

Single-Part Conformal Coatings

	AFA	DCA	FSC	HPA	HFAC	LTC	SC-102	URC	UVCL	WBP/WBPS	FPC
	Aromatic Free Acrylic	Modified Alkyd Conformal Coating (SCC3)	Flexible Modified Silicone Coating	High Performance Acrylic	High Performance Acrylic	Low Temperature Coating	Silicone Coating	High Performance Urethane Coating	UV Cure Conformal Coating	Aquacoat Plus/Sprayable	Ultra-Thin Coating
Colours Available	Trans-parent	Clear/Black/Red	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Viscosity (mPa s @ 20°C) (Bulk)	175	200	550	300	360	150	500	240	250	200/80	2
Flashpoint (°C) (Bulk)	-7	27	27	-7	12	-4	N/A	>90	>90	None	None
Solids (%) (Bulk)	35	37	50	35	25	23	100	43	100	35	2
Dielectric Strength (kV/mm)	45	90	80	45	45	80	17	80	27	50	90
Insulation Resistance (Ω)	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ²⁰	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹⁶	7 x 10 ¹²	5 x 10 ¹¹	1 x 10 ¹⁵
Temp. Range (°C)	-65 to +125	-70 to +200	-50 to +125	-55 to +130	-65 to +125	-65 to +130	-65 to +200	-40 to +140	-65 to +135	-60 to +125	-40 to +200***
Touch Dry Time (Mins @ 20°C)	5-10	50-55	10-15	10-15	20-30	10-15	<10	15	**	25-35	1-5
Cure Time (Hours @ 20°C)	24	2 @ 20°C & 2 @ 90°C*	24	24	24	24	24	24	**	24	24
Solvent Resistance	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Humidity Resistance	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Mould Resistance	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Thinners	FTH	DCT	DCT	UAT	MDT	LTCT	N/A	LOT	N/A	DI Water	HFS
UV Trace	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Approvals	IPC-CC-830, UL746, (Meets) BMW GS95011-5	UL746	IEC61086, UL746	MIL-I-46058C	Meets IPC-CC-830, Meets UL746	(Meets) BMW GS95011-5, IPC-CC-830, IEC61086	Meets IPC-CC-830	Meets IPC-CC-830	IPC-CC-830, UL746, (Meets) BMW GS95011-5		UL746

* 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.

*** Application and Geometry Dependent.

UVCL, AFA, LTC and DCA have passed qualification to BMW Group Standard GS95011-5

Two-Part Conformal Coatings

	2K100	2K300	2K350	2K500	2K550	2K850
	General Purpose	High Temperature Resistant	Flame Retardant High Temperature Resistant	Optically Clear, Abrasion Resistant	Flame Retardant Abrasion Resistant	Unique UV Cure & Chemical Cure
Colours Available	Clear	Clear	Blue Opaque	Clear	Clear, slightly white opaque	Clear, slightly white opaque
Viscosity (mPa s @ 20°C) (Bulk)	sprayable*	sprayable*	sprayable*	sprayable*	sprayable*	sprayable*
Flashpoint (°C) (Bulk)	>100	>100	>100	>100	>100	>100
Solids (%) (Bulk)	100	100	100	100	100	100
Dielectric Strength (kV/mm)	90	90	90	90	90	90
Insulation Resistance (Ω)	2 x 10 ¹⁶	2 x 10 ¹⁶	9 x 10 ¹⁵	5 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹⁵
Temp. Range (°C)	-40 to +100	-65 to +150	-65 to +130	-40 to +130	-40 to +130	-40 to +130
Cure Time	10 mins @ 80°C	10 mins @ 80°C	10 mins @ 80°C	10 mins @ 80°C	10 mins @ 80°C	UV
Touch Dry Time (Mins @ 20°C)	240	240	240	240	240	<120
Solvent Resistance	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Humidity Resistance	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Mould Resistance	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Thinners	N/A	N/A	N/A	N/A	N/A	N/A
UV Trace	Yes	Yes	Yes	Yes	Yes	Yes
UL94 V-0	No	No	Yes	No	Yes	Yes
Approvals	<p>Meets BMW GS95011-5 Meets IPC-CC-830</p>					

