133	cm <sup>3</sup> /10 min	7
Volume resistivity	IEC 60093	Ohm x cm	1.E+15

Valox Resin 553 (67%)

Typical Properties	Test Method	Units	Typical Value
Surface resistivity, ROA	IEC 60093	Ohm	>1.E+15
Dielectric strength, in oil, 0,8 mm	IEC 60243-1	kV/mm	28
Dielectric strength, in oil, 1,6 mm	IEC 60243-1	kV/mm	24
Dielectric strength, in oil, 3,2 mm	IEC 60243-1	kV/mm	15
Relative permittivity, 50/60 Hz	IEC 60250		3,4
Relative permittivity, 1 MHz	IEC 60250		3,3
Dissipation factor, 50/60 HZ	IEC 60250		0,001
Dissipation factor, 1 MHz	IEC 60250		0,007
Comparative tracking index	IEC 60112	V	225
Comparative tracking index, M	IEC 60112	V	125
UL recognized, 94V-0 flame class rating (3)	UL 94	mm	0,86
UL recognized, 94-5VA rating (3)	UL 94	mm	2,3
Glow wire flammability indec 960°C, passes at	IEC 60695-2-12	mm	1
Oxygen index (LOI)	ISO 4589	%	34

O-Ring (EPDM-70)

Typical Properties	Test Method	Units	Typical Value
Hardness	ASTM D 2240 04	Shore A	70
Density	ASTM D 1817	g/cm <sup>3</sup>	1,147
Tensile stress	ASTM D 412 C	Mpa	10
Elongation, break	ASTM D 412 C	%	250
Compression set resistance	ASTM D 395 B	%	<25
Breaking point	ASTM D 2137		PASSES
Ozone resistance	ASTM 1171 B		PASSES