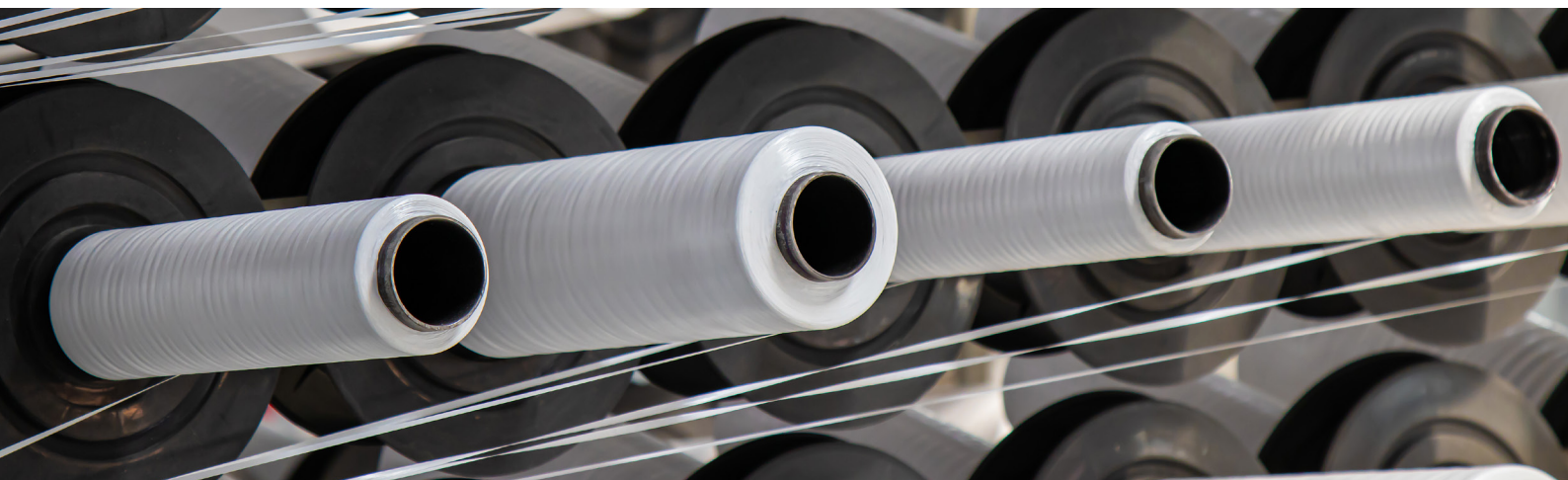




Vistamaxx™ performance polymers

High performance raffia containing Next Generation CaCO_3 MB enables sustainability benefits: a Vistamaxx and Omyamax solution

The solution developed by ExxonMobil and Omya - Next Generation CaCO_3 masterbatch vs base CaCO_3 modifier:

+35%
Up to 35%
higher
compounding
output



Increased
 CaCO_3
load



Outstanding
dispersion
quality (FPV)



Lower melt
pressure



Less UV
degradation
in PP Raffia

Challenge

Today, modifier masterbatch solutions often vary and are comparatively challenging to produce. The typical issues are consistency and quality of calcium carbonate and suitable performance polymers. It can lead to variation in tape performance and processing difficulties like high dust generation. This can inevitably add to the cost of production and loss of value.

According to global data published in Townsend Solutions' 2021 Polypropylene Report, out of the ~6 million tons of polypropylene consumed in India, a good proportion (~30-35%) is consumed in raffia applications. Most of these raffia applications use calcium carbonate compounds or masterbatches of various percentages in their formulations.



Omyamax® innovative calcium carbonate

Solution

In 2019, ExxonMobil and Omya International AG, one of the largest producers of industrial minerals (mainly fillers and pigments derived from calcium carbonate and dolomite) agreed to work together to develop a next generation product that would address future market needs and help solve modifier masterbatch reliability problems.

Working collaboratively, ExxonMobil and Omya developed a solution that combined Vistamaxx™ performance polymers and Omyamax® innovative calcium carbonate offering compounders and tape manufacturers new possibilities that included the potential for cost reduction and improved performance.

