

CILBOND R-7035 CILBOND R-7035 is a high-performance one-component rubber to substrate bonding agent and is free from toluene

BENEFITS OF CILBOND R-7035

BONDING CAPABILITIES :

Cilbond R-7035 is a one-component bonding system developed to give high-performance bonding with the following elastomers:-

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| • Natural Rubber (NR) | • Polyepichlorohydrin (ECO) |
| • Styrene Butadiene Rubber (SBR) | • Chlorosulphonated Polyethylene (CSM / ACSM) |
| • Chloroprene Rubber (CR) | • Polyacrylate Rubbers (ACM) |
| • Polybutadiene (BR) | • Carboxylated NBR (XNBR) |
| • Synthetic Polyisoprene Rubber (IR) | • Polynorbornene |
| • Ethylene/Ethyl Acrylate, Vamac® (AEM) | • Ethylene Vinyl Acetate EVA (EVM) |
| • Hydrogenated Nitrile (HNBR) | |

IN-SERVICE BENEFITS :

- Superior temperature resistance - bond retention to - 50°C and over 200°C
- Exceptional salt spray resistance as either a one-component system or as part of a two-component system (e.g. under **Cilbond 80ET**), 30% stressed components exceed 480 hours salt-spray without signs of corrosion and ≤1mm edge failure with grit blasted mild steel parts
- Exceptional dynamic and static fatigue resistance
- Superior chemical resistance to: Petroleum spirit fuels, unleaded petrol, kerosene, fuel oils, mineral oils and synthetic ester turbo oil at high temperature, ethylene glycol and propylene glycol at high temperature, acids and alkali, hot water, including boiling water.
- Resistance to both mild acid and mild alkali media.
- Superior chemical resistance to petroleum spirit, unleaded petrol, kerosene, fuel oils, mineral oils and synthetic ester turbo oil and ethylene glycol/propylene glycol at high temperature, hot/boiling water, steam. **Cilbond R-7035** passes the toughest boiling water test, where fabric reinforced NR peel test bonds are subjected to a 12kg load in water at 100°C.

TYPICAL PHYSICAL PROPERTIES OF CILBOND R-7035

Appearance	<i>Black Liquid</i>
Viscosity - DIN 4 Cup @ 20°C	<i>25 seconds</i>
Non-Volatile Solids	<i>25% by weight</i>
Specific Gravity @ 26°C	<i>0.96</i>
Bonding Temperature Range	<i>120 - 230°C</i>
Recommended Dry Film Thickness	<i>min. 15 microns</i>
Typical Coverage @ 15 microns	<i>15 m² / Litre</i>
Shelf Life	<i>12 Months from Date of Manufacture</i>

METAL SURFACE PREPARATION

For optimum bonding with **Cilbond R-7035**, all metal surfaces **MUST** be contaminant free. Grit-blasting (200-400 μ grit), sandblasting or blasting with aluminium oxide to grey-white finish should yield excellent bonding surfaces with ferrous metals. All parts to be bonded should ideally be degreased to maximise environmental resistance.

Other methods of metal preparation, which will still give excellent bonds, include phosphate and chromate conversion coating, or acid and alkaline pre-treatments.

NOTE: - careful attention to all phases of metal preparation is the single most important factor in obtaining high quality bonds. For detailed recommendations on substrate preparation refer to **Information Sheet A1**.

APPLYING CILBOND R-7035

AGITATION Stir thoroughly before use, preferably with a high-speed propeller type stirrer.

BRUSHING Application by brushing is normally undertaken without further dilution, but for coating large areas dilute with 10-15% Toluene, Xylene or MEK.

Two thin coats are preferred to one thick coat.

DIPPING For dip application of **Cilbond R-7035**, dilution is necessary to reduce the viscosity to a level where correct film formation may be achieved. Dilute with Xylene to the following viscosities :

Viscosity Guide @ 26°C :-	DIN 4 Cup	: 18 - 24 sec
	Ford 4 or Frikmar Cup	: 18 - 24 sec
	Zahn Cup No 2	: 24 - 28 sec

At these viscosities **Cilbond R-7035** may require as much as 25-40 part of diluent to 100 parts of **Cilbond R-7035**. If faster drying and thicker coats are required, replace all or part of the diluent with MEK or MIBK. After dilution we recommend stirring on a continuous basis.

