



CILBOND® 36 TECHNICAL DATA SHEET

CILBOND 36 is a One-Component, Non-Toxic, Ethanol-Based Bonding Agent for VMQ, FVMQ, FKM, FFKM, HNBR, ACM and AEM Elastomers.

BENEFITS OF CILBOND 36

BONDING CAPABILITIES:

Cilbond 36 is a one-component system for bonding various peroxide-cured silicone, fluorosilicone, perfluoroelastomer, fluoropolymer, hydrogenated nitrile elastomers and some speciality EPDM compounds.

Cilbond 36 also bonds platinum (Pt) cured silicones, a good range of bisphenol and bisamine-cured fluoropolymers, acrylic/ACM compounds and speciality AEM compounds.

Cilbond 36 effectively bonds the above compounds to metal substrates including steel, stainless steel, aluminium and brass. **Cilbond 36** will bond to engineering plastics, including all types of polyamide and also to glass and ceramics.

PROCESSING BENEFITS:

Cilbond 36 is fast-drying and the coating is then tough, chip resistant and non-blocking/tack-free.

Cilbond 36 is non-staining, non-wiping, does not contribute to mould fouling and is particularly suitable for injection moulding processes. **Cilbond 36** can be used for all conventional moulding processes. The product also has exceptional resistance to long, high temperature post-cure schedules.

Cilbond 36 may be applied by brush, spray or using a dip-bath, without the need for special covers to prevent moisture ingress.

IN-SERVICE BENEFITS:

Components bonded with **Cilbond 36** exhibit outstanding environmental resistance properties, including:

- Static and dynamic fatigue resistance at low and high temperatures (from -50°C to >>200°C)
- 1000 hours at 200°C or 400 hours at 225°C, without any loss of adhesion to the substrate
- The maximum heat resistance is compound dependent but bonds show no loss of CM (cement-metal) failure at up to 250°C or even higher for short periods
- Hot oils and fuels up to temperatures of 180°C
- Hot water (e.g. boiling water for 100 hours) without loss of metal adhesion
- Hot glycol / water mixes at up to 120°C for 300 hours without loss of adhesion
- Hot glycol mixtures for > 600 hours at 160°C without loss of adhesion
- Bond will show < 2–3mm edge failure after 500 hours in 5% salt-spray at 35-40°C with 30% applied strain

TYPICAL PHYSICAL PROPERTIES OF CILBOND 36

Appearance	<i>Clear Colourless Liquid</i>
Viscosity - No 3 Zahn Cup @ 26°C	<i>20 seconds</i>
Concentration (Non-volatile Solids)	<i>16%</i>
Specific Gravity @ 26°C	<i>0.85</i>
Flash Point (Abel Pensky)	<i>0°C</i>
Bond Temperature Range	<i>120°C to 200°C</i>
Shelf Life (from date of manufacture)	<i>12 Months @ 26°C</i>

SUBSTRATE SURFACE PREPARATION

It is recommended that **Cilbond 36** be applied to clean degreased surfaces, which have been blasted with 200-300 μ clean sharp chilled iron grit for ferrous metals or 200-300 μ alumina grit for non-ferrous metals.

For best environmental resistance properties, a final degrease of the metals should be considered. Alternatively, proprietary phosphated surface treatments may be used.

For most rigid and semi-rigid plastics, it should be possible to low pressure grit blast with 100-200 μ sharp chilled iron grit or aqua-blast the parts, taking care not to cause surface distortion and fibrillation of the plastics surface. For detailed recommendations on substrate preparation refer to **Information Sheet A1**.

APPLYING CILBOND 36

STIRRING

Though it is not strictly necessary to stir **Cilbond 36**, it is recommended that it is stirred gently before use. It is vital to stir well when adding diluents (see below).

BRUSHING

Dilution may not be necessary for brush application, though for large areas it may be necessary to dilute 100 parts of **Cilbond 36** with 5-15 parts ethanol or ethanol/MEK blends. This will improve the flow and speed of application.

DIPPING

Dilute 100 parts **Cilbond 36** with 50 to 200 parts ethanol or ethanol/MEK blends or ethanol/toluene blends for small parts requiring a dry coating thickness of ca.5 μ .

*Note: **Cilbond 36** is a stable product with a long shelf-life and can be used in dip baths without special equipment to prevent moisture ingress.*

SPRAYING

Dilution to 13-20 seconds on a DIN4 viscosity cup is normally necessary for spraying parts to produce ca. 20 μ dry thickness. This may need dilution of 100 parts of **Cilbond 36** with 20-40 parts of ethanol or other diluents listed below.

A nozzle size of 0.8 – 1.2mm and an air pressure of 1.0 to 2.5 bar is recommended. If cob-webbing (fibre formation) is observed, then dilute with higher boiling-point solvents, such as Cilbond 4000 Diluent, MIBK or a blend of xylene and MEK, typically at a ratio between 50:50 and 70:30.

DILUENTS

The recommended diluent is ethanol, though it is possible to use other alcohols, such as isopropyl alcohol and blends of alcohols as necessary. Other suitable diluents include blends of ethanol, xylene, MEK, MIBK, toluene and blends containing high boiling point glycol ether esters, such as Cilbond 4000 Diluent.

DRYING

After application, allow coatings to dry for 30 minutes at room temperature or force dry for 2 - 5 minutes at up to 60°C, taking care not to blister the coatings by drying too fast.

COATING THICKNESS

For most applications a minimum dry coat thickness of 5 microns is recommended for oil seals or where the elastomer bonded is a thin layer of a few mm. For highly oil-extended silicones and for larger components, coating thicknesses of over 15 microns may be necessary.

PRE-BAKING

For some applications, a pre-bake of up to 20 minutes at up to 135°C may be of benefit in improving migration resistance and wiping resistance, especially for injection moulded compounds, such as high viscosity FKM's. A pre-bake should also be considered for difficult to bond compounds, such as some VMQ's and particularly FVMQ's.

*Note: **Cilbond 36** is a reactive bonding agent and the use of uncoated metal, glass or ceramic containers for storage must be avoided.*

WHERE TO USE CILBOND 36

The environmental resistance of **Cilbond 36** makes it ideal for use in the manufacture of:

- TVD's and bushes
- Engine and suspension mounts, including high-performance hydromounts / hydrobushes
- Oil / shaft seals
- Gaskets
- Valves
- High-performance hoses and belts made using all types of polyamides, polyesters and glass reinforcement
- Rollers
- Any application involving a tough environment.
- Any application demanding good dynamic fatigue resistance properties.

PACKAGING

Cilbond 36 is packed in 1, 10 and 25 Litre containers as standard. 250ml trial samples are also available upon request.

The information given herein is believed to be correct. However, we cannot by reason of the many different conditions under which this information and our products may be used guarantee the applicability of the accuracy of the information or the suitability of our products in any given situation. We cannot accept liability for any injury loss or damage resulting from reliance upon such information nor can we assume liability for the use of these products in the infringement of any patent rights. All sales of these products shall be subject to our Standard Conditions of Sale

