

**CILBOND R-7159 is a speciality Water-Based One Component Bonding System for the Friction Industry, formulated for application by Roller Coating.**

#### BENEFITS OF CILBOND R-7159

##### BONDING CAPABILITIES:

**Cilbond R-7159** is a one component bonding system for compounds used in the **Friction Industry** to manufacture products such as Original-Equipment (OE) and After-Market Brake Pads.

**Cilbond R-7159** bonds to all metals used for making brake pads, including Zn/Ni coatings.

##### IN-SERVICE BENEFITS:

**Cilbond R-7159** produces vulcanised bonds exhibiting:

- Excellent static or dynamic fatigue resistance
- Heat resistance exceeding 300°C
- Excellent resistance to fluids including water, oils and fuels (including diesel and synthetic mixtures such as methanol and toluene), even at high temperatures
- Superior salt-spray resistance, even compared to solvent-based systems

Brake pads produced using **Cilbond R-7159** show good bond retention to shear testing at 300°C and above.

##### PROCESSING BENEFITS:

**Cilbond R-7159** is designed for use with all pad production processes and is particularly suited to processes involving hot press and cure within the mould.

**Cilbond R-7159** is free from lead and virtually free from solvent, putting it at the forefront of technology with respect to the environment.

#### TYPICAL PHYSICAL PROPERTIES OF CILBOND R-7159

Appearance	<i>Grey / Black Mobile Liquid</i>
Specific Gravity @ 26°C	<i>1.11</i>
Viscosity – Brookfield LV3 / 6 rpm @ 26°C	<i>15,000 cps</i>
Total Solids 105°C / 2 hours	<i>49 %</i>
Minimum Film Forming Temperature (MFFT)	<i>ca. 20°C</i>
pH	<i>7%</i>
Bonding Temperature Range	<i>130 – 235°C</i>
In-service Temperature Range	<i>-50°C to &gt;+300°C</i>
Typical Coverage at 20 microns (dry)	<i>23-28m<sup>2</sup> / Litre</i>
VOC's	<i>≤6%</i>
Shelf Life	<i>12 months from Date of Manufacture</i>



# CILBOND<sup>®</sup> R-7159

## Water-Based Development Product

### TECHNICAL DATA SHEET

#### METAL SURFACE PREPARATION

**Cilbond R-7159** must be applied to carefully prepared surfaces to be effective. Metals should ideally be degreased and grit-blasted with 200 - 400 micron sharp aluminium for aluminium and other non-ferrous metals or chilled iron grit for steels and other ferrous metals.

Degreasing after grit-blasting improves the environmental resistance of the bonds.

Alternatively, surfaces can be chemically treated with a proprietary phosphate treatment to maximise adhesion and corrosion resistance, but many phosphate treatments have limited heat resistance at >180°C.

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

#### APPLYING CILBOND R-7159

##### AGITATION

It is necessary to stir **Cilbond R-7159** gently yet thoroughly before use. Avoid creating froth or foam, but if foaming does occur, stir slowly until reduced to a minimum. **Cilbond R-7159** should also be stirred occasionally during use and for large scale production runs, stirred continuously. Note that the product may thicken on long-term standing. If thickening does occur, stir gently yet thoroughly.

##### ROLLER-COATING

The viscosity of **Cilbond R-7159** is designed to be applied by Roller Coating, so dilution may only be necessary in some cases.

##### BRUSHING

**Cilbond R-7159** can be brush applied without the need for dilution. If improved flow is required dilute with 10 - 20 % deionised water by weight.

##### SPRAYING

For Spray Application, consider using **Cilbond 62W** (1,500 cps) which is formulated to be sprayed as supplied. It is possible to spray **Cilbond R-7159** but we recommend it is diluted to a viscosity of 25 - 40 seconds on a DIN 4 or Ford 4 cup using the minimum amount of deionised water to give an excellent spray pattern.

For conventional air pressure spray systems, a fluid pressure of 0.5-1.0 bar is typical whilst the air pressure is typically 2-3 bars, dependent on the fineness of the spray required and the initial temperature of the metal. Always endeavour to use the lowest possible gun air pressure.

A nozzle size of at least 1.2 mm is recommended and nozzle size of ca. 2mm is typical for most applications.

##### DIPPING

Dilute **Cilbond R-7159** to give a viscosity within the range of 30 - 45 seconds on a DIN 4 or Ford 4 cup using the minimum amount of deionised water (typically 10 - 20% by weight) and stir continuously. Avoid frothing or foaming.

##### DILUTION

Recommended diluents include deionised water, distilled water or deionised water/alcohol blends, but the alcohol level in any pre-mixed diluent should be at <<10%

##### COATING THICKNESS

The above recommendations should give the optimum dry coating thickness for Friction bonding of **20 – 30 microns**.



# CILBOND<sup>®</sup> R-7159

## Water-Based Development Product

### TECHNICAL DATA SHEET

#### ADDITIONAL INFORMATION

##### DRYING

It is very important to ensure the **Cilbond R-7159** is completely dry before moulding. Any retained water may cause blisters during the moulding cycle, leading to cement to metal failure and reduced corrosion resistance.

Apply **Cilbond R-7159** to pre-heated metal parts (35 - 50°C). Metals can also be put in an oven *after* coating, but do not exceed 50°C.

If applying to unheated metal parts, the ambient temperature should ideally be above 20°C and allow films to dry for at least 60 minutes.

When applying to grit blasted metals, pre-heating or heating after coating to above 20°C may be essential to prevent surface defects such as lack of film coalescence, which may manifest itself as brown resin spots. Although this is unlikely to affect bonding, it could possibly affect long-term in-service environmental resistance properties and could lead to reduced pad penetration.

It is also possible to dry the coating with cool forced air, provided the humidity is not too high.

##### PRE-BAKING

Pre-baking could reduce penetration into the friction compound, and so is not recommended for brake pad bonding. However it is important to ensure the coating is completely dry. If not, the retained water may cause blisters. See Drying Section above.

##### STORAGE

Coated parts that are fully dried may be stored for a period of several weeks, provided they are protected from dust, oil vapours and water.

##### CLEANING

Equipment should be cleaned using water or water containing detergent. If the **Cilbond R-7159** has dried to a hard film use MEK or MIBK as the cleaning solvent.

Before using **Cilbond R-7159** it is very important that any previous material is thoroughly cleaned out. When visibly clean, wash through with MEK or acetone, particularly the spray heads and nozzles. Finally, flush through with deionised water until all traces of ketone solvent are removed. This is vital, as ketones will cause Cilbond R-7159 to gel.

#### STORAGE / FURTHER INFORMATION

Avoid storing **Cilbond R-7159** at temperatures below -5°C. If freezing does occur, warm slowly, shake container and finally stir with a high shear for the minimum time to form a smooth and homogenous mix.

**Cilbond R-7159** is free from lead and virtually free from solvent and is supplied in 10 litre, 25 litre containers and 200 litre stirrer drums. 250ml trial samples are also available upon request.

For more information on **Cilbond R-7159** 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)