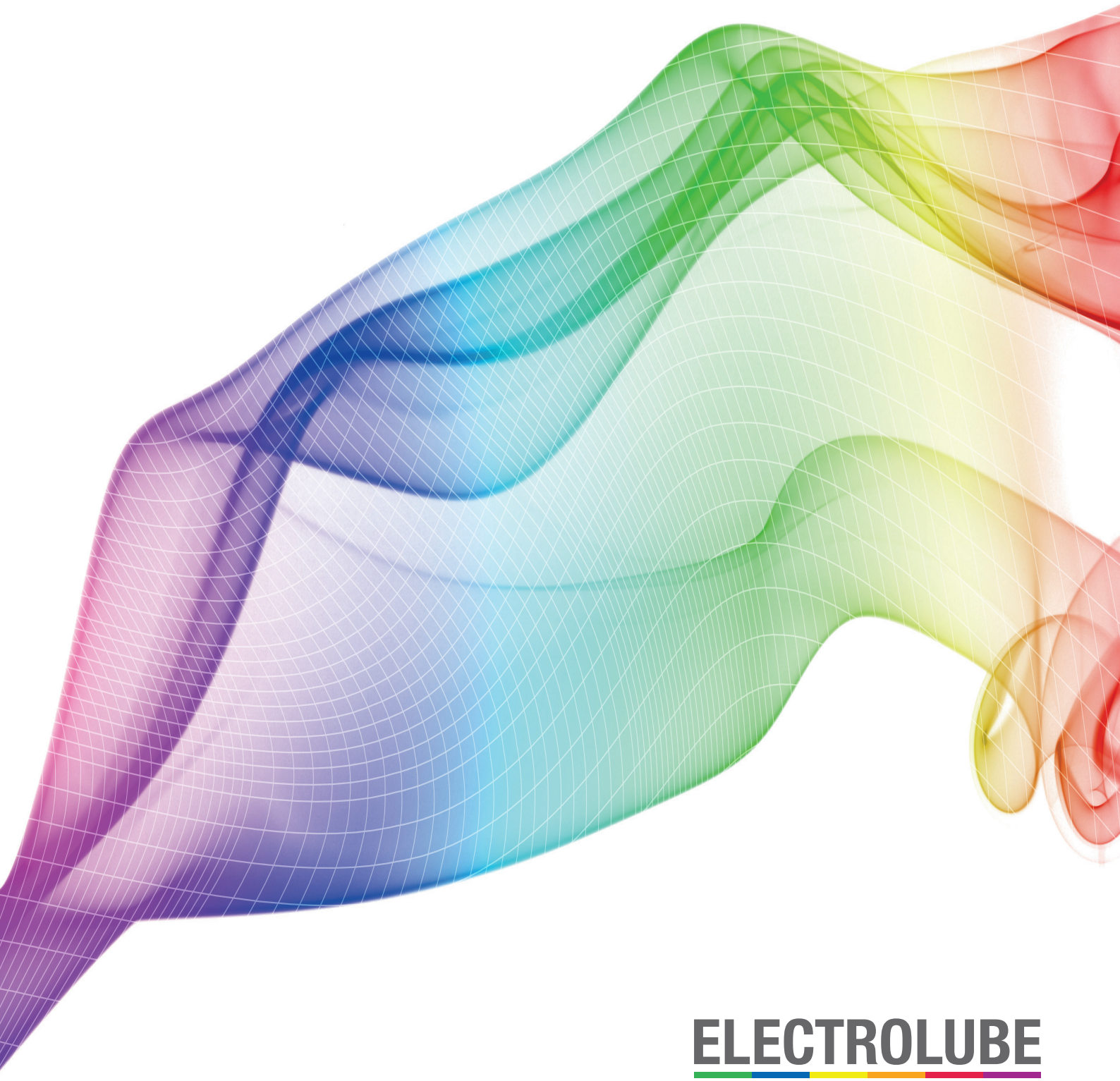
Product Selector

Your electro-chemical problems solved



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Aqueous Cleaning

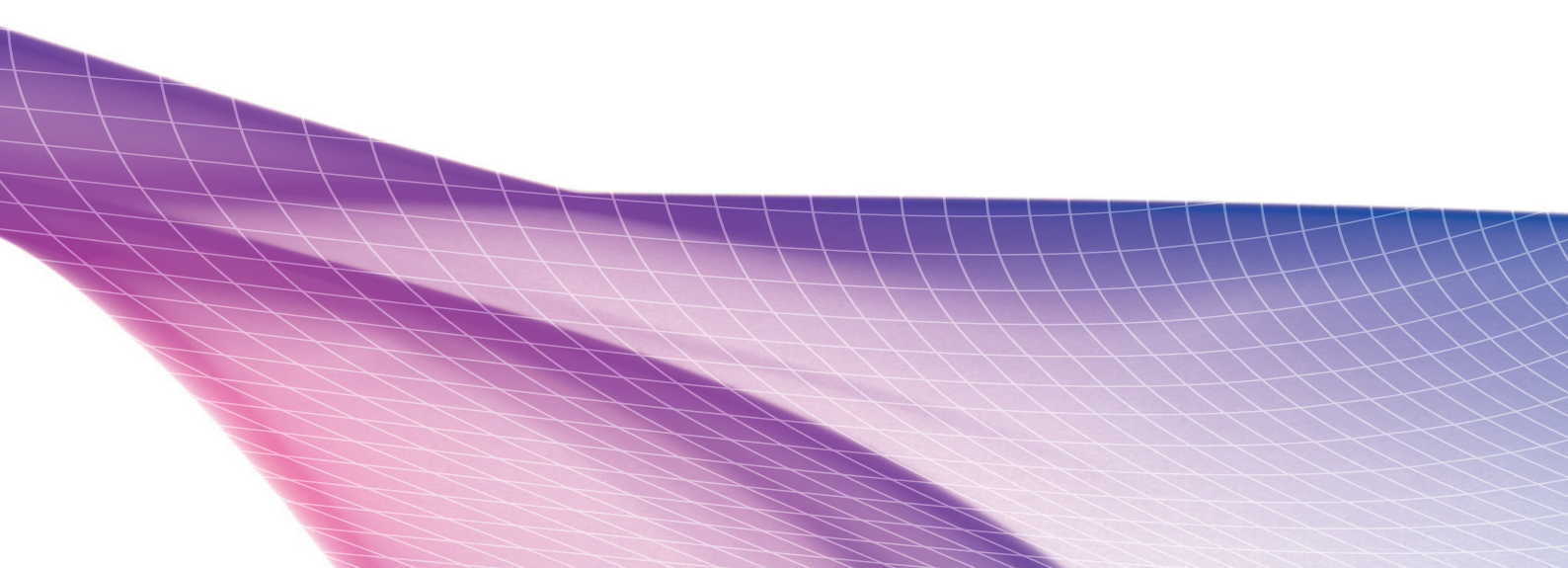
		SWA	SWAJ	SWAS	SWAP	SWAT*	SWAX	SWMP
		Safewash original	Safewash Jigwash	Safewash Super	Safewash Pressure-wash	Safewash Total	Safewash Xtra	Safewash Mechanical - Plus
Equipment	Ultrasonic	Yes	Yes	★★★★	Yes	Yes	Yes	Yes
	Pressure / Dishwasher / In-line	No	No	No	Yes	★★★★	Yes	No
	Spray under Immersion	Yes	Yes	Yes	★★★★	Yes	Yes	Yes
	Screen and Stencil Cleaner	No	No	No	Yes	Yes	★★★★	No
Soil Removal	Heavy Grease (& Organics)	★★☆☆	★★☆☆	★★★★	★★☆☆	★★☆☆	No	★★★☆
	No Clean Fluxes	No	★☆☆☆	★★★★	★★☆☆	★★★☆	No	No
	Flux / Ionics	★★☆☆	★★★☆	★★★★	★★★☆	★★★☆	★★☆☆	No
	Uncured Paste	★☆☆☆	★☆☆☆	★★☆☆	★☆☆☆	★★★☆	★★★★	No
	Uncured Adhesive	No	No	No	No	★★☆☆	★★★★	No
Other	Sensitive Metals	No	Yes	Yes	Yes	Yes	Yes	No
	Rinsability	★★☆☆	★★★★	★★★☆	★★☆☆	★★★☆	★★☆☆	★★☆☆
	Low Foam	No	No	No	Yes	Yes	Yes	No

Concentrate requires dilution, please refer to the Technical Data Sheet for more information.

