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MADE TO
SUBSTITUTE

BANISH THE MICROPLASTICS

The Electronics business of Merck KGaA,
Darmstadt, Germany operates as EMD
Electronics in the U.S. and Canada.

Rona[®]

BANISH THE MICROPLASTICS LIKE-FOR-LIKE REPLACEMENT

WITH RONAFLAIR® FUNCTIONAL FILLERS

Potentially solid polymers used in cosmetics (microplastics such as Nylon-12 and PMMA) need to be eradicated from our wastewater, the natural environment, and the food chain. Consumers today want cosmetics brands to take responsibility and start using more sustainable ingredients. And society is increasingly pointing its collective finger at industry to take the lead. In response, companies need alternatives – plus data and research that show brands can deliver on their promises.

LITTLE INGREDIENTS, BIG IMPACT

In October 2023, the EU adopted a restriction on microplastics in consumer products. Over the next years, manufacturers of cosmetics must phase out microplastic ingredients from their products with deadlines depending on the product type. The term microplastics refers to small, solid, polymer-containing particles measuring less than 5mm or fibers of less than 15mm. They are highly resistant to environmental biodegradation, fragmentate into “nanoplastics” and, unlike some ingredients used in rinse-off cosmetics, they do not dissolve in water. When we wash off leave-on skin care products, they go straight down the drain with our wastewater. Although wastewater treatment plants are able to filter out 90% of microplastics, once in the environment they join the dangerous plastic soup swirling around in our oceans. They have even been found in sea ice and polar sediments. Microplastics also accumulate inside animals, including fish and shellfish, and are thus entering the human foodchain.

HOW TO MIRROR MICROPLASTICS?

We offer an effective and scientifically proven alternative to microplastics – like-for-like solutions that allow you to replace Nylon-12 and PPMA.

RonaFlair® Functional Fillers are sustainable mineral ingredients that – mixed in the right proportions – deliver a variety of cosmetic ingredients properties, from soft focus effects to wrinkle reduction, superior skin feel, and transparency. Curious to know more?

Microplastics, plastic soup – whatever term we use for them, microplastics re-enter the food chain when humans harvest products from farms and nature. As a result, they are infiltrating the human body.

ZERO-TOLERANCE

The global environment is facing increased pressure, and consumers worldwide are voicing their environmental concerns. They are demanding that cosmetic brands take responsibility for every aspect of their products, including ingredients. One specific area of concern is the use of microplastics, and consumers are actively seeking eco-friendly alternatives. The challenge is to swiftly develop alternative formulations.

We have prepared a range of alternative raw materials that can replace microplastic ingredients in cosmetic products. Microplastics, which are fine particles, can be challenging to replace, but our RonaFlair® Functional Fillers can closely replicate their benefits. They allow to adjust viscosity, appearance or texture while providing consumers with the product performance they expect. Furthermore, we have the necessary data, research, and scientific evidence to support your product claims, ensuring their credibility.

WHAT ARE FUNCTIONAL FILLERS?

Functional fillers play a crucial role in the feel, look, and quality of cosmetics. For example, beauty products containing effective functional fillers are easier to apply, wear well, and help mask skin imperfections.

The success formula of functional fillers revolves around platelets and spheres that influence the performance of the final products. For example, they allow cosmetics to

- › Glide onto the skin and feel silky
- › Deliver rolling, powdery, or velvety textures
- › Offer discreet shimmer and radiance
- › Minimize imperfections like fine lines and wrinkles
- › Add soft focus effects
- › Enhance smoothness and extend wear

Interested in finding out more? Please visit [merck4cosmetics.com](https://www.merck4cosmetics.com)



MIXTURES THAT MIMIC MICROPLASTICS

Because single ingredients may not always be able to replicate the proven performance of Nylon-12 and PMMA, we have invested in a variety of alternatives to be used as texturizers and enhancers of visual properties. These teams of ingredients were thoroughly tested in our lab.

