

# Product Data



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## B-3019 BLACK VINYLESTER HYBRID TOOLING GEL COAT

HK Research Corporation's Tooling Gel Coats are designed to provide the hard, durable, high-gloss surface required in a superior grade polyester tool. The toughness and chemical resistance of these tooling gel coats will develop within 24-48 hours after lamination and removal from the master or plug. This rapid development of physical properties allows the mold builder to develop the high-gloss, mirror-like finish required in polyester molds.

B-3019 Black Vinylester Hybrid Tooling Gel Coat is especially formulated to increase this toughness and chemical resistance so as to produce a longer lasting mold surface that resists hazing and crazing.

B-3019 is formulated for spray application with standard cup or pressure pot spray equipment. The color is that of a typical black tooling gel coat but this type of tooling gel coat is also available in other colors such as gray, red and orange, if so desired.

### TYPICAL PROPERTIES OF UNCATALYZED GEL COAT

Weight Per Gallon, 77°F	8.9 - 9.1 lbs.
Specific Gravity, 77°F	1.1
Viscosity, Brookfield, 77°F	
6 rpm	10,000 - 14,000 cps
60 rpm	2,000 - 2,600 cps
Thixotropic Index	5.0 - 6.0
Shelf Life, 77°F	
Uncatalyzed	3 months minimum
Catalyzed, 2% MEKP*	18-22 minutes

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\*NORAC MEKP-925H, 100 gram mass

page 1 of 3  
HKR115-050698rev

## APPLICATION

HK Research Tooling Gel Coats are pre-promoted and thixotropic as supplied. These gel coats should be applied only on properly prepared surfaces. All experienced mold makers understand that care in the preparation of the plug or pattern is essential to producing a good mold. We suggest that the gel coats be applied in multiple passes of the spray gun in order to slowly build up the desired thickness. It is recommended that only 3-5 mils be applied with the initial passes of the spray gun. The "several passes" technique will keep air entrapment at a minimum and result in a "pin hole and porosity free" film. A film thickness of 20-25 mils should be applied in order to obtain maximum mold life. HK Research Tooling Gel Coats are formulated to provide a rapid gel and cure time at a nominal 2% MEKP. Vinylester resins do require special catalyst systems to avoid gassing and pinholing of the gel coat surface. Our experience has shown that a "low water/low hydrogen peroxide catalyst" such as NORAC MEKP-925H will provide the optimum in pinholing resistance. Typical gel time of B-3019 @ 77°F with 2% NORAC MEKP-925H catalyst is 18-22 minutes.

It is essential that the mold temperature and ambient air temperature, as well as the material temperature, be within a temperature range of 65°F to 80°F for best results. Further assistance with particular problems and/or applications can be obtained from the HK Research Corporation Technical Service Laboratories at 1-800-334-5975.

It is suggested that the catalyst concentration used in the application of HK Research Tooling Gel Coats not exceed 2.5% or fall below 1.8% to retain maximum properties. The recommended range for the catalyst concentration within the applied film is 1.8% to 2.2% at 77°F.

Under normal conditions the gel coat is ready to "lay up" in 1 to 2 hours. The "time to laminate" is dependent on the room temperature, humidity and air movement, as well as the catalyst concentration and the film thickness. A wet film thickness of at least 18 to 20 mils is recommended for proper hiding, cure, and performance properties. These products should not be used when the temperature conditions, both mold and ambient, are below 65°F as the curing may be adversely affected.

## **MIXING**

Prior to removal from the shipping container and catalyzation, it is recommended that the materials be mixed thoroughly to reincorporate any settled or stratified material. It is further recommended that the material in the shipping container be mixed at least once a week during its use period. This mixing procedure would assure the most uniform properties during application of the gel coat. Mechanical mixing is recommended and should be sufficient to "turn" the material 10 times. Most common gel coat mixing equipment will accomplish an adequate blend in less than 1/2 hour.

**DO NOT MIX MATERIAL CONTINUOUSLY!!-----As this may cause loss of thixotropic properties. If gel coat is inadvertently over mixed, hold material for 4 hours without agitation before application.**

## **SAFETY CONSIDERATIONS**

HK Research Tooling Gel Coats are based on a resin system, which contains styrene monomer, which is a flammable liquid. Keep away from sparks, heat and open flame (including pilot lights). Electrical equipment should be vapor-proof and protected from breakage.

Styrene vapors are heavier than air and will tend to concentrate in the low areas of molds and in pockets immediately above the floor area. To keep vapors within a safe limit in all areas, adequate ventilation or suction fans should be used that will remove these styrene monomer vapors.

**All equipment must be grounded - including spray guns and molds.**

Both the gel coat and the catalyst may cause burns to eyes and skin. Do not get in the eyes! Avoid breathing vapors! Gel coat applicators should wear a NIOSH approved respirator effective for vapors, spray mist and dust. In case of accidental contact, remove contaminated clothing and wash affected skin areas with soap and copious quantities of water. Contact a physician if persistent skin irritation occurs. For eyes, immediately flush with plenty of water for at least 15 minutes; call a physician immediately. Wash contaminated clothing before using.