Solvent Cleaning

		HFFR	LFFR	FRC	ULS	DGC	IPA	ECSP	ULC	SSS
		Hexane-Free Flux Remover	Lead-Free Flux Residue Remover	Non-Flammable Flux Remover	Ultrasolve Cleaning Solvent	Non-Flammable Degreaser	Electronic Cleaning Solvent	Electronic Cleaning Solvent – Plus	Ultraclens Cleaning Solvent	Screen and Stencil Cleaner
Typical Properties	Density (g/ml)	0.78	0.78	1.33	0.79	1.33	0.79	0.79	0.79	1.03
	Flashpoint (°C)	7	0	None*	-20	None*	12	-48	>60*	>60*
	Boiling Point (°C)	>80	>80	36	>80	36	82	36	>173	>100
	Vapour Pressure (kPa)	6	11.5	66.1	11.5	66.1	4.4	53.3	0.5	1.45
	Evaporation Rate (ether = 1)	11	16	<1	16	<1	6	1.5	66	>50
	TLV (ppm)	300	300	242	300	242	400	500	300	300
Soil Removal	Heavy Grease (& Organics)	★★☆☆	★★☆☆	★★☆☆	★★★★	★★★☆	★★☆☆	★★☆☆	★★★☆	No
	No Clean Fluxes	★★★☆	★★★★	★★☆☆	No	No	No	No	No	No
	Flux / Ionics	★★★★	★★★☆	★★★☆	★★☆☆	★★☆☆	★★☆☆	★★☆☆	No	No
	Uncured Paste	★★☆☆	★★☆☆	★★☆☆	★★☆☆	★★☆☆	★★☆☆	★★☆☆	★★★☆	★★★★
	Uncured Adhesive	No	No	No	No	No	No	No	No	★★★★

*Evaporation Rate: The higher the number the slower the rate of evaporation. *Classified as non-flammable.*



Contact Lubricants

Specialist Property	SGA Low mV Drop	SGB General Purpose	CG53A High Voltage	CG60 Plastics Compatibility	CG70 Low Temperature Performance	CG80 High Temperature Performance	EGF High Temperature	SPG Plastic Mechnical Lubrication	CTG Moisture Resistance
Pour Point (base oil, °C IP-15)	-54	-37	-37	-54	-70	-35	-25	-57	-62
% Evaporation Weight Loss (IP-183 100°C)	0.90	0.93	0.21	0.30	0.30	0.20	<0.10	0.20	0.30
Drop Point (°C IP-31)	>250	250	200	200	200	200	>250	>250	>200
Penetration (Worked, Cone, 20°C IP-50)	320	320	320	320	320	320	280	320	330
Temperature Range (°C)	-40 to +125	-35 to +130	-35 to +130	-45 to +130	-55 to +130	-30 to +160	-25 to +300	-40 to +125	-50 to +160
Mechanical Lubrication	★★☆☆	★★☆☆	★★★☆	★★★☆	★★★☆	★★★☆	★★☆☆	★★★☆	★★☆☆
Electrical Performance	★★★☆	★★☆☆	★★☆☆	★★★☆	★★★☆	★★★☆	★★☆☆	★☆☆☆	★★★☆
Humidity Resistance*	★☆☆☆	★★☆☆	★★★☆	★★★☆	★★☆☆	★★★☆	★☆☆☆	★★☆☆	★★★★
Plastics Compatibiliity**	No	★☆☆☆	★☆☆☆	★★★☆	★★★☆	★☆☆☆	★★★☆	★★★☆	★★★☆
UV Trace	No	No	No	Yes	Yes	Yes	No	No	No
Oil Version Available	SOA	SOB/ EML	No	No	CO70	No	EOF/ DOF	No	No

*Based on accelerated testing. **Compatibility may differ from quoted results – Testing should always take place prior to production.