Mixed in the right proportions, RonaFlair® Functional Fillers provide an immediate and effective

alternative to microplastics, offering important cosmetic properties such as:

- » Soft focus effect
- » Wrinkle reduction
- » Skin feel
- » Transparency or coverage

MEASURING PERFORMANCE VERSUS MICROPLASTICS

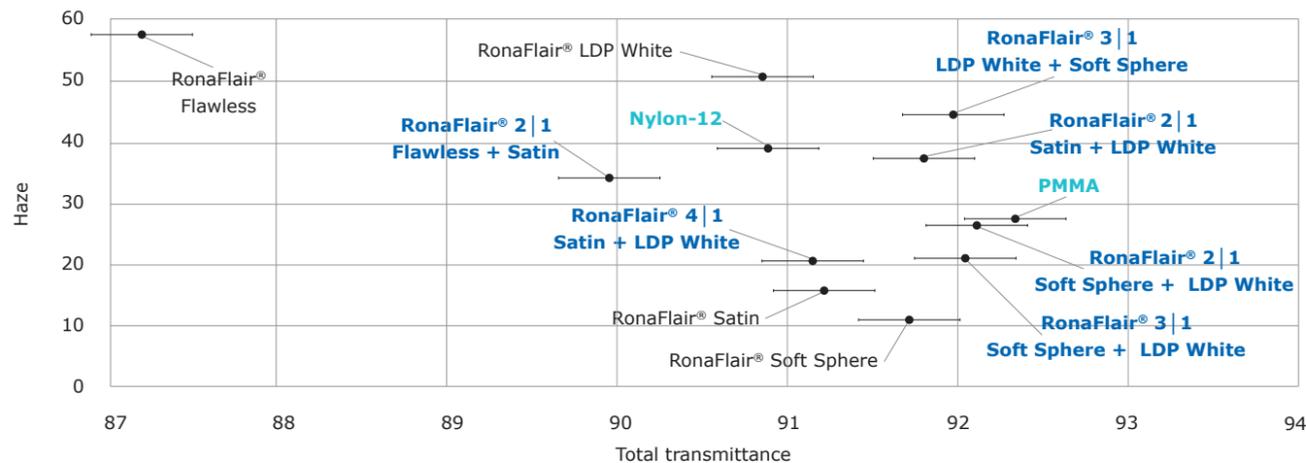
Microplastic	RonaFlair® blend recommendation (ratio)
Nylon-12	RonaFlair® Satin : RonaFlair® LDP White 2 : 1
	RonaFlair® Soft Sphere : RonaFlair® LDP White 3 : 1
	RonaFlair® Flawless : RonaFlair® Satin 2 : 1
PMMA	RonaFlair® Satin : RonaFlair® LDP White 4 : 1
	RonaFlair® Soft Sphere : RonaFlair® LDP White 2 : 1

RonaFlair® Functional Fillers
The best alternative blend options for microplastic fillers.

We conducted a variety of lab tests, partially with volunteers, to compare RonaFlair® Functional Fillers to Nylon-12 and PMMA. The important cosmetic properties that were examined included both optical performance and sensory attributes. Haze val-

