

Masterbatches



Exactly your chemistry.

Your Powerful Force
REMAFIN® Masterbatches for Polyolefins



Color Performance for Olefins from the Technology Leader

REMAFIN® Masterbatches

Around the world, Clariant Masterbatches is at the forefront of advances in color and additive concentrates and performance solutions for the plastics industry. REMAFIN masterbatches, a family of color masterbatches specifically formulated for use with polyolefin polymers, exemplify the innovative engineering that sets Clariant apart in a crowded marketplace. Complemented by the comprehensive family of RENOL® masterbatches for engineering resins, styrenics and PVC, Clariant global brands also include OMNIColor® universal color masterbatches, CESA® additive masterbatches, HYDROCEROL® chemical foaming and nucleating agents, and ENIGMA™ special effects.

Proprietary REMAFIN technology combines superior color dispersion with extremely high loading, optimizing performance while dramatically reducing usage levels and costs. Depending on the specific color, let-down ratios (dosing) for REMAFIN masterbatches range from 50:1 to 200:1 – significantly less than the industry average.

Designed-in Versatility and Flexibility

REMAFIN masterbatches are pigment preparations of selected organic and inorganic pigments based on polyethylene and polypropylene polymers. They are compatible with high-density, low-density and linear low-density polyethylene and polypropylene in all typical processes.

Inherent Quality and Cost Efficiency

REMAFIN masterbatches are supplied as cylindrical granules that can be precisely metered, resulting in optimal color yield. Their excellent pigment dispersion results in a high degree of color reproducibility, even in processes with critical tolerances.

Safe and easy to use, REMAFIN masterbatches are available in small lot sizes, facilitating small production runs and quick changeovers. Machines are easily cleaned after processing REMAFIN, increasing productivity and energy savings.

Close manufacturing tolerances and adherence to internationally-recognized quality and regulatory approvals ensure batch-to-batch consistency and processability across the entire REMAFIN product range.



POLYPROPYLENE	POLYETHYLENE
Injection Molding	Injection Molding
Extrusion	Blow Molding
Blown or Cast Film Extrusion	Film Extrusion
Injection Blow Molding	
Multilayer Blow Molding	
Melt Blown	
Calendering	
Spin Dyeing	
Foaming	

Precise Answers to Multiple Challenges

REMAFIN masterbatches are custom-formulated to meet your exacting color requirements. We also offer black, white and standard colors.

When enhanced mechanical or physical properties are required, Clariant can simplify your manufacturing process by combining REMAFIN color concentrates with CESA additives in a single REMAFIN masterbatch. Our comprehensive CESA family of additive masterbatches ranges from UV stabilizers and flame retardants to antioxidants, antimicrobials and lubricants, among many others.

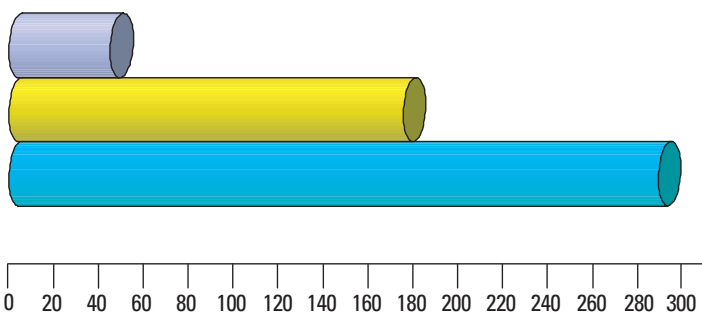


Dosing ratios for REMAFIN masterbatches can also be tailored over a wide range to fit special circumstances. We can adjust for variables such as processing equipment capabilities, operator expertise and market preferences. Clariant has

formulated semi-compounds with dosing rates up to 20% for large-scale applications such as consumer appliance manufacturing or as low as .8% to meet the critical demands of small injection molded parts.

Light Stabilization of PP Injection Molding

% of CESA-light 7104

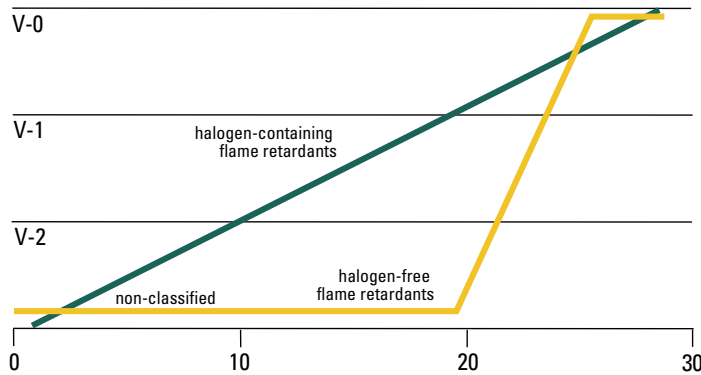


Kly to chalking after outdoor exposure

■ 2.0% CESA-light 7104 ■ 1.0% CESA-light 7104 ■ Without light stabilizer

Flame Retardancy

Flame-retardant rating according to UL94 testing



Addition level of flame retardants (%)

Performing Industry-Wide

Clariant REMAFIN masterbatches have been successfully used in a variety of markets ranging from toys, automotive and housewares to fibers for carpet and textiles to ultra-wide agricultural films and special effect consumer packaging.