Following compounding and tape trials with manufacturing partners conducted during 2020 and 2021, as well as rigorous testing and analysis by both parties, the creative solution was made available to the market in April 2022. The combination of Omyamax™ innovative calcium carbonate and Vistamaxx™ performance polymers can save manufacturing costs and help deliver processing improvements. When the new masterbatch is used in tapes and raffia bags, it can also boost quality and improve mechanical performance.



Vistamaxx™ performance polymers are semi-crystalline copolymers with tunable amorphous content and are compatible with other polyolefinic materials. Due to its unique polymer attributes (such as toughness, cling, sealability, softness, clarity, dispersion, adhesion, elasticity and flexibility), Vistamaxx polymers can be used to create new possibilities in product innovation. They can add value in end-product applications for industries such as automotive, building and construction, consumer, hygiene and packaging (tapes and raffia bags).

Omyamax® innovative calcium carbonate is a new proprietary calcium carbonate outperforming common grades by offering advantages in compounding and final applications. Output and dispersion quality are usually the limiting factors in the production of highly-filled calcium carbonate masterbatch. With Omyamax, the output rates of twin screw extruders can be increased by up to 35% without compromising dispersion quality with added advantage of less UV degradation in PP raffia. Alternatively, the filler load can be increased on the same compounding line output enabling masterbatches to be produced at a lower cost.

Project details

Value creation during compounding:



Enabling sustainability benefits while maintaining performance



Process improvement



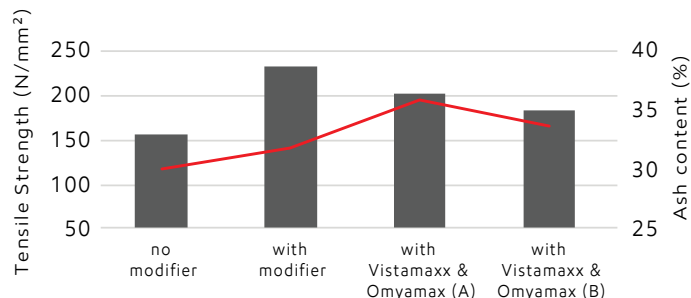
Potential cost savings

Maintain performance with smoother operations and better dispersion of higher CaCO₃ loading - measured through FPV. Higher output and lower amperage enables avenues for potential cost savings.

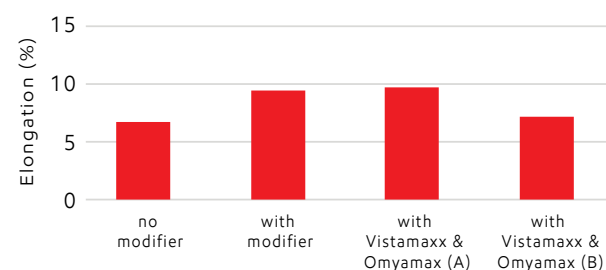
Value creation during tape manufacturing:

All the trials below were run on the core layer, accounting for 95% of raffia tape structure. The results show better tenacity and elongation with higher ash content via applying higher loading of Next Generation CaCO₃ masterbatch in the formulation, which enables potential cost savings and sustainability benefits.

Tensile strength and Ash content



Elongation



Note: Tests conducted at OMYA lab based on OMYA test methods.

Omya is a leading global producer of industrial minerals – mainly derived from calcium carbonate, dolomite and perlite – and a worldwide distributor of specialty materials. The company provides a wealth of innovative product solutions that contribute to its customers' competitiveness and productivity in multiple industries such as Construction, Paper & Board, Polymers, Food and Personal & Home Care. Founded in 1884 in Switzerland, Omya has a global presence extending to more than 160 locations in over 50 countries with 9,000 employees.



Contact us for more information: polymers.omya.com

What's new: **ExxonMobil Signature Polymers**

All our polymers are now positioned under a single portfolio brand: Signature Polymers. The aim is to simplify our product architecture and naming to improve portfolio navigation for you. We would like to stress that our commitment to high quality products remains the same, it is names that change. Grade slate of Vistamaxx™ performance polymers will keep unchanged.

Want to see what's changed in our portfolio? Go to exxonmobilchemical.com/sptransform

Contact us for more information: exxonmobilchemical.com/vistamaxx

ExxonMobil
Signature Polymers

Bring your impossible



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