CILBOND® 33A/B TECHNICAL DATA SHEET

CILBOND 33A/33B **is a Two-Part, One-Coat Bonding Agent for Fluoroelastomers (FKM)**

BENEFITS OF CILBOND 33A / 33B

BONDING CAPABILITIES :

Cilbond 33A / 33B is a two component adhesive system, which is mixed to produce a one-coat system.

Cilbond 33A / 33B is suitable for bonding fluoroelastomer compounds of all hardnesses to a variety of substrates including metals (either chemically treated or mechanically abraded) and thermoplastics, thermosets and fabrics.

The **Cilbond 33A / 33B** system will bond all the major grades of fluoroelastomers available including Viton®, Daiel®, Aflas® Technoflon® and Fluorel®, which are bisphenol or amine cured and may also bond some peroxide cured fluoroelastomers and even some fluorosilicones, especially if post cured.

IN-SERVICE BENEFITS :

Cilbond 33A / 33B exhibits excellent resistance to high post-curing temperatures and harsh chemical environments including lubricants and transmission oils to 392°F, mild aqueous acid and mild alkalis to 212°F, solvents, brake fluids and glycols.

The heat resistance of **Cilbond 33A / 33B** is excellent and will survive extended periods at above 392°F.

PROCESSING BENEFITS :

Cilbond 33A / 33B may be pre-baked if required and a pre-bake of up to 10 minutes at 300°F or 30 minutes at 275°F is recommended. In certain cases a pre-bake may be a necessary part of the bonding procedure to prevent bonding agent wiping (i.e. melt flow of the adhesive).

TYPICAL PHYSICAL PROPERTIES OF CILBOND 33A / 33B

	Cilbond 33A	Cilbond 33B
Appearance	*Clear to Amber Liquid*	*Clear to Amber Liquid*
Viscosity - No 2 Zahn Cup @ 78°F	*16 seconds*	*15 seconds*
Non-Volatile Solids	*43% by weight*	*22% by weight*
VOC Content	*57% by weight (4.6 lbs / Gal)*	*78% by weight (5.7lbs / Gal)*
Volume Solids	*38.4%*	*19.1%*
Weight per Gallon	*8.1 lbs*	*7.3 lbs*
HAP Content	*HAP Free*	*HAP Free*
Specific Gravity @ 78°F	*0.97*	*0.88*
Flash Point (Abel Pensky)	*17.6ºF (-8°C)*	*17.6ºF (-8°C)*
Recommended Dry Coating Thickness	*0.2 mil / 5 microns*	
Combined Solids	*32%*	
Combined Viscosity - No 2 Zahn Cup @ 78°F	*16 seconds*	
Pot Life of Combined System	*4 – 7 Days*	
Typical Coverage at 0.2 mil (dry)	*ca. 1225 - 1425 ft² / US Gal*	
Shelf Life (from date of manufacture)	*Both Cilbond 33 A and 33 B have a Shelf Life of 24 Months*	

KÖMMERLING
KÖMMERLING UK LTD
217 Walton Summit Road, Bamber Bridge, Preston PR5 8AQ, UK
Telephone : +44 1772 322 888, Fax : +44 1772 315 853
E-mail : sales@cilbond.com Web : www.cilbond.com

bsi. ISO 9001 Quality Management
Certificate Number FM 14754

METAL SURFACE PREPARATION

For optimum bonding with **Cilbond 33A / 33B** all metal surfaces MUST be contaminant free.

Surfaces should preferably be grit-blasted with 200–400 micron sharp chilled iron or alumina grit and ideally degreased after the grit-blasting process. Alternatively, proprietary phosphated surfaces may be used.

For detailed recommendations on substrate preparation refer to **Information Sheet A1**.

APPLYING CILBOND 33A / 33B

MIXING — **Cilbond 33A / 33B** should be mixed in equal parts by volume and then thoroughly stirred, adding diluent as necessary. The two liquids mix readily within one or two minutes and the resulting mixture is an amber colour with no undissolved particles at ambient temperature. The solids content of the undiluted mix is ca. 32% and the mixture is stable for at least 4 days at ambient temperature, but should be used within one week of mixing.

BRUSHING — **Cilbond 33A / 33B** can be applied by brush.

DIPPING — **Cilbond 33A / 33B** can be dip-coated.

SPRAYING — **Cilbond 33A / 33B** can be spray-coated. Ideally use an HVLP system with a 0.04–0.06 in (1–1.5mm) nozzle, using air-pressure of ≤22 psi (≤1.5 bar) and fluid pressure of ca. 7 psi (0.5 bar).

DILUTION — Because of the high solids content, it may be necessary to dilute to achieve the required coating thickness. In most cases MEK or MIBK are the preferred diluents.

DRYING — Coated components should be left to air-dry for 20 – 30 minutes at room temperature. Force drying the coated parts in an oven at 140°F for 10 minutes will speed up drying parts. Pre-warming parts to ~140ºF prior to coating will also speed up drying.

UNIFORM COATINGS — One or two coats should be used, dependent upon the surface texture of the substrate.

COATING THICKNESS — A minimum dry film thickness of 0.2 mil (5 micron) is required for thin rubber sections as used in seals / gaskets. For thicker rubber sections use ≥ 0.6 mil (≥15 micron) dry coatings.

STORAGE — It is recommended that components are bonded within seven days of application of the bonding agent, although under controlled conditions parts may be stored for longer periods.

CURE SCHEDULE — A minimum cure schedule of at least 30 minutes at 300°F is recommended. Depending on the elastomer, cure schedules over the temperature range of 300-375°F should give optimum bonding properties. Cure schedules above 375°F or below 300°F may show deterioration of bonding quality.

USING CILBOND 33A / 33B AT A RATIO OF 3 : 2

For difficult to bond fluoroelastomers, such as Zytel and peroxide cured fluoroelastomers and fluorosilicones, use **Cilbond 33A : 33B** mixed at a ratio 3 : 2 by volume.

Furthermore, using a 3 : 2 mix ratio improves the heat resistance of the bond and reduces attack by migratory ingredients emanating from the elastomer during long-term heat ageing.

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WHERE TO USE CILBOND 33A / 33B

For the bonding of all hardness grades of fluoroelastomer to substrates by compression or injection moulding. A minimum cure schedule of 30 minutes at 300ºF is recommended to maximise adhesion and the environmental resistance of the bond.

End use applications include

- Oil-Seals
- Shaft Seals
- Gaskets
- Valve Seals
- Rollers
- Hoses

PACKAGING

Cilbond 33A / 33B is supplied in 2 pint and 2.5 US Gallon containers. ½ pint trial samples are also available upon request.

FURTHER INFORMATION

For more information on **Cilbond 33A / 33B** or for details of our other products please visit www.cilbond.com or e-mail sales@cilbond.com

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