

## TECHNICAL SUPPORT REPORT

### GUIDELINES FOR APPLICATION OF SPRAY GELCOAT

**AIM:**

This guide is designed to enable customers to achieve high quality mouldings using spray gelcoat.

<b>Gelcoat Storage</b>	<ul style="list-style-type: none"> <li>• Keep gelcoat stored in original containers at appropriate temperature (~ 20°C is ideal).</li> <li>• Ensure good stock rotation within the recommended shelf life. (Gelcoat products past their shelf life may demonstrate properties outside the optimum range. For instance, the low shear viscosity may have drifted, making the gelcoat more prone to sagging).</li> <li>• Mix the gelcoat in the keg/drum before decanting using a low shear mechanical mixer. High shear will break down the thixotropy and introduce excessive air – this should be avoided.</li> </ul>
<b>Workshop, Mould/Surface &amp; Material Preparation</b>	<ul style="list-style-type: none"> <li>• Where possible, keep the workshop, mould, tools and materials at a temperature between 18 and 20°C. 15°C is the minimum temperature for gelcoat or topcoat application.</li> <li>• When equipment is brought in from a cold environment, allow plenty of time for it to warm up as condensation on a cold mould surface will give rise to cure issues.</li> <li>• A 25Kg keg of material may require up to 48 hours to reach room temperature from unheated outside storage.</li> </ul>

<b>SPRAY APPLICATION</b>	
<b>Spray Application</b>	<ul style="list-style-type: none"> <li>• Spray application can help to eliminate variations in thickness and give a more consistent gelcoat film.</li> <li>• It is important that the spray equipment is set up to give a good fan to achieve the optimum spray pattern.</li> <li>• Spray in even passes in a number of directions until the required thickness is achieved.</li> <li>• Internal catalyst mixing is the best option for gelcoats. External catalyst mixing may lead to inconsistent cure across the film, which can give rise to other common gelcoat defects such as pre-release, undercured or wet patches, or wrinkling when resin is applied later, as well as HSE implications.</li> <li>• External catalyst mixing may also be more hazardous as a mist of peroxide is generated, and there is a risk of catalyst overspray.</li> <li>• Keep the machine clean so that any risk of contamination is minimised, and so that the operator can correctly read all of the manometers.</li> <li>• Always test the spray gun in the spray booth into a waste bucket.</li> <li>• A catalyst alarm can be fitted to most application machines to notify the operator when the catalyst reservoir needs to be refilled. This avoids spraying any uncatalysed gelcoat, which is very time consuming and messy to remove.</li> <li>• Where possible, situate the mould to provide the best access for the operator. Mounting the mould on a gimmel may be the best option for large or deep moulds. Scaffolding or platforms may be required to give access to external surfaces of large structures.</li> <li>• When adjusting the spray pattern, always use the lowest pressure and largest nozzle to achieve the required spray pattern. High pressure and small nozzles will require maximum atomisation (and so introduce air which could lead to porosity) and will</li> </ul>

	<p>also result in higher than necessary styrene emission. Avoid fingers in the spray pattern.</p> <ul style="list-style-type: none"> <li>• Spray perpendicular to the mould surface at a distance of around 50 – 100cm. Holding the gun at an angle to the mould surface will result in uneven thickness of the gelcoat film.</li> <li>• Spray a mist coat initially. This is a thin layer that just covers the mould surface. Wait for several minutes (or move further along the mould). Continue to build up the wet film thickness using a number of passes. In order to minimise the tendency for porosity, each pass should be around 200<math>\mu</math>. Exceeding the maximum wet film thickness (600 – 800<math>\mu</math>) may lead to drainage. This may in turn lead to colour separation issues and difficulty with finishing processes.</li> <li>• Each successive pass should overlap the previous one by approximately 25%, and each pass should be at a constant speed (to achieve consistent film thickness).</li> <li>• Use a thickness gauge to measure the wet film thickness.</li> <li>• When spraying is complete, flush the gun. Continue with the clean down procedure as specified by the equipment manufacturer.</li> </ul>
--	---

<b>FINISHING</b>	
<b>Full Cure of The Topcoat Layer</b>	<ul style="list-style-type: none"> <li>• It is imperative that the topcoat layer has reached a good degree of cure. Undercured gelcoat will lead to difficulties during the finishing process and may not demonstrate the desired properties in terms of long term performance.</li> <li>• This can be achieved by keeping the finished part warm for at least 48 hours after the last gelcoat/topcoat application.</li> <li>• The topcoat can be flatted back using manual or mechanical means. Long-boarding may be required for large flat structures.</li> <li>• Using appropriate abrasion and polishing techniques a flat, high gloss surface can be achieved.</li> </ul>