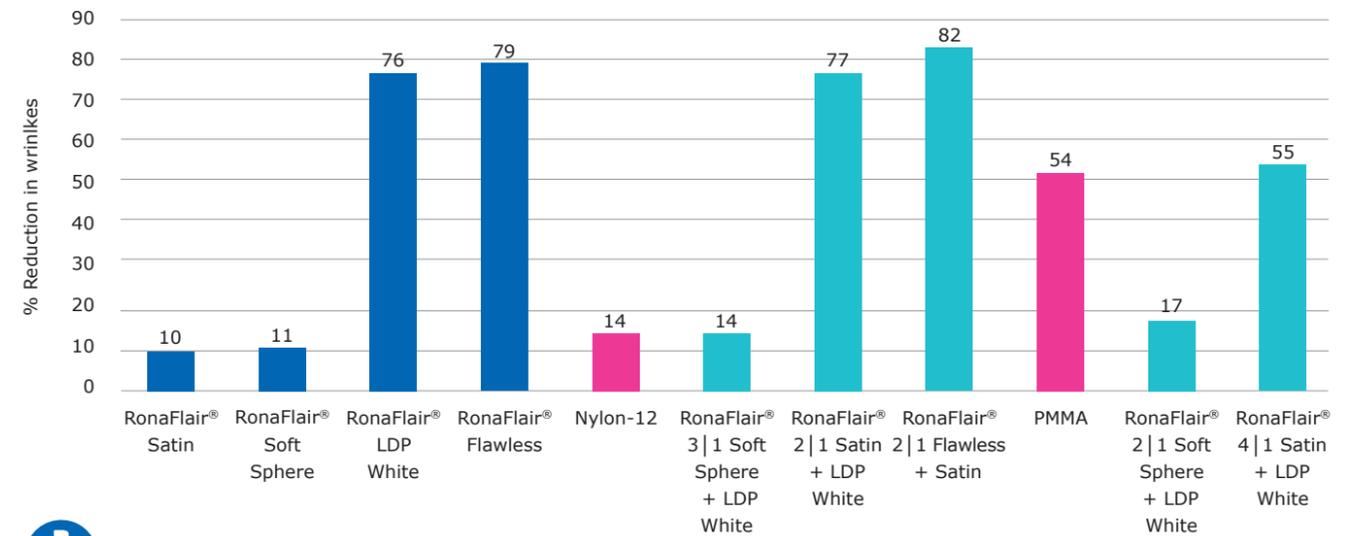
ues measured by BYK-Gardener haze-gard I, correlate ideally with the visual soft focus effect as light-diffusing and light-scattering properties are measured. The diagram no.1 displays how successful the microplastic blend alternatives can replace Nylon-12 and PMMA.

DIAGRAM 1:



Comparable soft focus effect to Nylon-12 and PMMA

DIAGRAM 2:



Significant improvement in wrinkle reduction compared to Nylon-12 and PMMA

OUR PANEL TEST RESULTS: RESULTS FOR RONAFLAIR® VS. NYLON 12

	Perceived as good	Perceived as less good
MATTIFYING	RonaFlair® 2 1 Satin + LDP White RonaFlair® 2 1 Flawless + Satin RonaFlair® 3 1 Soft Sphere + LDP White	Nylon-12
COVERAGE	RonaFlair® 2 1 Flawless + Satin	RonaFlair® 3 1 Soft Sphere + LDP White Nylon-12 RonaFlair® 2 1 Satin + LDP White
DRYNESS / POWDERY	No perceived difference	
SOFTNESS	RonaFlair® 3 1 Soft Sphere + LDP White Nylon-12	RonaFlair® 2 1 Flawless + Satin RonaFlair® 2 1 Satin + LDP White
SPREADABILITY	RonaFlair® 2 1 Flawless + Satin	RonaFlair® 2 1 Satin + LDP White Nylon-12 RonaFlair® 3 1 Soft Sphere + LDP White

PROPERTY COMPARISON: RESULTS FOR RONAFLAIR® VS. PMMA

	Perceived as good	Perceived as less good
MATTIFYING	No perceived difference	
COVERAGE	No perceived difference	
DRYNESS / POWDERY	No perceived difference	
SOFTNESS	RonaFlair® 2 1 Soft Sphere + LDP White	RonaFlair® 4 1 Satin + LDP White PMMA
SPREADABILITY	RonaFlair® 2 1 Soft Sphere + LDP White RonaFlair® 4 1 Satin + LDP White	PMMA

Similar or better softness than Nylon-12 and PMMA
Similar to better coverage than Nylon-12 and PMMA

MIXING & MATCHING

Mixed in the right proportions, RonaFlair® Functional Fillers allow you to completely remove Nylon-12 and PPMA without significant performance changes.

