

# In-Mould Gel-Coating for Polymer Composites

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## Abstract

Fibre-reinforced polymer matrix composites find use in most transport applications, chemical plant, renewable energy systems, pipelines and a variety of other industries. These applications often require a separate surface finish for cosmetic and/or durability reasons. The coating is usually painted onto the mould before the structural laminate is moulded. The process may emit vapours into the workplace and the environment and given the expectation of harmonisation of styrene occupational exposure levels at 20 ppm across Europe will be increasingly difficult to achieve within the legislative framework.

In the context of an eight-partner FP7 Research for the benefit of SMEs project, two technologies are being considered for in-mould gel-coating. The first is the use of a separator layer to define the volume of the laminate and of the gel coat. The second is a proprietary technology, In Mould Surfacing (IMS), wherein a removable silicone shim is used to define the volume into which the gel-coat will be injected. This paper will report the respective process developments, the measurement of surface quality using WaveScan DOI and the assessment of the bond strength by pull-off tests.

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