

PRELIMINARY PRODUCT INFORMATION

INTRODUCTION

This document outlines procedures for the use of ACG prepreg materials in the manufacture of high quality mould tools. It is recommended that reference be made to the individual Product Data Sheets and Technical Data Sheets.

INSTRUCTIONS

- Master model material selection should be made with reference to the temperature and pressure to be applied during the cure process.
- If the tool is to be autoclave cured, the master model must be constructed to withstand autoclave conditions, at temperatures between 25°C (77°F) and 100°C (212°F) under applied pressures of 0.62MPa (90psi).
- The master model must have full vacuum integrity; even a very small leak will more than likely result in:-
 1. A tool skin with a pitted surface.
 2. Internal voids.
 3. Lack of consolidation.
 4. Poorly formed laminates around features on the master model.
 5. Loss of vacuum integrity.

The user should not expect bond lines in masters or cast metal masters to be vacuum integral.

- The master model must be constructed from materials that will not cause adverse reactions with the tooling prepreg resin system. Equally, it should not be coated with a sealer that will allow migration of the chemicals which cause problems. Where the possibility of surface reaction is suspected, the surface and/or its coating should be treated with the appropriate pre-release treatment to counter the effects.
- Bond lines in the master will cause a visible witness on the tool surface unless they are fully cured. Bake just prior to the final machining or hand finishing.
- Master models must be autoclave trialled at 34.4KPa (5 psi) and 5°C (9°F) above the planned end use conditions to ensure the model does not move or collapse during tool skin cure.

- Only use recommended release agents. Bake the release agent.
- Ensure the master model is completely dry; any moisture or solvents retained on or near its surface will cause pitting and voids in the tool skin laminate. Ensure the working area is clean and dry to prevent contamination of master and all materials.
- Always wear gloves when handling the prepreg.
- Ensure the prepreg is fully thawed prior to removing from (this can take 6 hours for a full roll).
- Ensure there is sufficient outlife remaining on the prepreg to complete laminating and cure, prior to unsealing the roll and starting work.
- Reseal all prepreg not required in a waterproof bag and place in a freezer.
- Monitor the prepreg outlife both for the material to be used and the material that is re-frozen.
- Remove all selvages from the prepreg.
- Cut the prepreg into convenient sized squares or rectangles for laminating.
- Always use 45° strips in corners.
- Always use a leakframe around the tool skin periphery.
- Always use the "standard" laminate or refer to ACG technical department for advice.
- Always monitor temperature during tool laminating and refer to the outlife remaining on the tool prepreg.
- Debulk as per detailed instructions, then carry out a final debulk on completion of laminating.
- Use the sealed bag technique for final bagging prior to cure. Re-bag the laminate in preparation for cure using non-perforated release film (**AND** dry peel ply if any of the ACG LTM™210 series prepregs are being used) after the final debulk.
- Place glass tows every 0.5m (20in) around the laminate periphery to connect the laminate to the breather.
- Apply vacuum integrity test prior to cure, referring to TDS1001 (minimum of 28in Hg).
- Cure in accordance with TDS1001 and the appropriate product data sheet for the ACG prepreg being used.
- Do not ramp temperature at a faster rate than specified in the product data sheet.

- Apply the autoclave pressure at the appropriate time in accordance with TDS1001 and the product data sheet for the prepreg being used.
- If using a syntactic block material for the master model, cool extremely slowly to avoid cracking, preferably insulating the surfaces of the block exposed to the air to prevent the master surface cooling too rapidly.
- Strip the tool very carefully from the master surface.
- Postcure the tool strictly in accordance with the end-use requirements and the detailed instructions in TDS1001 and the appropriate product data sheet.
- Manufacture and attach the backing structure according to TDS1001.



The following product data sheets must be referred to when using each material to ensure that the full materials performance is realised.

ACG Product	Data Sheet Ref No.	Health and Safety Information Sheet Ref No.	Summary
TB650	PDS1011	MSDS 013	Tooling Block - information on use and technical data
TB620	PDS1040	MSDS 081	
AS102	PDS1027	MSDS 043 & 044	
AS103-LV	PDS1029	MSDS 150 & 151	
AS105	PDS1048	MSDS 104 & 105	
CS705	PDS1041	MSDS 084, 085 & 086	Tooling Block Surface Coating - information on use and technical data
CS706-1	PDS1066	MSDS 149	
CS707-1	PDS1067	MSDS 154 & 448	Wipe on Surface Sealer - information on use and technical data
FS265	PDS1014	MSDS 031 & 032	Tooling Block Filler - information on use and technical data
GC330	PDS1120	MSDS 279 & 280	High Temperature Use Gel Coat - information on use and technical data
--	TDS1001	--	Manufacturing Procedure for LTM Prepreg Mould Tools
LTM [®] 10,12 & 16	PDS1005	MSDS 001, 003, 004, 016,	LTM10, 12 & 16 Tooling Prepregs - information on use and technical data
LTM [®] 210 Series	PDS1081	MSDS 160, 244, 262, 246	LTM210 Series Tooling Prepregs - information on use and technical data
HTM [®] 512	PDS1115	MSDS 265	HTM512 BMI Tooling Prepreg - information on use and technical data
--	TDS1019	--	User's Manual for LTM Prepregs
--	TDS1004	--	Manufacturing Procedure for Inclusion of Inserts and Other Related Features in LTM Composite Mould Tools