RECOMMENDED RONAFLAIR® FUNCTIONAL FILLER OPTIONS TO REPLACE NYLON-12

More wrinkle reduction	RonaFlair® 2 1 Satin + LDP White
More mattifying	RonaFlair® 2 1 Satin + LDP White
	RonaFlair® 2 1 Flawless + Satin
	RonaFlair® 3 1 Soft Sphere + LDP White
Equivalent softness	RonaFlair® 3 1 Soft Sphere + LDP White
Improved spreadability	RonaFlair® 2 1 Flawless + Satin

RECOMMENDED RONAFLAIR® FUNCTIONAL FILLER OPTIONS TO REPLACE PMMA

More wrinkle reduction	RonaFlair® 4 1 Satin + LDP White
Same mattifying	RonaFlair® 2 1 Soft Sphere + LDP White
	RonaFlair® 4 1 Satin + LDP White
Improved softness	RonaFlair® 2 1 Soft Sphere + LDP White
Improved spreadability	RonaFlair® 2 1 Soft Sphere + LDP White
	RonaFlair® 4 1 Satin + LDP White



CURIOUS? ORDER SAMPLES

If you'd like to test RonaFlair® Functional Fillers in your own lab, visit our [SURFACE PORTAL](#) and order your samples directly. We'll send you the requested products right away.



BEST SINGLE OPTIONS ARE:

RonaFlair® Satin

Product No. 1.17268

INCI:	Illite
Particle size:	<25.0 µm (80 % in range)
Powder color:	off-white powder
Coverage:	low
Luster:	low
Oil absorption:	79 g / 100 g
Sensory profile:	soft velvety

RonaFlair® Soft Sphere

Product No. 1.17756

INCI:	Synthetic Fluorphlogopite, Silica
Particle size:	5.0 – 35.0 µm (80 % in range)
Powder color:	pure white powder
Coverage:	low
Luster:	medium
Oil absorption:	70 g / 100 g
Sensory profile:	silky / velvety smooth / gliding

RonaFlair® LDP White

Product No. 1.17755

INCI:	Sodium Potassium Aluminum Silicate, CI 77891 (Titanium Dioxide), Silica
Particle size:	2.0 - 20.0 µm (80 % in range)
Powder color:	white powder
Coverage:	low
Luster:	low
Oil absorption:	95 g / 100 g
Sensory profile:	powdery / dry smooth / gliding

RonaFlair® Flawless

Product No. 1.17789

INCI:	Silica, CI 77891 (Titanium Dioxide), CI 77491 (Iron Oxides)
Particle size:	1.0 - 25.0 µm (80 % in range)
Powder color:	peach-colored powder
Coverage:	low
Luster:	low
Oil absorption:	50 g / 100 g
Sensory profile:	powdery / dry rolling

