

Autoclave processing – lay-up and bagging guidelines

The guidelines in this document are applicable to all Cytec autoclave processable preregs with the exception of; phenolics, bismaleimides (BMI's) and cyanate esters.

Thawing prepreg before use

Cytec preregs must be stored in a freezer. When material is removed from the freezer, it is essential that the roll be allowed to thaw and reach room temperature before the polythene bag is opened. For example, the thaw time for a 20 linear metre (250ft²) roll taken from -18°C (0°F) storage into a 21°C (70°F) room is typically between 4 and 6 hours. Condensation may form on the surface of the material if it is not fully thawed. Moisture within a curing laminate may be detrimental to final part quality and appearance. When materials are returned to the freezer they must be resealed in a polythene bag containing a desiccant pack to prevent ingress of moisture.

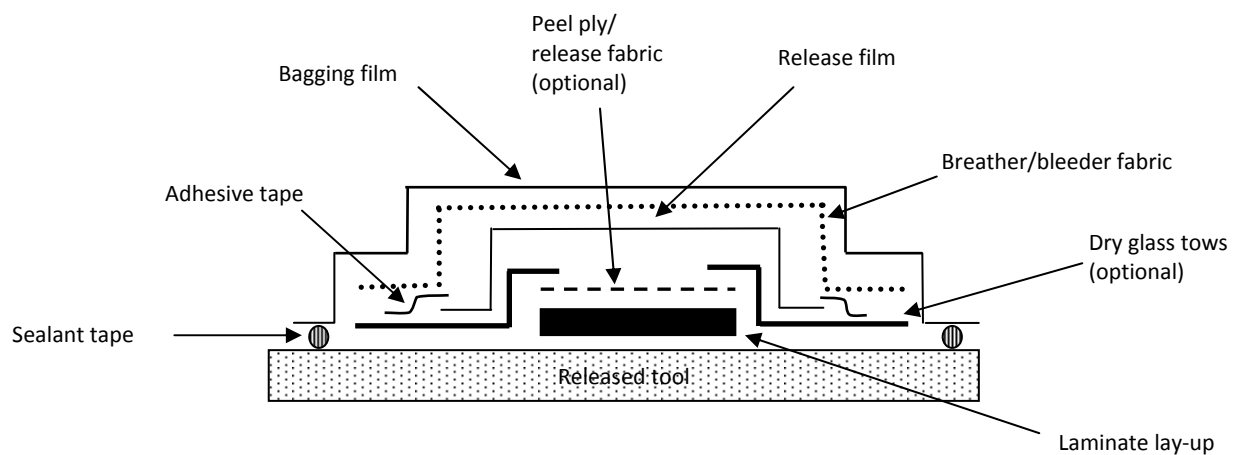
Lay-up

Prepreg should be cut to shape and laid up in accordance with design instructions. Care must be taken during lay-up to ensure the prepreg conforms exactly to the tool shape, especially around internal female corners.

To enable the prepreg to conform fully to all geometries of the tool and to remove any trapped air between plies, it is recommended that the lay-up is de-bulked at regular intervals. This is carried out by placing the lay-up under a vacuum bag and pulling a minimum of 980mbar (29"Hg)* for up to 30 minutes (refer to de-bulking guidelines, [TDS1036] for recommended consumables).

A vacuum drop test should be performed prior to cure of the part. The test must show a vacuum loss of no more than 68mbar (2"Hg) within 10 minutes once the vacuum source is removed.

*This is the ideal vacuum level, however, it is recognised that it is not always possible to attain. If in doubt, please contact our technical support staff for further information.



Recommended bagging procedure

Peel ply/release fabric (optional)

A peel ply or release fabric can be used if required. For thin parts of only a few plies, an impregnated peel ply may be required to ensure the laminate retains sufficient resin once the peel ply is removed. Please contact our technical support staff for further information.

Peel plies are recommended when a bonding surface is required. Release fabrics are recommended for controlled resin bleed of the laminate where no bonding will take place.

Release film detail

The solid release film should extend beyond the laminate edge by a minimum of 25mm (1inch) and may be taped down to the tool surface with adhesive tape as required.

Breather detail

One ply of heavyweight breather 330g/m² (10oz/yd²) is recommended. The breather should connect directly to the vacuum ports, where two or three additional layers of breather should be applied locally.

Glass tows detail (optional)

Placing dry glass tows at 300mm (12inch) intervals around the edge of the laminate will provide air paths under the release film and into the breather.

Recommended consumables

Please ensure that there is sufficient temperature control/monitoring to guarantee that the consumables are not exposed to an environment exceeding their maximum operating temperature. Please contact our technical support staff for further information.

Product type	Product name	Material	Maximum operating temperature
Release film	A2000	Blended co-polymer	150°C (302°F)
	A6200	ETFE	232°C (450°F)
	A5000	FEP	260°C (500°F)
Peel ply	A100PS	Nylon	180°C (356°F)
	B100	Nylon	180°C (356°F)
	F400	Polyester	200°C (392°F)
	60001	Polyester	200°C (392°F)
	51789	Nylon	205°C (401°F)
Release fabric	BR100	Nylon	180°C (356°F)
	A8888	Nylon	180°C (356°F)
	51789 SRB	Nylon	205°C (401°F)
	FF03PM	Glass	320°C (608°F)
Breather/bleeder fabric	AB10/RC-3000-10	Polyester	205°C (401°F)
Bagging film	VACFILM450V	Co-extruded nylon	170°C (338°F)
	STRETCH-VAC™3000	Nylon	204°C (399°F)
	VAC-PAK® HS8171	Nylon	205°C (401°F)
	VAC-PAK® HS6262	Nylon	232°C (450°F)
Adhesive tape	FT1	Polyester	204°C (399°F)
Sealant tape	UCS180	Butyl	180°C (356°F)
	SM5142	Butyl	205°C (401°F)
	SM5126	Butyl	232°C (450°F)