Polyurethane Resins

Specialist Property	UR5041 Water Resistance	UR5048 Soft, low stress	UR5044 Soft, Re-enterable	UR5528 Tough, High Adhesion	UR5634 Optically Clear	UR5633 Thermally Conductive	UR5604 General Purpose / UL Approved	UR5547 General Purpose
Colour (Mixed System)	Black	Clear Amber	Dark Blue	Black	Water White	Black	Black	Black
Cured Density (g/ml)	1.18	0.95	1.58	1.07	1.11	1.65	1.54	1.60
Mixed System Viscosity (mPa s @ 23°C)	2500	980	3400	2000	1050	30000	2000	4000
Mix Ratio by Weight (by Volume)	3.6:1 (3.9:1)	14:1 (19:1)	13.4:1 (11.7:1)	2.4:1 (2.9:1)	0.9:1 (1:1)	12.2:1 (8.8:1)	5.2:1 (3.9:1)	5.5:1 (4:1)
Usable Life (Minutes @ 23°C)	20	20	25	20	15	15	40	20
Gel Time (Minutes @ 23°C)	60	40	40	35	20	40	90	50
Cure Time (Hours @ 23°C/60°C)	24/4	24/4	24/3	24/5	24/4	24/4	24/3	24/3
Shore Hardness	A85	A12	A40	D57	A80	A90	A75	A85
Thermal Conductivity (W/m.K)	0.25	0.20	0.60	0.25	0.20	1.24	0.45	0.65
Temperature Range (°C)	-60 to +125	-60 to +100	-70 to +120	-50 to +125	-40 to +120	-50 to +125	-40 to +130	-50 to +120
Maximum Temperature – Short Term (°C)	+130	+100	+130	+130	+130	+130	+155	+125
Dielectric Strength (kV/mm)	20	18	17.7	25	11	18	18	14
Volume Resistivity (Ω•cm)	10^{15}	10^{14}	10^{10}	10^{14}	10^{14}	10^{14}	10^{14}	10^{14}
Flame Retardency Level	-	-	V-0	-	-	V-0	V-0	V-0
UL94 Approval	No	No	Yes	No	No	No	Yes	No
RoHS Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

For exact calculated ratios please see the technical data sheet.

Epoxy Resin

Specialist Property	ER2188 General Purpose	ER2220 High Thermal Conductivity	ER2221 Low Viscosity, Thermally Conductive	ER2218 High Temperature Stability	ER1426 Optically Clear	ER1450 Very Low Viscosity	ER1122 Excellent Adhesion	ER1455 Chemically Resistant
Colour (Mixed System)	Black	Grey	Black	Black	Water white	White	Clear Amber	Black
Cured Density (g/ml)	1.69	2.22	1.88	1.16	1.05	1.10	1.05	1.17
Mixed System Viscosity (mPa s @ 23ºC)	9000	15000	3000	500	100	250	12000	3300
Mix Ratio by Weight (by Volume)	11:1 (5.5:1)	20.8:1 (8.2:1)	13.9:1 (7:1)	3.6:1 (2.8:1)	4:1 (3.4:1)	2.5:1 (2.2:1)	1:1 (0.8:1)	3.6:1 (3.3:1)
Usable Life (Minutes @ 23ºC)	60	120	60	40	120	20	90	20
Gel Time (@ 23ºC)	2.5 hours	3.0 hours	6.0 hours	50 mins	4.0 hours	30 mins	4.0 hours	22 mins
Cure Time (Hours @ 23ºC/60ºC)	24/2	24/4	24/2	24/4	36/8	12/2	48/4	24/4
Thermal Conductivity (W/m.K)	0.91	1.54	1.20	0.28	0.20	0.20	0.20	0.20
Temperature Range (ºC)	-40 to +120	-40 to +130	-40 to +150	-50 to +150	-40 to +120	-50 to +130	-40 to +120	-50 to +150
Maximum Temperature – Short Term (ºC)	+140	+150	+170	+245	+140	+150	+140	+170
Dielectric Strength (kV/mm)	10	10	17	10	11	12	12	10
Volume Resistivity (Ω•cm)	10^{14}	10^{15}	10^{10}	10^{14}	10^{14}	10^{14}	10^{14}	10^{12}
Shore Hardness	D85	D90	D90	D55	D85	D50	D80	D80
Flame Retardency Level	V-0	V-0	V-0	V-0	-	-	-	-
UL94 Approval	Yes	No	No	No	No	No	No	No
RoHS Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

For exact calculated ratios please see the technical data sheet.

