



**the tooling
concept**

world known low profile technology

XO = perfect dimensional stability

MAXGUARD® GT tooling gelcoat
AME 6000 T-35 skin coat resin
AROPOL XO fast tool resin

ASHLAND®

plug / model

- produce plug/model of material resistant to styrene.
- construct plug/model using heat resistant material for exact dimensions to give a good tool/master tool*.
- use high quality surface polishing materials.
- produce tool either directly from the plug/model or from a master.

1. plug/model ▶ (2. master tool ▶ 3. master) ▶ 4. tool ▶ 5. part

*
the low curing exotherm of AROPOL Fast Tool resin allows plug/model to be built of relatively low heat resistant material.

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MAXGUARD® GT tooling gelcoat

MAXGUARD GT Tooling Gelcoat is based on epoxy vinyl ester which is a guarantee for a hard and glossy tool finish. Also good mechanical and chemical resistance of the tooling gelcoat will increase life time of the tool. MAXGUARD GT Tooling Gelcoat is available in spray and brush quality.

- Ensure that temperature of the work shop as well as plug/model and tooling gelcoat is 20 - 25 °C.
- spray by low pressure airless gun / cup or by brush.
- spray tooling gelcoat carefully wet on wet in three passes; first 200 microns (for good air release) and then 300-400 microns followed by 300-400 microns, to give final cured gelcoat thickness 700-900 microns.
- use high quality MEK-peroxide 1,5 volume % (15 ml MEK-peroxide to 1 kg of tooling gelcoat)
- allow tooling gelcoat to fully cure (2-3 hours) before continuing work.

MAXGUARD®
PREMIUM GELCOATS



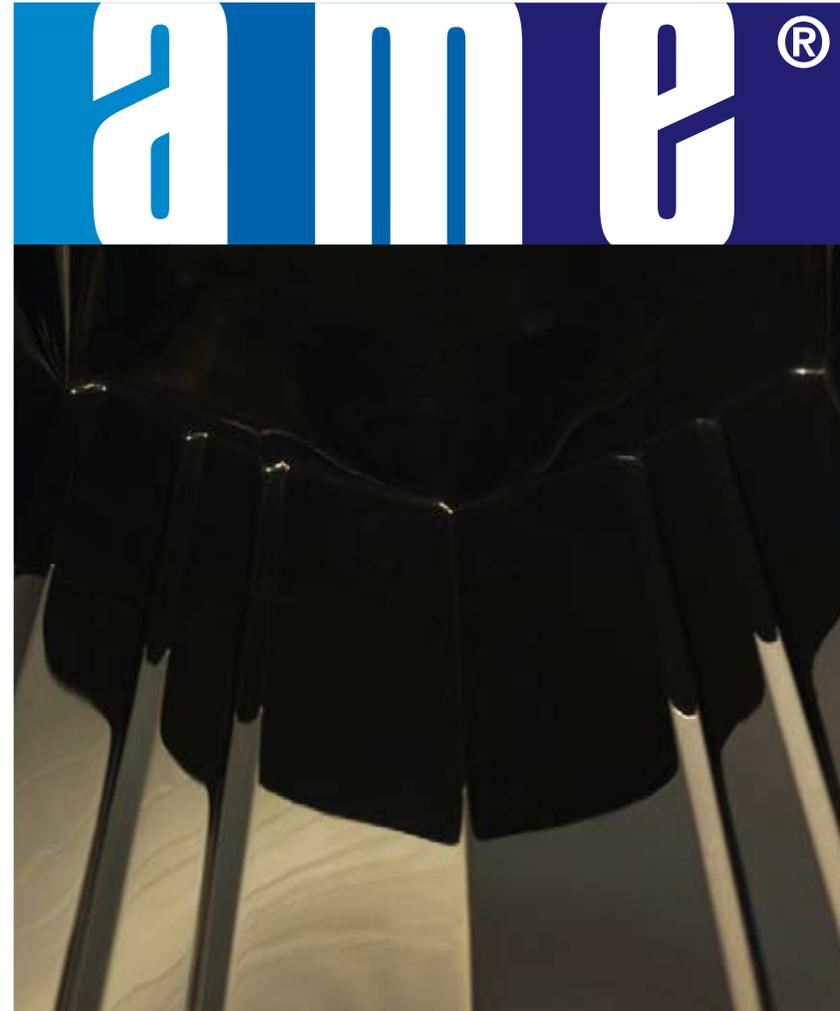
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AME[®] 6000 T-35 skin coat resin

AME 6000 T-35 Skin Coat is a special epoxy vinyl ester based resin with low shrinkage. The skin coat resin with its low viscosity and high mechanical strength gives an initial layer free of cavities and provide good support for the tooling gelcoat. AME 6000 T-35 Skin Coat is recommended for big tools under a lot of stress, tools of complicated structures and tool edges/flanges which come under lot of stress. AME 6000 T-35 Skin Coat is available for hand lay-up and spray-up applications.

- ensure that temperature of the work shop as well skin coat resin is 20 - 25 °C.
- use high quality MEK-peroxide 1,5 volume % (15 ml MEK-peroxide to 1 kg of skin coat resin)
- roll out laminate carefully to a smooth surface avoiding irregularities or fibers sticking out which can create air pockets in the final laminate.
- lamination work with Aropol Fast Tool can start when the skin coat resin is fully cured (2-3 hours).



