TECHNICAL DATA SHEET

POWER BOND 2K MS POLYMER

TRANSPARENT

CHARACTERISTICS

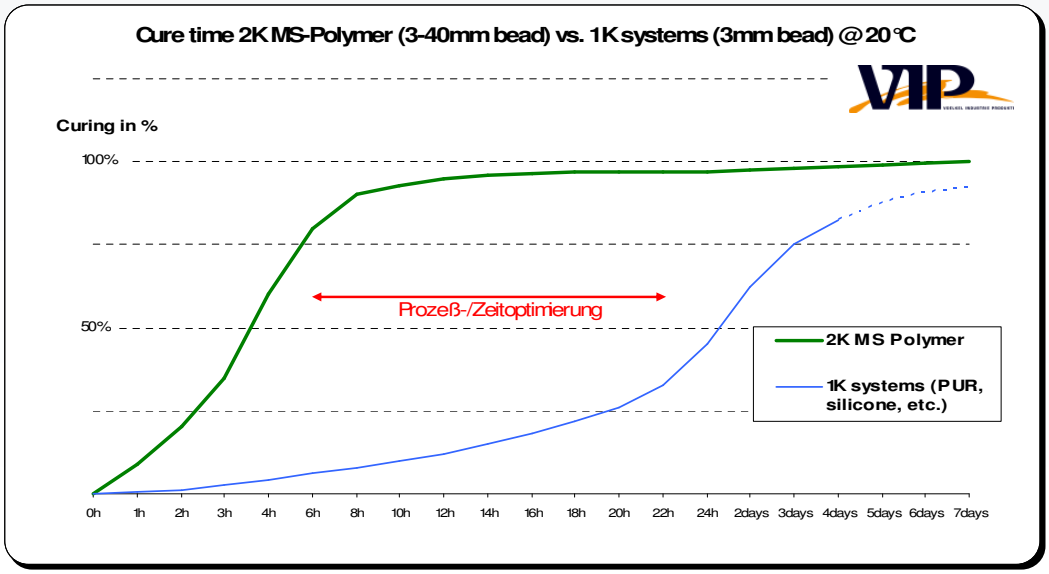
Through the research & development of Modified Silane Polymers (MS-Polymers) a success story in bonding technology has been reinvigorated combining the properties of conventional bonding systems like polyurethanes, silicones and acrylates, without the necessity of keeping their weak points. The result is a silane hardening, highly viscous and permanently flexible 2-part adhesive and sealant.

With its fast and especially homogeneous through-cure the 2K-MS-Polymere is rapidly becoming the solution when an increase in process speed is necessary. This innovative bonding technology is revolutionising working processes in many industries and eliminates waiting times and special storage areas for curing dated 1K technology (especially on large work-pieces). The 2K-MS-Polymer already today is a superb substitute for many (moisture cure) 1K systems, that can cause problems through slow hardening processes. Bonded work-pieces can also be over painted „wet on wet". The eco friendly 2K system can be over painted with both, acrylic and water based paint systems. A built in primer has been included in the formula. For this reason the 2K-MS-Polymer can be used on most surfaces without the use of a primer.

The 2K-MS-Polymer is completely free of any hazchem certification and does full-fill even the most stringent Health and Safety directives and is a truly green product for the modern eco friendly work place.

"PRO"-FACTS AT A GLANCE:

- Working processes are revolutionised
- Without primer on many substrates
- Homogeneous through cure mechanism (from inside to outside) – Through cure is independent from surrounding temperature or humidity
- Overpaintability (wet-on-wet)
- No pinholing
- No hazchem declaration - no solvents, no isocyanates, no silicones, no volatile organic compounds (VOCs)
- PIF-free (Paint Irritation Free)
- High chemical resistance
- Usability is non dependent on surrounding temperature or humidity.
- UV- stable & weathering resistant & non ageing
- Odour neutral



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POWER BOND

2K MS POLYMER – CRYSTAL GREENTECH

EXCOURSE: MS POLYMERES VS. SILICONES/ POLYURETHANES

PROPERTIES	MS POLYMERES	SILICONES	POLYURETHANES
UV Stability	Very good		Fair
Weathering resistance			Good
Pin Holing	No	–	Yes
Odour	Minimal		Mostly strong
Through cure	Fast	Partly very low	Fair
Increase in hardness after full cure	No	No	Frequently
Overpaintability	wet-on-wet		Yes
Compatability with Acrylic paints	Very good	Bad	Mostly bad
Compatability with Alcydic resins	Good	Fair	Good
Inhibition of through cure through Paints and other chemicals	No	Not overpaintable	Very critical

