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USING FLUORESCENT PIGMENTS IN RUBBER

TRANSPARENT/TRANSLUCENT COMPOUND:
The best and brightest fluorescent color in rubber can only be obtained by using a transparent compound. Hydrated amorphous silica (Rubbersil RS 150), Magnesium Carbonate (Elastocarb®) and Aluminum Silicate are among fillers which can be used to formulate transparent/translucent compounds.

Avoid ingredients which may opaque the compound such as clays, calcium carbonate (whitings), zinc oxide and titanium dioxide. Zinc carbonate (Akrochem 9930 Transparent Zinc) can be used to replace zinc oxide. Also find particle zinc oxides at low dosage levels (0.5 - 1.0 PHR) can be used.

UNDER TONE:
Avoid selecting rubbers which give a yellow or greenish tint to the compound. It is possible to add 0.5 part of titanium dioxide to mask the tint given off by the rubber, but best results can only be obtained by starting with clear polymers.

CURE SYSTEMS:
Peroxide systems work best and have the least effect on the fluorescent colorant. Sulfur/amine cure systems tend to discolor the final cured article but can be used. Acidic sulfur type systems also attack the fluorescent colorant. The resulting effect is either a shift in shade or a washed out look. Select non-discoloring accelerators. Again, a small amount of titanium dioxide can be used to mask discoloration along with increasing the fluorescent colorant.

DISPERSION:
Fluorescent colorants usually require the mix temperature to reach 175°F to be fluxed in. Poor dispersion of fluorescent colorant manifest itself by either dark particle spots or porosity. Excellent dispersion can be obtained by using paste and polymer bound concentrates. Paste concentrated (50% colorant prove to provide slightly better color value.

UV/OUTDOOR EXPOSURE:
Generally, fluorescent colorants have poor UV resistance and fade when exposed to continuous outdoor services. Small amounts of organic pigment can be added to the fluorescent colorants. This gives the appearance of less color change because the organic pigments are more color fast.

TYPICAL FLUORESCENT FORMULATIONS:

Rubber	100	Peroxide (100% active)	1 - 5
Filler	0 - 40	Fluorescent Pigment	2 - 8
Plasticizer	0 - 20	(double for masterbatch)	
		Organic Pigment (conc.)	0.0 - 0.5

T-color-fluorescents in rubber