Silicone Compounds

Specialist Property	SC2001 High Temperature Resistance	SC2001FD Fast Cure	SC2003 Thixotropic	SC3001 Optically Clear
Colour (Mixed System)	Dark Grey	Dark Grey	Dark Grey	Optically Clear
Cured Density (g/ml)	1.40	1.15	1.60	1.04
Mixed System Viscosity (mPa s @ 23ºC)	3500	1800	30000	1800
Mix Ratio by Weight (by Volume)	1:1 (1:1)	1:1 (1:1)	1:1 (1:1)	13:1 (12:1)
Usable Life (Minutes @ 23°C)	30	4	40	30*
Gel Time (Minutes @ 23°C)	60	8	80	180*
Cure Time (Hours @ 23°C)	24	4	24	24*
Shore Hardness	A50	A40	A50	A20
Thermal Conductivity (W/m.K)	0.60	0.40	0.80	0.20
Temperature Range (°C)	-50 to +200	-45 to +200	-60 to +200	-60 to +200
Maximum Temperature – Short Term (°C)	225	225	225	250
Dielectric Strength (kV/mm)	20	21	20	-
Volume Resistivity (Ω•cm)	10^{15}	10^{15}	10^{15}	10^{14}
Flame Retardency Level	V-0	V-0	V-0	HB
UL94 Approval	No	No	No	No
RoHS Compliant	Yes	Yes	Yes	Yes

**Cure times will be dependent on ambient humidity.*
For exact calculated ratios please see the technical data sheet.

Thermal Management

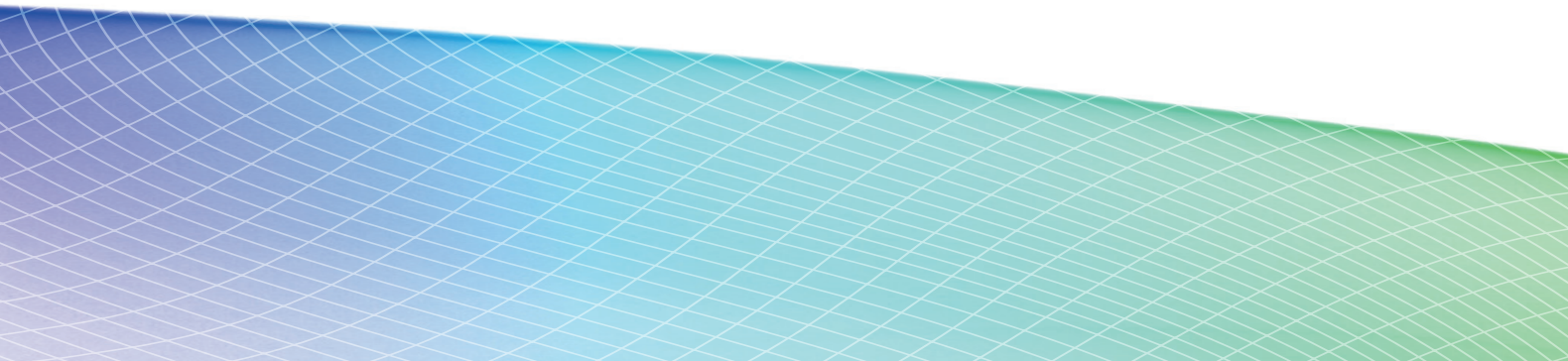
	HTCX	HTCP	HTCPX	HTS	HTSP	TCOR	ER2220	ER2221	UR5633	SC2003
	Non-Silicone Heat Transfer Paste Xtra	Non-Silicone Heat Transfer Paste Plus	Non-Silicone Heat Transfer Compound Plus Xtra	Silicone Heat Transfer Compound	Silicone Heat Transfer Compound Plus	Thermally Conductive RTV	2 Part Epoxy Resin	2 Part Epoxy Resin	2 Part Polyurethane Resin	2 Part Silicone Resin
Thermal Conductivity (W/m.K)	1.35	2.50	3.40	0.90	3.00	1.80	1.54	1.20	1.24	0.80
Density (g/ml)	2.61	3.00	3.10	2.10	3.00	2.30	2.22	1.88	1.65	1.60
Viscosity/mPa s**	130,000	105,000	640,000	210,000	45,000	145,000	15,000	3,000	30,000	30,000
Cure Time (Hours @ 20°C / 60°C)	N/A	N/A	N/A	N/A	N/A	24*	24/4	24/2	24/4	24/1
Temperature Range (°C)	-50 to+180	-50 to +130	-50 to +130	-50 to+200	-50 to +200	-50 to+230	-40 to +130	-40 to +150	-50 to +125	-60 to +200
Evaporation Weight Loss (96hrs @ 100°C IP-183)	≤0.40%	≤1.00%	≤1.00%	≤0.80%	≤0.80%	N/A	N/A	N/A	N/A	N/A
Dielectric Strength (kV/mm)	42	42	42	18	18	>8	10	17.7	18	20
Volume Resistivity (Ω•cm)	1×10^{14}	1×10^{14}	1×10^{14}	1×10^{15}	1×10^{15}	1×10^{14}	1×10^{15}	1×10^{10}	1×10^{14}	1×10^{15}