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APPLICATIONS

AREAS OF USE	APPLICATIONS
Automotive & Truck & Transport Coach building Automotive Caravan Buses Truck & Transport Trains (Coach building) Farming Machinery Special Transport Manufacturing	Sandwichelements, Articulated Trucks, Large Covering Elements, Machinery Covers, Spoilers Bonding of Casing Elements, Interior- Elements Edge Covers Exterior Covers Bonding of Design Stripes Bonding of Floor-Elements on Steel Frames GRP-Elements in Front and Back Areas on Steel Frames Sealing of Overlapping Sheets, Profiles, Wet Areas, Hatches, Tailgates, etc. Aluminiumpanels on Steel Sheets Universal Sealing Bonding of Side Windows Bonding of Foams onto the Floor for Securing the Main Harness
Structural & Civil Engineering	Signs, Mirrors, Trims, Reinforcements, Supports Attachment, Floor-, Delation Seams Restoration & Renovation Roofs, Windows, Panels, Openings, Cable shafts Sealing of Visible Seams Filling of Holes and Cuts Bonding of large Surfaces Bonding of Raillings Bonding of Natural Stone
Aircon and Cooling	Bonding of Vents and Shafts Bonding of Conductors General Sealing
Windows, Conservatories, Glass Industry	Windowframes Door Elements Bonding of Facia Elements Roof Window Bonding Sealing an Bonding of Conservatories

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APPLICATIONS

AREA OF USE	APPLICATIONS
Marine & Ship Building	Interior- Elements, Ships Hulls, Teak-Deck Sealing, Fixtures and Fitting Assembly and Sealing Watertight assembly of Clamps and Fittings Watertight Sealing of Skylights, Shutters, Windows Bonding and Sealing of Interrior Panels
Wind & Solar Energy	Bonding of Vortex Generators on the Upper Side of the Blade Sealing of the Towers and the Rotor Head Bonding of Photovoltaik- Elements on the Metal Supporting Frame Sealing / Bonding of Control Casings and Cable-Shafts Bonding of Photovoltaik-Safety-Foil (ETFE) to Aluminium/ ABS Bonding of Modular-Frames
Plastic Working Industry	Bonding of Reinforcments and Supports Attachment of Fixtures and Fittings Insrtion of PUR- Foam-Parts Attaching Rubberlips to Plastic Casings
Metal Working Industry	Bonding of Fixtures and Sleeves Bonding/Sealing of Panels Seam Sealing
Fair-, Shop- and Counter Developement	Bonding of Wall Elements Dekor- Elements (Signs, etc.) Bonding of Foodstuffs Displays Bonding of Display Cabinets Bonding/Sealing of dissimilar substrates
Plant-, Model- and Machinery Engineering	Seam Sealing Bonding/Sealing of dissimilar substrates

POWER BOND 2K
MS POLYMER

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TECHNICAL PROPERTIES	DATA
Chemische Base	2-K Modified Silane Polymeres (MS Polymer)
Product name	Power Bond 2K
Colour	Crystal/ transparent
Packaging sizes	250ml, 600ml, Hobbocks, Drums * * for further information on products and pricelists, please check out out webpage at: www.vip-gmbh.com
Solids	100%
Consistency	thixotropic, pasteus
Mixing Ratio (volume)	1 : 1
Density @ +23°C / 50% rh	Component A: 1,00 g/ml, +/- 0,02 g/ml Component B: 0,98 g/ml, +/- 0,02 g/ml
Shore Hardness (A) - DIN 53505 @ +23°C / 50% rh	Sh-A 20 (after 7 days)
Working Temperature (material)	from +5°C to +40°C
Working Temperature (environment)	
Temperature resistance	from -40°C to +90°C short term (1-2 hrs) to +120°C
Potlife @ +23°C / 50% rh	~ 30 mins
Fixture time @ +23°C / 50% rh	~ 20 mins
Working time @ +23°C / 50% rh	~ 25 - 45 mins
Tack free @ +23°C / 50% rh	~ 30 mins
Workable after @ +23°C / 50% rh	~ 3 hrs
Cure time @ +23°C / 50% rh	~ 4 hrs
Tear strength (DIN EN 1465)	~ 0,7 N/mm²
Elongation	~ 400%
Module at 100% density @ 7 Tage / +23°C / 50% rF	~ 0,25 N/mm²
Change in volume	< 10%
Maximum gapwidth	40 mm

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Chemical Resistance ***A** = no effect ***B** = minimal effect ***C** = failure not recommended **Caution: Prolonged storage in water will have a negative effect in the adhesion**	Water Saltwater Aliphatic Solvents Öil & Grease Diluted anorganic acids and alkalines Ester Ketones Aromatics Concentrated Acids Chlorinated Hydrocarbon	A A A A A B B B C C
Shelf life @ 4-22°C/ 50%rh	9 months	
Shelf Conditions	Cool and Dry, keep away from direct sunlight	

CONVERSION TABLE

1 feet (ft.) = 304.8mm (°C x 1.8) + 32 = ° F (°F-32) x 5/9 = °C mm/25.4 = inches (in.) µm /25.4 = mil N x 0.225 = lb N/mm x 5.71 = lb/in	1 MPa = 1 N/mm² = 145 psi mPa.s = cP 1inch (in.) = 25.4mm N·m x 8.851 = lb·in N·m x 0.738 = lb·ft N·mm x 0.142 = oz·in 1 MPa = 1 N/mm² = 145 psi

Adhesive-Consumption Table – Number of metres per 100ml

Bead thickness	5mm	10mm	15mm
2mm	10m	5m	3,3m
4mm	5m	2,5m	1,6m
6mm	3,3m	1,6m	1,1m
8mm	2,5m	1,2m	0,8m
10mm	2m	1m	0,6m