REMAFIN Product Nomenclature

Standard masterbatches contain up to 40% organic pigment or up to 60% inorganic pigment. REMAFIN masterbatches are coded according to application:

AE – Film & fiber – Poly(E)thylene carrier

CE – Injection & blow molding – Poly(E)thylene carrier

AP – Film & fiber – Poly(P)ropylene carrier

CP – Injection & blow molding – Poly(P)ropylene carrier

HE – Microgranule (fiber) – Poly(E)thylene carrier

HP – Microgranule (fiber) – Poly(P)ropylene carrier

The suffix “personalizes” the product by color or customer-specific designations – for example, REMAFIN AE 12345.



Market-Driven Technology



development at strategically located sites.

Clariant meets the exacting demands of film manufacturers, assuring uniform color dispersion across wide die extrusion plus consistent supply and local support.

Clariant technology offers comprehensive solutions for carpet, textile and upholstery manufacturers, providing the expansive color palette today's fast-moving industry demands. REMAFIN's exceptional color dispersion also protects against strand breakage, a critical performance criterion. To support customers in this market, Clariant focuses research and product

Packaging manufacturers benefit from Clariant's technical superiority, market understanding and design support. Clariant leads the way with special effects including molten swirls, frosted etching, metallic and chrome reflections, translucency, fragrance, and many others.

Manufacturers of injection molded bottle caps and other thin-wall parts specify REMAFIN masterbatches to maintain tensile strength and rigidity while also reducing costs. REMAFIN provides excellent color dispersion with dosing ratios of only 1%.



Color Design and Technology Resources

Clariant's commitment to leadership continues to drive improvements in traditional coloring systems, fueled by state-of-the-art design capabilities and services.

Fast, efficient color matching is one of the major Clariant customer advantages. Clariant Masterbatches performs nearly 40,000 custom color matches for REMAFIN products alone each year. We offer sample and product development support with libraries of over 1.6 million color formulations available to customers worldwide, supported by our unmatched custom-formulating capabilities.



Clariant also partners with customers to create innovative color solutions that strengthen brand recognition and accelerate new product development. This commitment is epitomized by Clariant ColorWorks' design and technology centers located in Asia, Europe, Latin America and North America. Here, designers, color specifiers and brand managers capitalize on Clariant's exclusive design tools, resin and mold technology expertise to meet color challenges early in the design process.

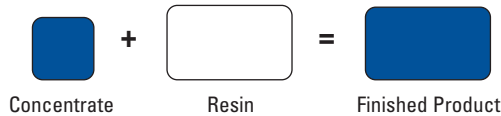
Color can be developed on-screen as well as in 3-dimensional plastic prototypes to instantly evaluate the impact of a variety of colors on your finished products, to envision whether they will stand out on supermarket shelves or attract shoppers on the Internet.

Performance Plus Economy

With an average let-down ratio of 100:1, just a little REMAFIN goes a long way. Use the following formula to calculate the savings you can expect with REMAFIN.

Use of Color Concentrates

Blend the color concentrate with 10 to 100 times its weight of resin



Coloration Costs

$$\text{Coloration Cost Calculation per kg (lbs.)} = \frac{\text{Cost of Concentrate per kg (lbs.)}}{\text{Proportion of Concentrate per kg (lbs.)} + \text{Proportion of Resin per kg (lbs.)}}$$

Let-Down Ratio (LDR) = 100:1
e.g., 1 kg (lbs.) Concentrate
+ 100 kg (lbs.) Resin = 101 kg (lbs.) Product

Example:

Cost of Concentrate = USD 5 per kg (lbs.)

Let-Down Ratio at 100:1, i.e., 1 kg (lbs.) Concentrate to 100 kg (lbs.) Resin
Coloration Cost Calculation: $\frac{5}{101} = \text{USD } .0495 \text{ per kg (lbs.)}$

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A Partner in Innovation

A global color technology leader, Clariant offers the industry's broadest range of high-performance masterbatches for plastics, including REMAFIN® masterbatches for polyolefins; RENOL® masterbatches for engineering resins, styrenics and PVC; CESA® additive masterbatches; OMNIColor® universal color masterbatches; HYDROCEROL® chemical foaming and nucleating agents; and ENIGMA™ special effects. These products are widely specified in the packaging, automotive, durable goods, housewares, office automation, electrical, and other major industries.

Clariant's in-depth market knowledge, formulation expertise and customer commitment are recognized worldwide. A global network of ISO 9000 facilities

incorporates the most demanding manufacturing standards to ensure the quality and consistency of Clariant masterbatches wherever they are used.

Clariant also continues to drive new dimensions in color creativity. At its global ColorWorks™ design and technology centers, inspiration and technology meld together, helping customers strengthen brand recognition, enhance new product development and accelerate speed to market.

Additional information about Clariant products and technical support is available from all our global facilities. Start a dialog with the experts at the Clariant location nearest you.



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www.clariant.masterbatches.com

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