

13100 ACE PLASTIC COATING INSTRUCTIONS FOR APPLYING

May be applied by drip coating or brushing.

DRIP COATING:

Dip glass to desired depth, remove and allow to drain until dripping stops. Invert vessel and place in oven at 375°F for 10-15 minutes or place between two 250 watt infra-red lamps of the "drug store" variety until the film clears. Aluminum foil reflectors (cylindrical) should be wrapped around the lamp bulbs.

BRUSH COATING:

Brush on and allow film to smooth out. Cure as above.

The excess material that drips off may be re-used. No volatile solvents are present to be lost.

While the toxicity of the compound materials is of low order, it is recommended that adequate ventilation be provided to remove vapors that are given off during baking. To date, no ill effects have been observed from these vapors except for a mild irritation of the eyes and mucous membranes.

Infra-red radiation is damaging to the eyes. Protective sunglasses should be worn if this method is used.

CONTROL OF FILM THICKNESS:

When applied as above, the thickness of the cured film will be 0.3 to 0.5 mm. Heavier coatings may be applied in one operation by preheating the glass, which will cause a gel to form as the coating is applied. Do not preheat above 200°C (390°F). Note that heat transfer through the plastic is low. Flask films which are to be subsequently heated should not be thicker than 1.0 mm to avoid serious overheating.

HEAT RESISTANCE:

The coating is a thermoplastic and softens appreciably at temperatures above 110°C, becoming less protective. High curing temperature produces a tougher film; 5 to 6 minutes cure at 200 to 220°C develops optimum toughness, time being critical.

Materials boiling higher than water should be avoided, particularly if a Glas-Col mantle is used for heating; mantle-film "interface" temperatures as high as 270°C have been observed when boiling water gently.

In tests with boiling water, (5) thirty minute heating periods produced mild scorching, but did not destroy the protective value as determined after cooling. Hot films are too soft to offer puncture proof protection in more than 50% of the breakages, and it is therefore advisable to allow the contents to cool before transporting.

A shielded infra-red heater or non-conducting hot plate is preferred over other heating methods. Oil bath heating is undesirable because some of the plasticizer is leached out causing the film to harden and become too brittle. Silicone oils are more suitable than mineral oils at temperatures below 150°C.

VACUUM SYSTEM USES:

Coatings 0.35 to 0.5 mm thick after curing at 375°C, 10-15 minutes, were 100% effective in preventing flying glass when fully evacuated flasks (up to and including 3 liter size) were broken.

Slight punctures may be expected in about 50% of the cases with film of this thickness. Punctures are caused primarily by air forcing the film against the fixed jagged edges of glass that remain after breakage. Thicker films are more puncture resistant.

Other vacuum system uses include the sealing of joints and stopcocks by curing the plastisol in place on the assembled units. Several methods may be employed:

1. **JOINTS**— Joints may be coated after greasing or the plastic may be used and cured to effect the seal. In the latter case, the joint should first be degreased. Warming the glass to not over 200°C before applying the plastic will cause the coat to thicken enough to prevent running. Over curing, that is to the point of scorching, will make it extremely difficult to separate the joint in disassembly. Exterior coating should be applied as a second coat, extending about one inch past the ground surface on each side.

2. **STOPCOCKS**— Only exterior coatings are suitable for use with unpolished stopcocks. The entire surface including the plug, is covered up to the base of the handle. Excess may be trimmed with a knife.

The plug is easily turned when cure is complete. The coating covering the bottom of the plug resists the tendency of the plug to work in further and eventually stick.

The vapor pressure of the plasticizer is about 1.5×10^{-7} mm Hg at 20°C and this could be the limiting value under adverse conditions.

REMOVAL OF COATING:

This coating may be stripped from the glass simply by cutting with a knife or razor blade and peeling off.



P.O. Box 688 • Vineland, NJ 08362-0688
856-692-3333 • Fax: 1-800-543-6752

TOLL FREE: 1-800-223-4524

Internet: www.aceglass.com e-mail: sales@aceglass.com