** Requires moisture to cure, elevated temperatures not recommended unless moisture is present. **This information should be used as a guideline only.*

Conformal Coatings

	DCA	DCB/ DCR	FSC	WBP/ WBPS	HPA	AFA	AFA-F	AFA-S	PUCLO	UVCL	TFCF	TFCF+
	Silicone Conformal Coating (SCC3)	Silicone Conformal Coating (SCC3)	Flexible Modified Silicone Coating	Aquacoat Plus/ Sprayable	High Performance Acrylic	Aromatic Free Acrylic	Aromatic Free Acrylic - Film Coating	Aromatic Free Acrylic - Spray Coating	Low Odour Polyurethane Coating	UV Cure Conformal Coating	Fluorocoat	Fluorocoat Plus
Colours Available	Clear	Black/ Red	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Viscosity (mPa s @ 20°C) (Bulk)	200	200/500	550	200/80	300	175	60-70	20-30	90	150	2	2
Flashpoint (°C) (Bulk)	27	27	27	None	-7	-7	-7	-7	27	>90	7	>90
Solids (%) (Bulk)	37	47/60	50	35	35	35	22	15	37	100	2	2
Dielectric Strength (kV/mm)	90	90	80	50	45	45			60	27	90	90
Insulation Resistance (Ω)	1×10^{15}	1×10^{15}	1×10^{20}	5×10^{11}	1×10^{15}	1×10^{15}			1×10^{15}	7×10^{12}	1×10^{15}	2×10^{15}
Temp. Range (°C)	-70 to +200	-70 to +200	-50 to +125	-60 to +125	-55 to +130	-65 to +125			-40 to +110	-65 to +135	-50 to +125	-50 to +125
Touch Dry Time (Mins @ 20°C)	50-55	50-55	10-15	25-35	10-15	15-20			15-20	–	5	5
Cure Time (Hours @ 20°C)	2 @ 20°C & 2 @ 90°C*	2 @ 20°C & 2 @ 90°C*	24	24	24	24			24	–	24	24
Solvent Resistance	★★★☆	★★★☆	★★☆☆	★★★☆	★★☆☆	★★☆☆			★★☆☆	★★★★	★★☆☆	★★☆☆
Humidity Resistance	★★★☆	★★★☆	★★★☆	★★☆☆	★★★☆	★★★☆			★★☆☆	★★★☆	★★★☆	★★★☆
Mould Resistance	★★★☆	★★★☆	★★★☆	★★☆☆	★★★☆	★★★☆			★★★☆	★★★☆	★★☆☆	★★☆☆
Thinners	DCT	DCT	DCT	DI Water	UAT	FTH			FTH	N/A	N/A	N/A
UV Trace	Yes	No	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes
Approvals	UL746		IEC61086		MIL-I-46058C	IPC-CC-830,UL 746				IPC-CC-830		

**The SCC3 range may also be cured at ambient temperature however the solvent resistance will be reduced.*
***Please refer to the technical data sheet for more information on UV Curing Parameters.*



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