



USER GUIDE

HexPly® XF2P Surface Finishing Prepreg for Wind Blades





HexPly® XF2P User Guide

Guidance for Use

This document is intended to act as a guide for users of HexPly® XF2P to help achieve an optimum paint-ready surface finish.

Please read the following carefully.

Introduction

This material is designed for use as the surface finishing layer for in-mould composite components. HexPly® XF2P provides a paint-ready surface finish without the need to use a gel coat. Only minimum preparation is required to remove any release agent prior to painting.

Health and Safety

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

Material description

Triaxial HexPly® XF2P appears to be very similar to standard triaxial prepregs. However, HexPly® XF2P has a surface finishing side and a non surface finishing side. The surface finishing side is also the side where the biaxial component of the fabric is located. At the outer edges of the prepreg roll a lightweight fleece will be visible.

Mould preparation

A composite mould that is free from surface defects and leak free is recommended. Defects, such as pits, scratches or “fishbones” will leave an impression on the cured shell surface. It is recommended that these mould defects are repaired before using HexPly® XF2P. Alternatively, their location on the mould should be noted so that the corresponding imprint on the shell surface can be easily located.

Whereas a gel coat will effectively “seal” a leaking mould, with HexPly® XF2P, a leaking mould will result in poor vacuum which may lead to entrapped air and pinholes in the surface of the laminate. This will appear as “white” areas on the surface of the cured laminate. Therefore, it is recommended that the mould is free from leaks.

The mould surface should be suitably sealed and prepared with a suitable release agent.



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Lay up

Care should be taken when applying HexPly® XF2P to the mould surface in order to achieve the best possible finish. The side that faces the mould 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® XF2P is pressed flat against the mould surface in order to smooth out any creases. Creases may result in surface defects where HexPly® XF2P has not been in contact with the mould surface.

Pay special attention when overlapping layers of HexPly® XF2P.

Applying vacuum and cure

HexPly® XF2P is designed for vacuum bag 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. It is recommended that every effort is made to ensure the maximum available vacuum to ensure good laminate and surface quality. Vacuum over 0.75 bar until the gelation point of the resin has been reached is most desirable.

HexPly® XF2P will work using standard shell cure cycles up to 130°C. If possible, allow dwell at lower temperatures to allow air evacuation before final cure at >120°C for at least one hour.

Typical cure cycles include: 60min @ 120°C or 90min @ 110°C or 120min @ 100°C.

Surface preparation before painting

HexPly® XF2P 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 will lead to poor paint wet out and chemical adhesion. Of primary importance is to remove the release agent in order to achieve a high surface energy. Surface energy can be measured on the blade using "Dyne pens".

Release agent removal can be achieved through light surface preparation. Preparing the surface will also reduce surface gloss which helps provide a key for the paint. Care must be taken not to over sand the surface as this will lead to pinholes after painting. Sanding the surface will also reduce the surface gloss which helps provide a key for the paint.

Any visible surface defects need to be repaired using a polyurethane or epoxy based filler. These repairs need to be sanded down to the surface profile of the blade.

Painting

HexPly® XF2P can be painted with a suitable polyurethane based external paint. The use of a thin primer coat layer of paint may help to prevent defects in the painted surface, such as pinholes. However, this should not be necessary.



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Precautions for Use

The usual precautions when handling uncured synthetic resins and fine fibrous materials should be observed. A Safety Data Sheet is available for this product. The use of clean disposable inert gloves provides protection for the operator and avoids contamination of material and components.

Important

All information is believed to be accurate but is given without acceptance of liability. All users should make their own assessment of the suitability of any product for the purposes required. All sales are made subject to our standard terms of sale which include limitations on liability and other terms.

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