

**CILBOND 10E** is a One-Component Solvent-Based Bonding Agent for Nitrile (NBR), Acrylic (ACM), XNBR, HNBR, PVC/NBR blends, ECO and Vamac® G and D compounds.

**Cilbond 10E** is also a universal Primer for Cilbond Cover-Coats, especially Cilbond 80ET, and other Cover-Coat systems.

### BENEFITS OF CILBOND 10E

#### BONDING CAPABILITIES :

**Cilbond 10E** bonds NBR compounds with high and low acrylonitrile contents with equal effectiveness and is the first choice for ACM compounds. **Cilbond 10E** is particularly suitable for HNBR and highly extended NBR, PVC/NBR blends and Vamac® G and Vamac® D, where good resistance to ingredients migrating out of the elastomer is required.

It bonds to all metal substrates and polar thermoplastics such as polyamides, PPO, PPS, PES, POM and thermoset plastics such as PF, MF, RF, GRP/FRP and epoxies.

#### PROCESSING BENEFITS :

The extremely tough dry films of **Cilbond 10E** means that coated components can be subjected to considerable mechanical handling, without fear of chipping or peeling of the bonding agent.

**Cilbond 10E** also resists wiping on injection moulding and does not mould foul.

**Cilbond 10E** bonds effectively at low and high temperatures (between 265°F and 390°F) and has excellent pre-bake resistance (up to 30 minutes at 320°F)

#### IN-SERVICE BENEFITS :

Components bonded with **Cilbond 10E** (especially when used with the **Cilbond 80ET** cover-coat) show :

- Good all-round resistance to hot and cold lubricants and fluids.
- Very good salt-spray resistance to 5% salt-water @ 95°F, even with 30% extension of the elastomer.
- Good boiling water resistance, showing bond retention at 212°F under a 2kg / 25mm peel width for up to 100 hours.

### TYPICAL PHYSICAL PROPERTIES OF CILBOND 10E

Appearance	<i>Grey Liquid</i>
Viscosity - No 3 Zahn Cup @ 78°F	<i>14 seconds</i>
Non-Volatile Solids	<i>26.5% by weight</i>
VOC Content	<i>73.5% by weight (5.8 lbs per US Gallon)</i>
Volume Solids	<i>23.0%</i>
Weight per Gallon	<i>7.8 lbs</i>
HAP Content	<i>71.7% (33.1lb HAP / US Gallon solid)</i>
Specific Gravity @ 78°F	<i>0.94</i>
Flash Point (Abel Pensky)	<i>36°F (2°C)</i>
Bonding Temperature Range	<i>265 – 430°F</i>
In-Service Temperature Resistance	<i>-60 to +340°F</i>
Typical Coverage as a Primer	<i>610 – 815 ft² / US Gal</i>
Typical Coverage as a One-Coat System	<i>405 – 610 ft² / US Gal</i>
Shelf Life	<i>18 Months from Date of Manufacture</i>



## METAL SURFACE PREPARATION

For optimum bonding with **Cilbond 10E** all metal surfaces **MUST** be contaminant free.

Grit-blasting with 200 – 400 $\mu$  sharp iron grit, or blasting with aluminium oxide grit to a grey-white finish should yield excellent bonding surfaces with ferrous metals. After blasting, all parts should be degreased for maximum environmental resistance.

Cold rolled steel is normally iron grit-blasted. Stainless steel, aluminium, brass and other non-ferrous metals are normally blasted with aluminium oxide. Alternatively, proprietary phosphate treatments may be used.

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

## APPLYING CILBOND 10E

### AGITATION

**Cilbond 10E** needs to be thoroughly stirred before use with an effective agitator.

### BRUSHING

Application by brushing is normally undertaken without further dilution, but for coating large areas, dilution with MEK or MIBK is possible.

### DIPPING

Should normally be undertaken without dilution, but MIBK or MEK is recommended if required. For tumble dipping, dilute with MEK. For many dipping applications, dilution to a viscosity of 14 - 24 seconds on a No 2 Zahn Cup, or 12 - 20 sec on a DIN 4 Cup, Ford 4 cup or a Frikmar Cup (at the bath temperature) is typical.

### SPRAYING

Spraying with Cilbond 10E should be conducted at a viscosity of 16-24 seconds on a Zahn 2 Cup or 13-20 seconds on a Din 4 Cup, Ford 4 Cup or Frikmar Cup at the temperature of application.

For most conventional spray systems use a nozzle of 0.04 – 0.06 in (1.0 – 1.5 mm), a fluid pressure of 7 – 22 psi (0.5 - 1.5 bar) and an air pressure of 22 – 29psi (1.5 – 2.0 bar). Excessive air pressure can cause cob-webbing.

### DILUTION

Irrespective of the diluent used, it is vital that the bonding agent is stirred whilst solvent is added to ensure a homogeneous mix, so that a uniform film thickness will result on application. For continuous dipping or spraying it is recommended that constant stirring is undertaken, especially if the product has been diluted.

For most spraying applications, dilution with 1 part by volume of solvent to 2-3 parts of **Cilbond 10E** is typical. For tumble spraying, it is normal to dilute with up to 4 or more parts of solvent to 1 part of **Cilbond 10E**.

Recommended diluents include:

*Xylene, Toluene, Ketones (such as MIBK or MEK), Glycol Ether Esters*

### COATING THICKNESS

When used as a Primer use a dry coating thickness of at least **10 microns / 0.4 mil**.

When used as a One-coat system use a dry thickness of at least **15-20 microns / 0.6 - 0.8 mil**.

For oil-seal applications a dry coating thickness of **5 microns / 0.2 mil** is typical.

### UNIFORM COATINGS

The key to successful bonding with **Cilbond 10E** is uniform coatings at the optimum film thickness. At the viscosities suggested above, a satisfactory film thickness should result. However, laboratory tests are always advised to assess the practical film thickness for production conditions.

### DRYING

After applying **Cilbond 10E**, components should be left for 30 - 45 minutes at 75°F to dry properly. Pre-warming at ~175°F will speed up drying parts.

### STORAGE

Coated parts may be stored for long periods of time (several weeks) provided they are protected from dust, oil mists, mould release over-spray and moisture.



### WHERE TO USE CILBOND 10E

Cilbond 10E is used as a one-coat system and also as a two-coat system (with Cilbond 80ET) to produce :

- Rubber rollers
- Pipe coatings
- Oil seals
- Fuel seals
- Gaskets
- TVD's
- Fabric to rubber bonded laminates
- Hoses
- General rubber goods

### MOULDING INFORMATION

**Cilbond 10E** may be processed by all moulding methods, including Compression, Transfer, Injection and Extrusion moulding and autoclave curing.

Temperatures may vary between 265°F and 390°F, which should cover most processes, but tests should be undertaken (preferably by rheometer curve) to produce the optimum cure conditions for compound and bonding agent.

**Cilbond 10E** is capable of withstanding up to 30 minutes pre-bake at 320°F.

**Cilbond 10E** has excellent resistance to wiping and gives excellent bond results on injection moulding both high and low acrylonitrile compounds at 300°F and 375°F. It is especially suited to high temperature injection moulding.

### PACKAGING

**Cilbond 10E** is supplied in 2.5, 6.5 and 55 US Gallon containers. ½ pint trial samples are also available upon request.

### FURTHER INFORMATION

For more information on **Cilbond 10E** or for details of our other products please visit [www.cilbond.com](http://www.cilbond.com) or e-mail [sales@cilbond.com](mailto:sales@cilbond.com)

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