Epoxy Resin

	ER1122	ER1426	ER1450	ER2188	ER2218	ER2220	ER2221	ER2223
<i>Specialist Property</i>	Excellent Adhesion	Optically Clear	Very Low Viscosity	General Purpose	High Temperature Stability	High Thermal Conductivity	Low Viscosity, Thermally Conductive	Chemically Resistant and High Temperature Stability
Colour (Mixed System)	Clear Amber	Water white	White	Black	Black	Grey	Black	Black
Cured Density (g/ml)	1.05	1.05	1.10	1.69	1.16	2.22	1.88	1.10
Mixed System Viscosity (mPa s @ 23°C)	12000	100	250	9000	500	15000	6000	150-250
Mix Ratio by Weight (by Volume)	1:1 (0.8:1)	4:1 (3.4:1)	2.5:1 (2.2:1)	11:1 (5.5:1)	3.6:1 (2.8:1)	20.8:1 (8.2:1)	13.9:1 (7:1)	3.5:1 (2.9:1)
Usable Life (Minutes @ 23°C)	90	120	20	60	40	120	60	30
Gel Time (@ 23°C)	4.0 hours	4.0 hours	30 mins	2.5 hours	50 mins	3.0 hours	6.0 hours	90 mins
Cure Time (Hours @ 23°C/60°C)	48/4	36/8	12/2	24/2	24/4	24/4	24/2	24/4
Thermal Conductivity (W/m.K)	0.20	0.20	0.20	0.91	0.28	1.54	1.20	0.20
Temperature Range (°C)	-40 to +120	-40 to +120	-50 to +130	-40 to +120	-50 to +150	-40 to +130	-40 to +150	-40 to +180
Maximum Temperature – Short Term (°C)	+140	+140	+150	+140	+245	+150	+170	+210
Dielectric Strength (kV/mm)	12	11	12	16.6	10	10	10	12
Volume Resistivity (Ω•cm)	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁵	10 ¹⁰	10 ¹⁵
Shore Hardness	D80	D85	D50	D85	D55	D90	D90	D80
Flame Retardency Level	-	-	-	V-0	V-0	V-0	V-0	-
UL94 Approval	No	No	No	Yes	No	No	Yes	No
RoHS Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

For exact calculated ratios please see the technical data sheet.

Polyurethane Resins

	UR5044	UR5048	UR5118	UR5528	UR5547	UR5604	UR5633	UR5634
<i>Specialist Property</i>	Soft, UL Approved	Soft, low stress	Water Resistance	Tough, High Adhesion	General Purpose	General Purpose / UL Approved	Thermally Conductive	Optically Clear
Colour (Mixed System)	Dark Blue	Clear Amber	Black	Black	Black	Black	Black	Water White
Cured Density (g/ml)	1.58	0.95	0.99	1.07	1.60	1.54	1.65	1.11
Mixed System Viscosity (mPa s @ 23°C)	3400	980	2300	2000	4000	2000	30000	1050
Mix Ratio by Weight (by Volume)	13.4:1 (11.7:1)	14:1 (19:1)	2.8:1 (3.7:1)	2.4:1 (2.9:1)	5.5:1 (4:1)	5.2:1 (3.9:1)	12.2:1 (8.8:1)	0.9:1 (1:1)
Usable Life (Minutes @ 23°C)	25	20	25	20	20	40	15	15
Gel Time (Minutes @ 23°C)	40	40	40	35	50	90	40	20
Cure Time (Hours @ 23°C/60°C)	24/3	24/4	36	24/5	24/3	24/3	24/4	24/4
Shore Hardness	A40	A12	A80	D57	A85	A75	A90	A80
Thermal Conductivity (W/m.K)	0.60	0.20	0.20	0.25	0.65	0.45	1.24	0.20
Temperature Range (°C)	-70 to +120	-60 to +100	-60 to +125	-50 to +125	-50 to +120	-40 to +130	-50 to +125	-40 to +120
Maximum Temperature – Short Term (°C)	+130	+100	+130	+130	+125	+155	+130	+130
Dielectric Strength (kV/mm)	17.7	18	18	25	14	18	18	11
Volume Resistivity (Ω•cm)	10 ¹⁰	10 ¹⁴	10 ¹⁵	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴
Flame Retardency Level	V-0	-	-	-	V-0	V-0	V-0	-
UL94 Approval	Yes	No	No	No	No	Yes	No	No
RoHS Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

For exact calculated ratios please see the technical data sheet.

