Product Data

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R0255

RESILIENT, ACRYLIC MODIFIED, ISOPHTHALIC CASTING RESIN PROMOTED FOR BPO CURE

FEATURES

* * Medium Viscosity * *

* * Promoted for BPO Catalyzation * *

* * Acrylic Modified for Improved Durability * *

* * Fast, Thorough Cure Eliminates Need for Heated Post-Cures * *

* * UV Light Stabilized * *

* * 100% Isophthalic Resin System for Outstanding Toughness * *

* * Excellent Stain and Chemical Resistance * *

* * High Heat Distortion Temperature * *

HK Research Corporation has developed a rapid curing, low color, highly resilient isophthalic casting resin system specifically formulated to meet the need of the cultured marble industry to produce a nearly void-free densified filler casting without the necessity of using a vacuum. When a vacuum is used the R0255 resin system will produce an essentially void-free casting.

R0255 is further characterized by its unique promoter system which permits the use of Benzoyl Peroxide catalyst to produce a rapid and very thorough cure in a relatively short period of time, which allows fast demolding and finishing of cast parts. R0255 has been further modified with a blend of styrene and acrylic monomers to improve durability of the finished part.

R0255 casting resin is designed for use in the fabrication of flat stock such as counter tops, tabletops and vanities for use with drop-in bowls. The high reactivity, which gives this resin its toughness and chemical resistance, can cause stress cracking if it is cast in integral bowl molds. Some manufacturers have found that they can successfully cast integral bowls with this resin if they remove the "hat" very early in the cure cycle and demold the part shortly before it reaches peak exotherm. Both of these steps require careful attention on the part of the molder.

R0255, when cured with BPO catalyst, exhibits sufficient early green strength, even before peak exotherm is reached, to permit demolding if desired. We strongly suggest that parts demolded early in the cure cycle be placed face down on a flat surface to finish curing.

Vanity tops and counter tops (flat stock) made with R0255 type resin and densified fillers such as R. J. Marshall's DF-40 have consistently passed the CMI (ANSI) stain resistance and chemical resistance tests without the presence of a gel coat. R0255 casting resin will produce castings with excellent color using ATH filler such as Marshall's DF-40 and normal levels of color pigments.

R-0255 Casting Resin does contain a UV Light-Stabilizer that is designed to retard yellowing in outdoor exposure. However, due to the special nature of the promoter system in this resin we do not recommend it for use in outdoor applications.

TYPICAL PROPERTIES OF LIQUID RESIN

Color	Amber
Viscosity, 77°F	1200-1500 cps
Weight Per Gallon	9.3 lbs.
Specific Gravity	1.12
Stability	
Uncatalyzed, 77°F	3 months minimum
Catalyzed, 2.5%	
Superox 46-744	20 minutes

TYPICAL CURING PROPERTIES

Neat Resin:	
Gel Time, 77°F,	
2.5% Superox 46-744*	20-25 minutes
Gel To Peak	7-11 minutes
Peak Exotherm,	
100 gram mass	300-330°F
Filled Resin:	
R0255	100 grams
DF-40 (R.J. Marshall)	200 grams
HWE-2303 White	3 grams (1.0% of total mix wt.)
Superox 46-744*	2.5 grams (1.0% actual BPO based on resin wt.)
Gel Time, 77°F	25-35 minutes
Demold Time	20-25 minutes after gel
Barcol Hardness Development,	
After Catalyzation:	
2 hrs.	45-50
4 hrs.	50+
16 hrs.	50+

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*Reichhold Chemicals, Inc.

It can be seen from this gel and cure data that the resin system allows adequate time for mixing, pouring and vibrating a casting but, once it gels, the cure is rapid. Quick demolding and rapid Barcol hardness development are seen. This further permits maximum turnover of the molds and rapid finishing of the cast parts so they can be quickly shipped to the customer.

There are a number of different Benzoyl Peroxide catalysts available in today's market and we are attempting to test a number of these. We are aware that a number of these products, particularly the fire retardant types, contain varying amounts of water which can, in some cases, cause an apparent viscosity increase or "puffiness" in highly filled systems. We caution the molder to test his total system - resin, filler and catalyst - before going into full-scale production. To date, we have tested the following Benzoyl Peroxide catalysts in an R0255/DF-40 filled system with very successful results:

AKZO Cadox 40E	40% BPO (pourable)
RCI Superox 46-744	40% BPO (pourable)
Norac L40LV	40% BPO (pourable)

As more BPO catalysts are evaluated with HK Research Corporation's R0255, we will share this information. Meanwhile, we recommend that you consult your HK Research sales representative or our laboratories at 1-800-334-5975 for information on the feasibility using a particular BPO catalyst with this resin.

SAFETY CONSIDERATIONS

HK Series Isophthalic Casting Systems are based on a resin , 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 polyester resin and the catalyst may cause burns to eyes and skin. Avoid contact with 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 reusing.

CAUTION:

Field tests of densified castings made from some BPO-Cured Casting Resins indicate the possibility that some castings may exhibit some yellowing or discoloration under objects that have been placed on the surface and allowed to sit undisturbed for extended periods of time - several weeks or months. Precautions should be taken to test your cast product thoroughly to insure that this type of casting is suitable for your product.

An option to consider in lieu of the BPO-Cured Casting Resin is HK Research's R-0228 Casting Resin which offers similar curing properties with better color stability.