SUBSTRATE

Metals		Plastics		Composites & Others	
Aluminium (abraded)	A	ABS	A	GRP	A
Aluminium (abraded)	A	PA	X	Carbon	X
Brass	A	PBT	X	BMC (Bulk Molding Compound)	X
Cast Iron	A	PC	A	DMC (Dough Molding Compound)	X
Copper	A	PE - HDPE, LDPE, PTEE	X	SMC (Sheet Molding Compound)	X
Iron	A	PETG	X	EPDM	A
Stainless Steel	A	PMMA (Acrylglas, Plexiglas®)	A	Biofibre-Compound (Hemp & Flax)	A
Metal Paints (2K)	A	Polyester	A	PP-EPDM	A
Steel (elektrolytically galvanised)	A	PP	X	Siliciumcarbide, -nitride, -boride	X
Steel (fire galvanised)	A	PPE	X		
Steel (galvanised)	A	PPSU	X	Concrete	A
Steel (phosporised)	A	PS (Polystyrol) – Styropor	A	Basalt	A
Steel (sandblasted)	A	PUR	A	Glass	A
Chromium Steel	A	PVC - hard/soft	A	Granite	A
Galvanised Metals	A	PDCPE (Telene)	X	Rubber	X
		TPO (thermoplastic polyolefines)	X	Wood	A
				Ceramics	A
				Marble	A
				Natural stone (eg. sandstone)	A

A = very much suitable, partly without (*) or with suitable chemical and/or mechanical pre treatment (*).
X = not specifically tested.

*) Thorough cleaning of the substrates is always necessary. A suitable primer will always increase the adhesion, regardless of the adhesive system you are intending to use. Because of the large variety of usages of the individual products and the magnitude of circumstances (e.g. methods of usage, surface conditions, system build, etc.) the user is obliged to do a personal trial prior to usage. VIP GmbH offers the possibility of bonding trials in VIP's own lab for classification of various substrates and suitable adhesives.

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DIRECTIONS FOR USE

Before the Application of the Power Bond it is necessary to check the safety data sheet (SDS) for info on Precautions and Security Measures associated with the product. Even on not classified products the usual precautions for chemical materials should always be adhered to.

Easy application with hand operated or pneumatic dosage gun. To prevent any irregularities in the dried product a guaranteed (1:1) mixing ratio must be achieved at all times. This is only possible using the suitable static mixers recommended by VIP.

On all different types of Plastic we recommend the prior use of a primer. Surfaces must always be dry and free of any grease. The thickness of the adhesive bead is dependent on the materials to be bonded. Please press on the other surface within 10 mins of application. If required please smoothen over the seam using a plastic spatula. The cure time is dependent on thickness and temperature. The optimum gap width of the Bond should be 1-6 mm dependent on adhesive area, material elongation, stress and mechanical strain.

Metal surfaces must be free from dust, oils, greases and similar materials. The same goes for rust and other forms of corrosion. We recommend to clean metals with a solvent based spirit wipe and to sand or shot blast them afterwards.

We recommend trials with the intended paint, because of the large variety of different Paints and Varnishes. Some acrylic resins can cause a delay in the full cure. The paint should be applied over the fresh Sealant after a maximum of 4 hours. For best results, please apply the paint wet-on-wet. The drying of the paint can take longer if the paint is applied after a while. The material can always be over painted after cleaning with acetone.

If the surface of the substrate to be bonded is too cold (e.g. below freezing), a thin film of condensed water might build on the surface, and this can cause adhesion failure. These surfaces must be tempered and dried sufficiently prior to applying the adhesive.

VIP ACCESSORIES FOR USE

Product Desciption		Part no.*
Special Cleaner	1K Alkaline Liquid Cleaner- For Plastics & Metal surfaces	PMX 4910
Primer 1	1K Primer MS Polymer - for non porous substrates	PBO 6715
Primer 2	1K Primer MS Polymer - for porous surfaces	PBO 6705
Dosage gun 250/310ml	1:1 Cartridge application - manually – metal – Deluxe	ZUB 5001
Dosage gun 600ml		ZUB 5100
Mixer standard green	For 200-600ml cartridges - 19 Mixing elements – square - 10,7mm	PMX 4953

*) For further accessories, please check out the latest VIP Product/Pricelists or our web page: www.vip-gmbh.com

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. It is the user's responsibility to satisfy himself, by his own information and test, to determine suitability of the product for his own intended use, application and job situation and user assumes all risk and liability from his use of the product (e. g. usage parameters, conditions of the substrate, system build, etc.). We recommend in general testing the suitability on a small sample prior to use. Technical and application information is provided for the purpose of establishing a general profile of the material and proper application procedures. Changes in the material due to product improvements can occur and do not always warrant a change in the technical info. The rights of the buyer regarding the quality of our materials are as per our terms of sale in the latest valid version. For special requests that are outside the scale of this technical info, please get in touch with our technical service team under +49-(0)89-89 55809 30 who will be happy to help.

Valid is only the latest updated version of this technical product information.

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