Silicone Compounds

	SC2001	SC2003	SC2006	SC3001
<i>Specialist Property</i>	High Temperature Resistance	Thixotropic	Soft, Low Stress	Optically Clear
Colour (Mixed System)	Dark Grey	Dark Grey	Grey	Optically Clear
Cured Density (g/ml)	1.40	1.60	2.23	1.04
Mixed System Viscosity (mPa s @ 23°C)	3500	30000	15000	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	40	40	30*
Gel Time (Minutes @ 23°C)	60	80	240	180*
Cure Time (Hours @ 23°C)	24	24	0.5 @ 70°C	24*
Shore Hardness	A50	A50	A10 / OO60	A20
Thermal Conductivity (W/m.K)	0.60	0.80	1.00	0.20
Temperature Range (°C)	-50 to +200	-60 to +200	-60 to +200	-60 to +200
Maximum Temperature – Short Term (°C)	225	225	225	250
Dielectric Strength (kV/mm)	20	20	16	-
Volume Resistivity (Ω•cm)	10 ¹⁵	10 ¹⁵	10 ¹⁴	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	HTSX	HTSP	SCTP	TCOR
	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 Xtra	Silicone Heat Transfer Compound Plus	Surface-Cure Thermal Paste	Thermally Conductive RTV*
Thermal Conductivity (W/m.K)	1.35	2.50	3.40	0.90	1.58	3.00	1.20	1.80
Density (g/ml)	2.61	3.00	3.10	2.10	3.10	3.00	2.60	2.30
Viscosity/mPa s**	130,000	105,000	640,000	210,000	275,000	45,000	125,000	140,000
Cure Time (Hours @ 20°C / 60°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24/NA
Temperature Range (°C)	-50 to +180	-50 to +130	-50 to +180	-50 to +200	-50 to +200	-50 to +200	-50 to +200	-50 to +230
Evaporation Weight Loss (96hrs @ 100°C IP-183)	≤0.40%	≤1.00%	≤1.00%	≤0.80%	≤0.30%	≤0.8%	<0.8%	N/A
Dielectric Strength (kV/mm)	42	42	42	18	18	18	12	>8
Volume Resistivity (Ω-cm)	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁴	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹⁵	1 x 10 ¹²	1 x 10 ¹⁴

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

Thermal Management

	TPM350	TPM550	GP300	GP500	ER2221	UR5633	SC2003	SC2006
Thermal Phase Change Material	Thermal Phase Change Material	Thermal Phase Change Material	Gap Pad	Gap Pad	2 Part Epoxy Resin	2 Part Polyurethane Resin	2 Part Silicone Resin	2 Part Silicone Resin
Thermal Conductivity (W/m.K)	3.5	5.5	3.0	5.0	1.20	1.24	0.80	1.00
Density (g/ml)	2.2	2.48	3.00	3.10	1.88	1.65	1.60	2.23
Viscosity/mPa s	N/A	N/A	N/A	N/A	6,000	30,000	30,000	15,000
Cure Time (Hours @ 20°C / 60°C)	N/A	N/A	N/A	N/A	24/2	24/4	24/1	10
Temperature Range (°C)	-40 to +125	-40 to +125	-50 to +160	-50 to +150	-40 to +150	-50 to +125	-60 to +200	-50 to +200
Evaporation Weight Loss (96hrs @ 100°C IP-183)	≤0.55%	≤0.55%	≤0.70%	≤2.0%	N/A	N/A	N/A	N/A
Dielectric Strength (kV/mm)	-	-	7.5	7	10	18	20	16
Volume Resistivity (Ω-cm)	-	-	2.3 x 10 ¹¹	1 x 10 ¹⁰	1 x 10 ¹⁰	1 x 10 ¹⁴	1 x 10 ¹⁵	1 x 10 ¹⁴

Contact Lubricants

	CG53A	CG60	CG70	CG71	CG80	CTG	EGF	LCG	SGB	SPG
<i>Specialist Property</i>	High Voltage	Plastics Compatibility	Low Temperature Performance	Electrical Performance	High Temperature Performance	Moisture Resistance	High Temperature	Electrical Performance	General Purpose	Plastic Mechanical Lubrication
Pour Point (base oil, °C IP-15)	-37	-54	-70	-70	-35	-62	-25	-54	-37	-57
% Evaporation Weight Loss (IP-183 100°C)	0.21	0.30	0.30	0.10	0.20	0.30	<0.10	0.20	0.93	0.20
Drop Point (°C IP-31)	200	200	200	200	200	>200	>250	200	250	>250
Penetration (Worked, Cone, 20°C IP-50)	320	320	320	310	320	330	280	320	320	320
Temperature Range (°C)	-35 to +130	-45 to +130	-55 to +130	-50 to +130	-30 to +160	-50 to +160	-25 to +300	-45 to -130	-35 to +130	-40 to +125
Mechanical Lubrication	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Electrical Performance	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Humidity Resistance*	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Plastics Compatibility**	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
UV Trace	No	Yes	Yes	Yes	Yes	No	No	Yes	No	No
Oil Version Available	No	No	CO70	No	No	No	EOF/DOF	No	SOB/EML	No

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

Aqueous Cleaning

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

*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	Ultrasonic Cleaning Solvent	Non-Flammable Degreaser	Electronic Cleaning Solvent	Electronic Cleaning Solvent - Plus	Ultraclean 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
	WEL (ppm) (Short Term)	300	300	1000	300	1000	500	600	300	100
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.

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Registered office as above
Registered in England No. 368850



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