SPRAYING For spray applications, xylene is the preferred diluent, especially for reducing/eliminating cob webbing/fibre formation. Dilute to the following viscosities :

Viscosity Guide @ 26°C :-	DIN 4 Cup	: 13 - 20 sec
	Ford 4 or Frikmar Cup	: 13 - 20 sec
	Zahn Cup No 2	: 16 - 24 sec

This may require as much as 30-50 part of diluent to 100 parts of **Cilbond R-7035**.

MEK/Xylene and MIBK/Xylene blends are particularly effective diluents for spraying, especially where automated rapid processing is employed.

Typically, use 1.5 - 2.0 bar air pressure with a fluid pressure of 0.5 - 1.0 bar, a nozzle size of 1.0 – 1.5mm when using an HVLP system, which is the preferred method of spray application. Note that excessive air pressure can cause fibrillation (cob-webbing).

APPLYING CILBOND R-7035 (Continued)

ROLLER COATING The viscosity of **Cilbond R-7035** is close to that required for many roller coating applications, so little or no diluent is normally required. Fast drying solvents, such as MEK, are often the preferred for dilution.

DILUTION Toluene and especially Xylene are the main diluents for **Cilbond R-7035**. Other diluents, which may be useful include MEK, MIBK, trichloroethane and glycol ether esters, such as MPA. MEK and MIBK are best used in solvent blends with toluene or xylene. Regardless of which diluent is chosen, it is imperative that the cement be stirred vigorously whilst diluent is being added, otherwise gellation may result.

DRYING At room temperature drying takes 30 - 45 minutes. If the temperature is abnormally low, longer times will be required. Forced drying may be employed if desired to speed the operation. Large volumes of warm air will reduce the drying time to <<2 minutes and temperatures up to 70°C may be employed as necessary. Forced drying is a recommended process for **Cilbond R-7035**.

PRE-BAKING **Cilbond R-7035** exhibits excellent pre-bake resistance and though this is partly compound dependent, **Cilbond R-7035** can resist pre-bakes up to or even over 30 minutes at 160°C.

FILM THICKNESS Irrespective of the method of application for the bonding agent, it is vital to lay down as uniform a film as possible to obtain optimum and uniform bond strength results.

We recommend the following :

General Purpose Bonding	: 15 – 20 microns (dry coating thickness)
Superior Environmental Resistance	: 20 – 30 microns (dry coating thickness)

In many cases, as for most so called one-coat systems, it is usually double applied.

MOULDING **Cilbond R-7035** resists wiping and mould fouling and may be used with all moulding methods including compression, transfer, injection and extrusion moulding. Temperatures required to effect a bond may vary from 120-230°C. Fully dried **Cilbond R-7035** show virtually no mould fouling or wiping/melt flow.

STORAGE Coated parts may be stored for several weeks if protected from contamination by dust, oil mists, grease and water.

ADDITIONAL INFORMATION

Cilbond R-7035 is suitable for high-performance bonding of Vamac[®] G, where in service temperatures may be very high. Bonds show no corrosion or bond failure after extended testing at 200°C.

Cilbond R-7035 is particularly effective for high temperature glycol resistant NR bonding, or for EPDM bonding when it is used as the primer under a cover coat, for example **Cilbond 80E**, in the manufacture of speciality hydromounts and hydrobushes. **Cilbond R-7035** bonds will survive 1000hrs testing in glycol mixtures at 160°C with no loss of adhesion.

Cilbond R-7035 is highly effective in post vulcanisation bonding NR, SBR, BR and other elastomers, such as Vamac[®] G, even some EPDM's and FKM's to metals and plastics under heat and pressure for the manufacture of bushes and TVD's.

Cilbond R-7035 is suitable for bonding compounds based on sulphur or peroxide cured HNBR and CSM, ACSM elastomers to both RFL treated and un-treated fibres, cords and fabrics, such as polyamides, polyesters, carbon and glass.

PACKAGING

Cilbond R-7035 is supplied in 10L, 25L and 200L containers. 250ml trial samples are also available upon request.

FURTHER INFORMATION

This Cilbond grade has been formulated and manufactured using multiple sources of approved raw materials.

For more information on **Cilbond R-7035** or for details of our other products please visit www.hbfuller.com/cilbond or e-mail cilbond@hbfuller.com

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