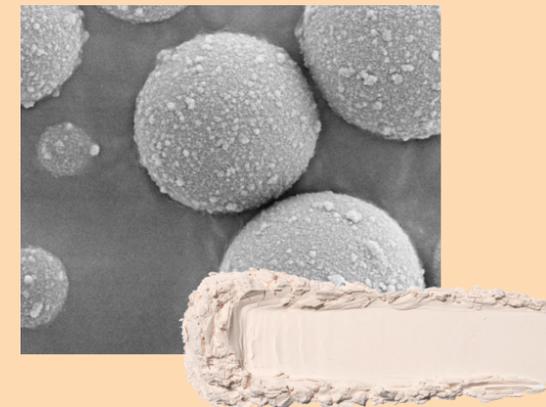
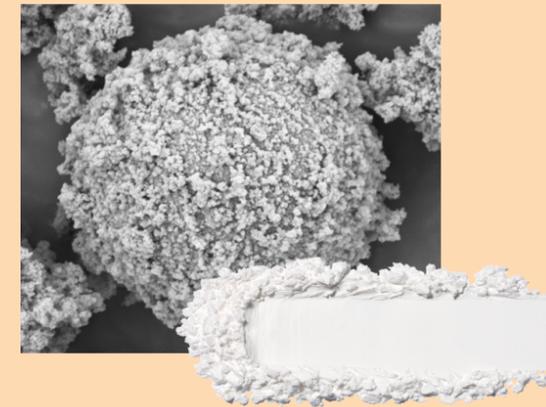
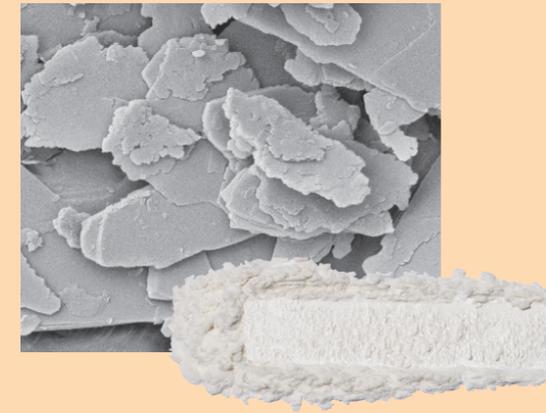
ADDITIONAL HANDLING INFORMATION:

Influence in product category		Recommended use level
Powder	improved pay-off, softer texture, anti-caking	visible effect starting at 3 % (no limitation)
Emulsion	improved application, rich and soft skin feel, easy dispersion	1 – 6 %
Anhydrous fat-based e.g. lipstick, foundation stick	less oily texture, may increase stick hardness	3 – 20 %
Gel (water-based)	homogeneous application, quicker drying after application, improved application	1 – 10 %

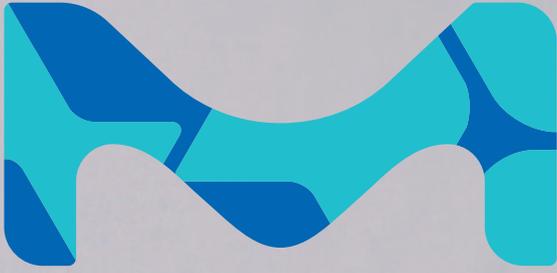
Influence in product category		Recommended use level
Powder	improved pay-off, improved skin adhesion	visible effect starting at 3 % (no limitation)
Emulsion	improvement of application and spreadability, good light stability	2 – 10 %
Anhydrous fat-based e.g. lipstick, foundation stick	smooth application, may increase stick hardness, may replace pearl pigments	3 – 15 %
Gel (water-based)	may replace pearl pigments	3 – 10 %

Influence in product category		Recommended use level
Powder	light diffusion effect, mattifying	visible effect starting at 5 % (no limitation)
Emulsion	light diffusion effect, mattifying, low luster, may increase viscosity	3 – 10 %
Anhydrous fat-based e.g. lipstick, foundation stick	light diffusion effect, mattifying, viscosity increase possible (due to high oil absorption), may increase stick hardness	5 – 15 %
Gel (water-based)	light diffusion effect, mattifying	4 – 10 %

Influence in product category		Recommended use level
Powder	light diffusion effect, mattifying	visible effect starting at 5 % (no limitation)
Emulsion	light diffusion effect, mattifying, even distribution	4 – 10 %
Anhydrous fat-based e.g. lipstick, foundation stick	light diffusion effect, mattifying, increased pay-off	5 – 20 %
Gel (water-based)	light diffusion effect, mattifying	5 – 10 %



* The statements made in "Banish the Microplastics" campaign materials comparing RonaFlair® Functional Fillers with cosmetics products Nylon 12 and polymethyl methacrylate (PMMA) are based on tests and analyses performed by Merck KGaA in compliance with industry standards.



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