

HUMISEAL

- SENSORS
- HARSH ENVIRONMENTS
- PERFORMANCE
- ACCURACY
- MOTION CONTROLLER
- RELIABILITY
- SAFETY
- LONGEVITY
- GAS DETECTION
- CONTROL GEAR
- PLC

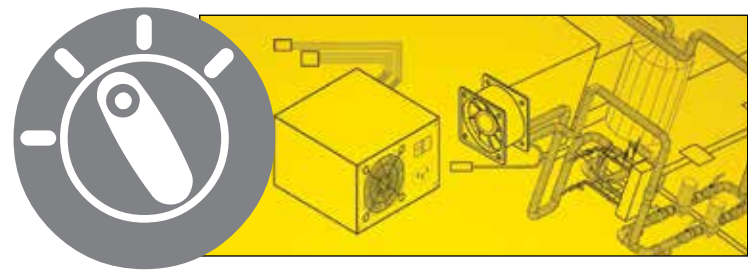
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 FK**HUMISEAL**Q SNTSTYUMRXE
 ASXINERHLBORE DOLRSEMAANAEA
 I VELITSE NOGOUMQL GI
 WEC REO NORPL ILDO MIT
 ESOGR NFRMALCSPTIEG G NEHOL
 TAENHCN Y PSRMVOLU EMDYABOP
 OBNATAE T DIW EBCYFIAS ACHRKVP
 QUKSPSA AE BI ONVENTOCEV RISATAS
 FUEOHUR ZON OE T STENACUS RRHRSLT
 BSTNRIYZ LXOD DAS ROCSUTVG UETAKEM
 PNTISMT LOPEM NTIURTOT MNEMLMJM
 UNDEOMI SISEEN RSIAYVOL PVATCOA
 U L UELARDA UTCERS IIOATQB
 ND I ISTENFT ITYOLC TRTIMAC
 QUIINEB OLUPTAOE EQUAX IOOLPOL
 MODICOA QUARURRU ELTN UNERLRE
 GCORPIR SSOSCIPM PSM CMUTOL
 IAADWLA CPEQFRYA LUM OEECIHA
 ASSAEOT TRELBOREN CM NNANALB
 DIDIRCNV ITSEDQUC NU TLAMTIUN
 OZEDSAGI FCOPTDZEMNUI ROLORSIT
 POTDCOEF LCARTIH OTIONALO
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 MODZLDSUFESROCSIT
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**Appliance &
 Industrial Control**

HumiSeal®

Industrial Controls Electronics



HumiSeal® is the only supplier specialized in conformal coating manufacture. With a rich history of innovation for more than 50 years, our product offerings and technical support is second to none.

With increasingly sophisticated automation, being required to work longer, harder and with reduced downtime, in new and emerging markets, industrial control assemblies continue to be placed in ever more demanding applications and end-use environments, where the risk of degradation in performance, due to extraneous factors such as humidity, salt-spray, noxious gases and other sources of corrosion continues to increase rapidly.

These electronic assemblies and industrial computers continue to become an increasingly sophisticated and important aspect of both the functionality and reliability of modern industrial drives, automation systems, (uninterruptible) power supply units, air-conditioning backup generator systems, sensors and measurement systems, HVAC (Heating, Ventilation and Air Conditioning) systems and any other device that is controlled by, or relies upon electronic assemblies as part of its functionality.

The costs of failure (both direct fiscal from recalls and longer-term to brand equity) and the competitive need to provide longer warranties and greater levels of reliability, drive the need to increase the 'mean time Between failures' (MTBF) to the maximum possible duration.

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With recent changes in OEM requirements related to CSR (Corporate Social Responsibility), ISO 14001 commitments and the need to drive out cost, both within their own factories and throughout their supply chains, and the continuous need to "do more with less", HumiSeal has a wide range of environmentally compliant, low-outgassing, fast curing, high throughput, solvent-free materials, in addition to a wide range of traditional solvent-borne chemistries.

HumiSeal® acrylic conformal coatings are specified in these sectors, especially where humidity and condensation are prevalent:

- Fast drying by solvent evaporation
- Excellent resistance to moisture
- Ease of application by all application methods
- Superb flexibility over wide temperature range
- Easiest coatings to repair and rework

HumiSeal polyurethane conformal coatings also offer the opposite features and are widely specified in more demanding environments where solvent resistance is required:

HumiSeal's silicone conformal coatings provide a proven technology, offering:

- Low odor
- High temperature resistance (200°C)
- Non hazardous
- Excellent flexibility
- Heat activated or room-temperature RTV cure
- Very good dielectric properties
- Medium to fast cure speeds

HumiSeal's UV40 range of materials is the latest breakthrough in UV curable technology, offering:

- Rapid cure speeds
- Superb flexibility over wide temperature range
- Low VOC emissions
- Extreme thermal endurance



- Easy application
- Unrivalled chemical resistance
- Reliable secondary cure mechanism

Whatever your requirements, HumiSeal has the solution.

