1 Introduction

This material is designed for use as the surface finishing layer for in-mold composite components. HexPly® XF surfacing prepreg provides a paint-ready surface finish without the need to use a gel or process coat. A cured HexPly® XF surface requires minimum preparation to remove any release agent prior to painting.

2 Health & Safety

- Read the safety data sheets accompanying this material
- Wear suitable personal protective equipment

3 Material Description

HexPly® XF surfacing prepreg has a similar appearance to the standard glass HexPly® XF SuperFIT™ products. However, HexPly® XF has a surface finishing side and a non-surface finishing side. The surface finishing side is indicated by a removable protective foil. This side of the prepreg needs to be placed against the mold surface once the foil has been removed.

4 Tool Preparation

HexPly® XF surfacing prepreg can be laid up against a non-porous and airtight surface using a composite or metal tool that is capable of withstanding the cure temperature without dimensional deforming or degradation of the tool surface. The tool surface can have a glossy or matt finish. Any surface imperfections or imprinting of a pattern on the tool surface will be reflected on the surface of the cured HexPly® XF surfacing prepreg. The tool needs be suitably sealed and prepared with a release agent to ensure safe part release after cure. Certain non-permanent wax based release agents may interact with the HexPly® XF surfacing prepreg during cure and form a surface which may require extensive sanding prior to painting in order to ensure that paint defects such as fish eyes do not arise. It is advisable to test release agent compatibility, surface preparation and paint finish on a small test laminate.
Lay Up

HexPly® XF surfacing prepreg can be used with epoxy based prepreg, infusion or prepreg/infusion lay up configurations. Care should be taken when applying HexPly® XF surfacing prepreg to the tool surface in order to achieve the best possible finish. The side of the HexPly® XF surfacing prepreg that faces the tool must be the surface finishing side and care should be taken when removing the protective foil to avoid damaging the surface finishing characteristics of the material. Ensure that HexPly® XF surfacing prepreg is pressed flat against the mould surface in order to smooth out any creases. Creases may result in surface defects where HexPly® XF surfacing prepreg has not been in contact with the mould surface. If necessary, HexPly® XF surfacing prepreg can be overlapped as shown in the schematic below. A 2-5 cm overlap is sufficient.

Applying Vacuum & Cure

HexPly® XF surfacing prepreg is suitable for out of autoclave vacuum bag or infusion processing and cure. Ensure that the bagging procedure allows for good air evacuation and test with a manometer to make sure that good vacuum is being applied. A “P6” style of perforated release foil is recommended for prepreg lay ups although HexPly® XF surfacing prepreg will work with other perforated releases foils (e.g. P3.) A minimum vacuum level of 0.9 bar is recommended throughout the cure cycle. HexPly® XF surfacing prepreg can be cured either by the recommended cure cycles for M79 prepregs or according to the cure cycle of the infusion system. It is recommended to try on a small scale first. The schematic drawing below shows how HexPly® XF surfacing prepreg could be used in an infusion application.

Surface Preparation Before Painting

HexPly® XF surfacing prepreg is designed for minimum surface preparation prior to painting. The residual release agent left on the surface of the blade after demoulding results in a low surface energy, which can lead to poor paint wet out, paint defects (such as fish eyes) and poor chemical adhesion. Of primary importance is to remove the release agent in order to achieve a high surface energy (>40mN/m.) Surface energy can be measured on the cured surface using Dyne indicator pens.

Release agent removal can be achieved through light sanding with P220 grit paper or preferably, with non woven polymeric abrasive pads. Care must be taken not to over-sand the surface as this could lead to pinholes after painting. Sanding the surface will also reduce the surface gloss, which helps provide mechanical adhesion for the paint.

Any visible surface defects should be repaired using a polyurethane, epoxy or other suitable filler. These repairs need to be sanded down to the surface profile of the part. Again, care must be taken not to over-sand the HexPly® XF surfacing prepreg surface around the repaired area.
Hexcel Product Family

For more information
Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexMC®-i molding compounds
- HiFlow™ RTM resins
- HexBond® adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates
- HexAM® additive manufacturing

For US quotes, orders and product information call toll-free 1-866-601-5430. For other worldwide sales office telephone numbers and a full address list, please go to:

http://www.hexcel.com/contact

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