



## TECHNICAL BULLETIN

# APPLYING POLYURETHANE COATINGS IN COLD WEATHER




### Differences Between Classes Of Polyurethanes

There are two main classes of polyurethanes:

- Aliphatic (yow yellowing)
- Aromatic (yellow with time)

In general, the non-yellowing formulations are more sensitive to ambient conditions of temperature and humidity than the yellowing types, with the much slower curing of the non-yellowing in colder weather.

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 <http://www.polycure.com.au>

The information in this Technical Bulletin represents typical values. Application variables affect product performance therefore this information should be used as a guide. The user must satisfy themselves as to the suitability of this product for their requirements. Era Polymers assumes no liability for use of this information.

## Problems that can occur in cold weather (below 15 deg.C)


### 1. Viscosity of the coating increasing as the temperature decreases can result in:

- Reduced flow with potential for 'orange peel', 'track marks', etc.
- De-aeration reduced due to air bubbles finding it harder to rise to the surface in a viscous medium
- 'Quilting' effect (non-levelling over adjoining timber pieces) increases, especially with parquetry

**2. Curing is slower** particularly with True NON –yellowing solvent based coatings. Slow curing symptoms due to cold weather can include 'balling' when sanding or foot imprints can be seen the following day.

### 3. Solvent evaporation is slower with the following being possible;

- '**Pimples**' or 'nibs' from dust due to wet surface being 'open' for a longer time
- **Extraction** of soluble species (e.g. waxes) from some timbers e.g. Brushbox, coupled with **condensing of heavier solvent fractions** in cool, moist air, can create a '**haze**' or 'oil film' on the surface


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## TROUBLESHOOTING GUIDE FOR COLD WEATHER

PROBLEM	REASON	CAUSE	REMEDY
Poor Flow	<ul style="list-style-type: none"> <li>Cold Floor and / or cold air temperature and / or cold material</li> <li>Viscosity in can has increased with time</li> </ul>	<ul style="list-style-type: none"> <li>Viscosity higher with lower temperature</li> <li>Past shelf life or hot storage - never use products that have expired past their use by date!</li> </ul>	<ul style="list-style-type: none"> <li>Add up to 30 ml per litre (3%) Wet Edge Extender 3320</li> <li>Try Wet Edge Extender but may not work if material has reacted too much in the can</li> </ul>
Orange Peel	<ul style="list-style-type: none"> <li>Cold Floor, air or material</li> <li>Film too thick</li> </ul>	<ul style="list-style-type: none"> <li>Viscosity high</li> </ul>	<ul style="list-style-type: none"> <li>Add Wet Edge Extender 3320</li> <li>Minimise film thickness</li> </ul>
Low Gloss	<ul style="list-style-type: none"> <li>Low temperatures / 'Dew Point' reached</li> <li>Possible if Dew is on grass outside</li> </ul>	<ul style="list-style-type: none"> <li>'Dew Point' if reached can deposit microscopic moisture particles on surface causing dulling effect</li> </ul>	<ul style="list-style-type: none"> <li>Apply finish in warmer part of day</li> </ul>
Slow Drying	<ul style="list-style-type: none"> <li>Cold (and maybe dry) conditions</li> </ul>	<ul style="list-style-type: none"> <li>Aliphatic have slow cure in cold conditions</li> </ul>	<ul style="list-style-type: none"> <li>Add DURAPOL 5995 Accelerator if compatible</li> </ul>

### CONTACT US

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