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AROPOL[®] fast tool XO resin

AROPOL Fast Tool XO is a unique new resin based on Ashland's proven low profile (LP) technology which gives the final tool a superior surface profile and good dimension stability. The low viscosity and good curing characteristics of the tooling resin makes it easy to apply and to achieve good final laminate properties. AROPOL Fast Tool XO resin is available for hand lay-up and spray-up applications.

- ensure that the temperature of the work shop and the tooling resin is 20-25 °C.
- use high quality MEK-peroxide 1,5 volume % (15 ml MEK-peroxide to 1 kg of tooling resin)
- build laminate thickness 4-8 mm wet on wet with powder bound mat by hand lay-up or by spray-up.
- when curing between layers, check that the underlying laminate is fully cured (2-3 hours) before continuing work.
- the glass fiber content of final laminate will be 25-30 %.

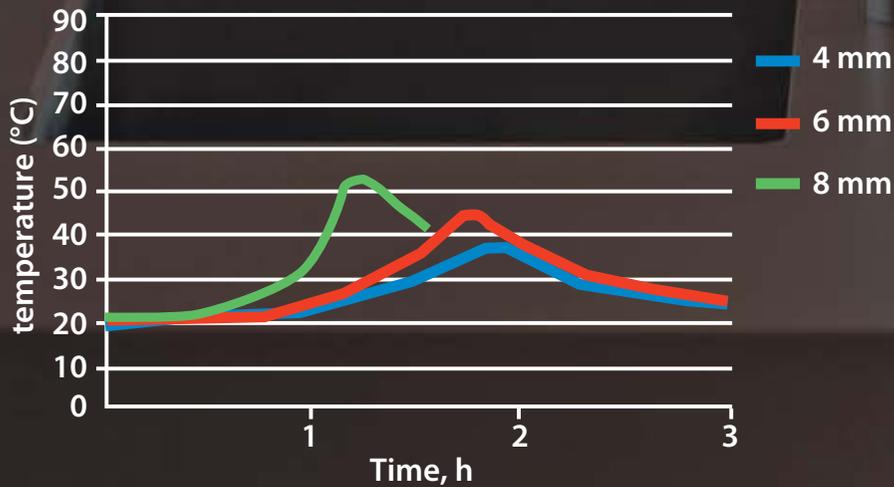
AROPOL[®]

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world known low profile technology

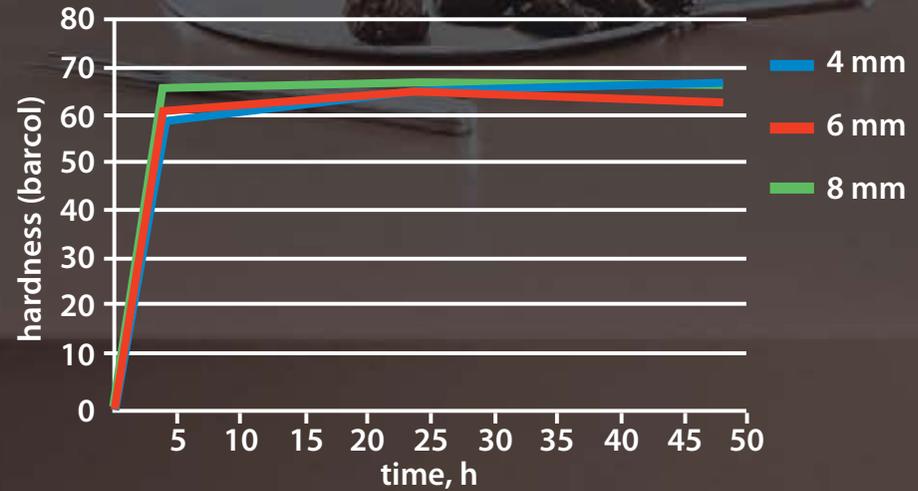
AROPOLO[®] fast tool resin

AROPOLO[®]

peak exotherm of laminate
(powder bound mat)



barcol development of laminate
(powder bound mat)





AROPOL[®] fast tool XO resin

AROPOL[®]

- post curing (still on plug/model) will improve final dimensional stability of tool *.
- master tool or final tool should not be demoulded from plug or master before 24 hours after finishing lamination work.
- storage time of AROPOL Fast Tool XO resin is four (4) months.
- AROPOL Fast Tool XO resin is delivered in 20/25 kg pails and 250 kg drums.

* initial good curing of gelcoat, skin coat and tooling resin is most important and cannot be compensated for by post curing.



advantages of the tooling concept

- **MAXGUARD GT** gelcoat gives a hard, glossy surface with good heat and chemical resistance.
- **AME 6000 T-35** skin coat with low shrinkage gives good mechanical support to the gelcoat.
- **AROPOL Fast Tool XO** resin gives the final tool dimensional stability and superior profile
- the three products are easy to apply by sponging/spraying or by hand lay-up/brushing.
- the low styrene emission from skin coat and tooling resin improves working environment.
- only one type of peroxide is needed for curing the three products.
- the Tooling Concept provides an efficient way of building high quality tools.