		ACRYLICS				URETHANES			UV CURE			SYNTHETIC RUBBER & SILICONES							EPOXY		
		1R32 A-2	1B31	1B73	1B78	1A20	1A20R	1A33	UV500	UV40	UV40 250	1B51	1B51 NSLU	1B58LU	1C48	1C49LV	1C49 LVF	1C51 / 1C53	1C63	2A53	
QUALIFICATIONS	MIL-I-46058C	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	Yes	No	Yes	
	IPC CC-830B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Pending	Yes	No	Yes	No	Yes	
	UL746E	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	No	
	UL94	V0	No	V0	No	V0	No	V0	V0	V0	V0	V1	V1	No	No	V0	V0	V0	V1	No	
LIQUID PROPERTIES	Available as an Aerosol	No	Yes	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	Yes	No	No	
	Solids Contents (%w/w)	29	35	29.5	29.5	50	50	44	98	95	95	22	22	20	100	90	50	98	100	54	
	Viscosity (MAX)/cPs	250	215	270	270	130	130	200	375	800	350	215	215	240	400	800	800	780	5000	500	
	Flash Point °C (°F)	7 (45)	-1 (30)	-1 (30)	-1 (30)	28 (83)	28 (83)	-1 (30)	> 99 (210)	80 (176)	70 (158)	4 (39)	4 (39)	-4 (23)	150(302)	48 (118)	35 (95)	121 (250)	220 (392)	N/A	
	VOC (grammes/liter)	645	592	661	660	511	511	531	0	35	35	694	632	628	0	0	0	0	<50	455	
	Drying Time Tack-free/mins	10	10	30	30	60	60	15	0.5	0.5	0.5	10	10	10	5	60	10	N/A	0.5, 60	300	
	Drying Time Dry	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	20 hrs	N/A	N/A	N/A	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	15 mins	24 hrs	2 hrs @ 93°C
	Drying Time Optimum Properties	1 week	1 week	1 week	1 week	1 week	1 week	1 month	1 week	72 hrs	72 hrs	1 week	1 week	1 week	1 week	1 week	1 week	1 week	15 mins	1 week	1 week
	Shelf Life at RT (months)	24	24	24	24	6	12	24	6	12	6	18	18	18	12	12	12	12	6	12	
	Coverage m ² /litre (25 microns thickness)	13	14	12	12	20	20	18	40	40	40	8	8	8	40	40	40	40	40	40	32
PHYSICAL PROPERTIES	Continuous Use Operating Range °C	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 135	-65 to 200	-65 to 200	-65 to 200	-65 to 200	-65 to 200	-65 to 125	
	Thermal Shock °C	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 125	-65 to 135	-65 to 200	-65 to 200	-65 to 200	-65 to 200	-65 to 200	-65 to 125	
	Glass Transition Temperature (Tg) °C	14	14	42	42	71	71	26	-43	45	26	14	14	-50	<-65	<-65	<-65	<-65	<-90	19	
	CTE (x 10 ⁶ / °C) Below Tg	170	170	138	138	193	193	119	137	85	112	313	195	217	0					N/A	
	CTE (x 10 ⁶ / °C) Above Tg	340	340	-	-	532	532	225	311	197	283	-	330	446	145	323	382	296	0	N/A	
Dielectric Constant (1MHz @ 25°C)	2.5	2.5	2.6	2.6	3.5	3.5	3.6	2.5	2.5	2.41	2.5	2.5	1.9	2.5	2.5	2.5	2.4	2.5	3		
ELECTRICAL PROPERTIES	Dissipation Factor (1MHz @ 25°C)	0.01	0.01	0.01	0.01	0.03	0.03	0.03	0.1	0.01	0.01	0.07	0.07	0.006	0.01	0.01	0.01	0.01	0.01	0.03	
	Dielectric Withstand Voltage V (1 minute)	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	>1500	
	Insulation Resistance Per MIL-I-46058C (Ω)	8.0 x 10 ¹⁴	8.0 x 10 ¹⁴	5.5 x 10 ¹⁴	5.5 x 10 ¹⁴	3.0 x 10 ¹⁴	3.0 x 10 ¹⁴	2.0 x 10 ¹⁴	4.5 x 10 ¹¹	8.0 x 10 ¹⁴	8.0 x 10 ¹⁴	2.0 x 10 ¹⁴	2.0 x 10 ¹⁴	5.0x10 ¹⁴	5.0x10 ¹³	5.0x10 ¹⁴	3.9 x 10 ¹²	5.0x10 ¹⁴	1.1 x 10 ¹²	2.0 x 10 ¹⁴	
	Moisture Insulation Resistance Per MIL-I-46058C (Ω)	6.0 x 10 ¹⁰	6.0 x 10 ¹⁰	7.0 x 10 ¹⁰	7.0 x 10 ¹⁰	4.8 x 10 ¹⁰	4.8 x 10 ¹⁰	1.6 x 10 ¹⁰	1.6 x 10 ¹⁰	4.7 x 10 ¹⁰	4.7 x 10 ¹⁰	1.0 x 10 ¹⁰	1.0 x 10 ¹⁰	75x10 ⁹	4.5 x 10 ¹⁰	1.0 x 10 ¹⁰	8.4 x 10 ¹⁰	1.0 x 10 ¹⁰	1.1 x 10 ¹⁰	2.8 x 10 ¹⁰	
	Resistance to chemicals and solvents	Poor	Poor	Poor	Poor	Excellent	Excellent	Very Good	Good	Excellent	Excellent	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Excellent
	Recommended Thinner (Dip & Brush/Spray)	503, 505/521 (EU), 600	503, 521 (EU)	521(EU)/73	521(EU)/73	521 (EU)	521 (EU)	503, 521, 521EU	N/A	N/A	N/A	535/521(EU)	903/905	903/905	N/A	N/A	N/A	N/A	N/A	N/A	535
Recommended Stripper	1080, 1080EU	1080 (EU)	1080 (EU)	1080 (EU)	1072	1072	1063	1072, Mech	1100*, Mech	1100*, Mech	1080 (EU)	1080 (EU)	1080 (EU)	1090, Mech	1090, Mech	1090, Mech	1090, Mech	1090, Mech	1090, Mech	Mech	

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