



UK 1351 B25 / UK 5452

August 2012

PRODUCT DESCRIPTION

UK 1351 B25 / UK 5452 provides the following product characteristics:-

Technology	Polyurethane
Product Type	Structural Adhesive
Cure	Room temperature cure after mixing
Condition	Solvent-free
Components	Two-component
Application	Bonding
Appearance (Comp. A)	Beige
Appearance (Comp. B)	Green
Mixing Ratio, by weight	100 : 40
Comp. A : Comp. B	
Product Benefits	<ul style="list-style-type: none"> ● GL Approved ● Non-sag ● Low exotherm

UK 1351 B25 / UK 5452 is a non-sag, fatigue resistant, GL[®] (Germanischer Lloyd) approved two-part urethane designed for bonding epoxy based composites. This product exhibits good environmental resistance and resistance to crack propagation. Typical application is as a composites structural bonder.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Specific Gravity @ 22 °C	1.48
Viscosity @ 25°C, mPa·s (cP) Cone & Plate Rheometer, Cone CP50-1 @ shear rate 50 s ⁻¹	37,880

Flash Point - See MSDS

Part B:

Specific Gravity @ 22 °C	1.28
Viscosity @ 25°C, mPa·s (cP) Cone & Plate Rheometer, Cone CP50-1 @ shear rate 50 s ⁻¹	10,610

Flash Point - See MSDS

Mixed:

Specific Gravity @ 22 °C	1.41
Viscosity @ 25°C, mPa·s (cP) Cone & Plate Rheometer, Cone CP50-1 @ shear rate 50 s ⁻¹	29,350

TYPICAL CURING PERFORMANCE

Fixture Time

Fixture Time, ISO 4587, minutes:	
Grit Blasted Mild Steel 0.005 mm gap	75

Curing Properties

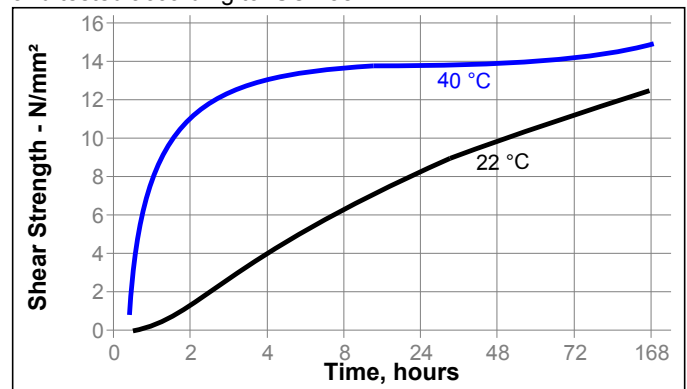
Working time bead size = ~10mm (0.4in) by 200mm (8in)	
Working Time on Steel, minutes	50
Working Time on Aluminium, minutes	50
Working Time on Polyethylene, minutes	50

Peak Exotherm Temperature

Peak Temperature Time, 20 gram mass, minutes	33
Peak Exotherm Temperature, 20 gram mass, °C	45

Cure Speed vs. Temperature

The graphs below show the shear strength developed with time at different temperatures on grit blasted aluminum lap shears and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 22 °C

Physical Properties:

Glass Transition Temperature, °C	79
Coefficient of Thermal Expansion, K ⁻¹ :	
Above Tg	63×10 ⁻⁶
Below Tg	150×10 ⁻⁶
Shore Hardness, ISO 868, Shore D	84
Compressive Strength, ISO 604	N/mm ² 71 (psi) (10,300)
Tensile Strength, ISO 527-3	N/mm ² 26 (psi) (3,770)
Tensile Modulus, ISO 527-3	N/mm ² 4,740 (psi) (686,900)
Elongation, at break, ISO 527-3, %	1

TYPICAL PERFORMANCE OF CURED MATERIAL

After 7 days @ 22 °C

Shear Strength

Lap Shear Strength, ISO 4587:

Aluminum (grit blasted)	MPa	12.1
	(psi)	(2,360)
Stainless steel	MPa	8.3
	(psi)	(1,210)
Galvanized Steel	MPa	10
	(psi)	(1,450)
Polycarbonate	MPa	16.1
	(psi)	(2,330)
ABS	MPa	2.8
	(psi)	(405)
PVC	MPa	8.8
	(psi)	(1,280)
Epoxyglass	N/mm ²	6.3
	(psi)	(915)
Wood (Mahogany)	N/mm ²	13.2
	(psi)	(1,910)

