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Consistent pigmentation of recycled resin with patented color concentrate

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- Inconsistent dispersion of color additives can effect plastic properties
- Patented color concentrate keeps the critical molecules of resin intact
- Let down ratios reduced from 6-8% down to 2- 4%

Incorporating recycled material into new products offers economical and environmental benefits. One recycled resin option for molders is Post Consumer Resin (PCR). PCR is often re-pelletized at a compounder and then sent to a mold, where it is blended with new material before being molded into a product. But as the source of the resin varies, pigmentation and coloring PCR can be a challenging task.

During the blending process, the PCR is let it down at a variety of percentages and blended with a natural material, enabling molders to use as much as 20-50% post-consumer regrind in the final product. But inconsistency in the resin can produce shades in the new resin that range from yellow to whitish. The variation in pellet can cause color additives to disperse inconsistently, making it considerably more difficult to achieve a desired color in products.

Inconsistent dispersion of color additives can effect plastic properties

Also, studies have shown that inconsistent dispersion of color additives can have an overall effect on the performance abilities of plastics. Improper dispersion can damage molecular bonds, resulting in pigment agglomerates acting as defects in the polymer matrix and impairing the mechanical properties of the finished product. Thus, consistency is crucial when pigmenting post-consumer pellet, and in order to maintain the physical integrity and strength of the material, color additives must be properly dispersed.

The challenge of re-pigmenting recycled resin

Studies and experiments have been conducted to find a way around the challenge of re-pigmenting recycled resin. One experiment tested the effects of blending white pellet into the resin before adding color concentrates to learn if the presence of the white would help colors disperse more consistently. Yet, there continued to be a problem with consistency. In some instances, additional machinery and techniques are required to help with dispersion, as the use of plasticating screws with enhanced mixing capability or static mixers would be recommended. However, a special color concentrate, such as Carolina Color's G2, can be a more more cost-effective and efficient option.

Color concentrate keeps the critical molecules of the resin intact

G2 pellets, patented by [Carolina Color](#) in 2008, are well-dispersed and effectively distribute in both large and small parts, enabling consistent pigmentation of recycled resin for a number of applications.

Molders using PCR that have made the switch to G2 have been able to overcome challenges of molding with other color options in the market, according to the company. G2 has proven to keep the critical molecules of the resin intact, thus reducing any risk of the plastic part failing. The high color density in G2 pellets can eliminate common issues of the recycled resin compared to conventional coloring methods. In addition, molders typically see let down ratios reduced from 6-8% down to 2- 4% with G2.

Carolina Color's G2 product line has been successfully employed in diverse applications, including outdoor durables, packaging, industrial, non-automotive transportation, among others. Besides injection molding, the color concentrate can also be used in extrusion or blow molding.

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