"T" Peel Strength, ISO 11339:

Aluminum (Gritblasted)	N/mm	0.2
	(lb/in)	(1.1)

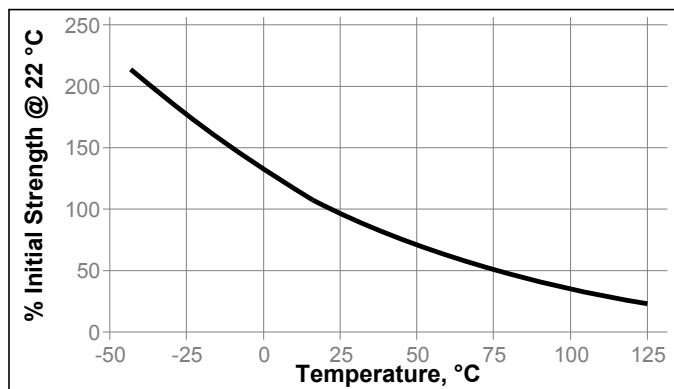
After 3 days @ 22 °C

Impact Strength, ISO 9653, J:

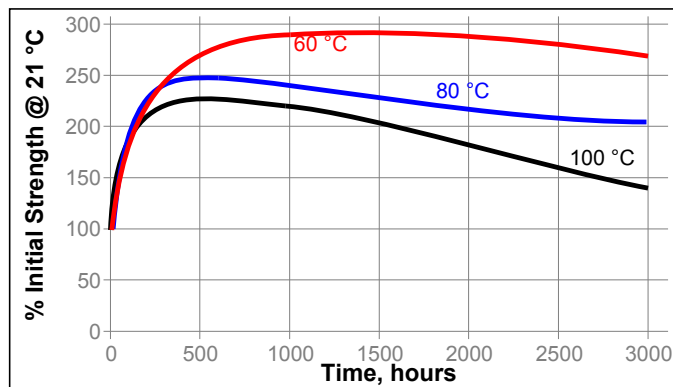
Grit Blasted Mild Steel (GBMS)	6
Aluminum (Gritblasted)	3

Hot Strength

Cured for 7 days @ 22 °C, on stainless steel

**Heat Aging**

Cured for 7 days @ 22 °C, on stainless steel

**Chemical/Solvent Resistance**

Shear Strength on Stainless steel Lapshears, Aged under conditions indicated and tested @ 22 °C

Environment	°C	% of initial strength			
		100 h	500 h	1000 h	3000 h
Water	22	135	135	140	120
Water	60	104	60	60	15
98% RH	40	195	210	190	135
Isopropanol	22	115	180	175	170
Acetic Acid, 10%	22	150	120	165	90
Sodium hydroxide, 4%	22	175	120	165	90
Motor oil (5W40)	22	160	160	170	130

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be used with chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions for use:

- For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
- The use of suitable primers on metal surfaces can improve the adhesion and /or the long term bond stability.
- Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
- Dual Cartridges:** To use simply insert the cartridge into the application gun and start the plunger into the cylinders using light pressure on the trigger. Next, remove the cartridge cap and expel a small amount of adhesive to be sure both sides are flowing evenly and freely. If automatic mixing of resin and hardener is desired, attach the mixing nozzle to the end of the cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of the adhesive and mix thoroughly. Mix for approximately 15 seconds after uniform color is obtained. **Bulk Containers:** Utilize volumetric dispense system to ensure proper mix ratio and utilize mix nozzle to obtain adequate mixing.
- For maximum bond strength apply adhesive evenly to

- both surfaces to be joined.
6. Application to the substrates should be made within 20 to 25 minutes. Larger quantities and/or higher temperatures will reduce this working time.
 7. Join the adhesive coated surfaces and allow to cure at 25 °C (77 °F) for 72 hours for high strength. Heat up to 80 °C (175°F), will speed curing.
 8. Keep parts from moving during cure. Contact pressure is necessary.
 9. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 20°C ± 5°C. Storage below 15°C or greater than 25 °C can adversely affect product properties. Component B is frost sensitive. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

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Reference 0.0