ExxonMobil
Signature Polymers

Case study

Vistamaxx™ performance polymers

New compound possibilities for innovative shoe soles

By adding Vistamaxx™ performance polymers to its EVA (ethylene vinyl acetate) formulations, Xiamen Qianheng Industry Co. Ltd. (Qianheng) is creating differentiated compounds to manufacture innovative foamed shoe soles. The new QIANHENG® QH compounds allow the easy process and manufacture of foamed shoe soles with a softer, more comfortable touch and better anti-slip properties.

Benefits of QIANHENG® QH series compounds:

- Softer, more comfortable feel
- Better anti-slip properties
- Mechanical properties maintained
- More uniform foam structure
- Simple, smooth foam processing

Challenge

Qianheng, a leading shoe sole compounder based in Fujian province, China wanted to improve its products to create a point of differentiation amongst shoe sole manufacturers. Having collaborated since 2016, Qianheng turned to the polymer and application experts from ExxonMobil for advice.

Solution

ExxonMobil recommended that Qianheng replace its current polymer modifier, a polyolefin elastomer (POE), with Vistamaxx performance polymers in its EVA formulations. The result was the creation of the QIANHENG® QH series of compounds for shoe soles used in slippers, sandals and sport shoes.

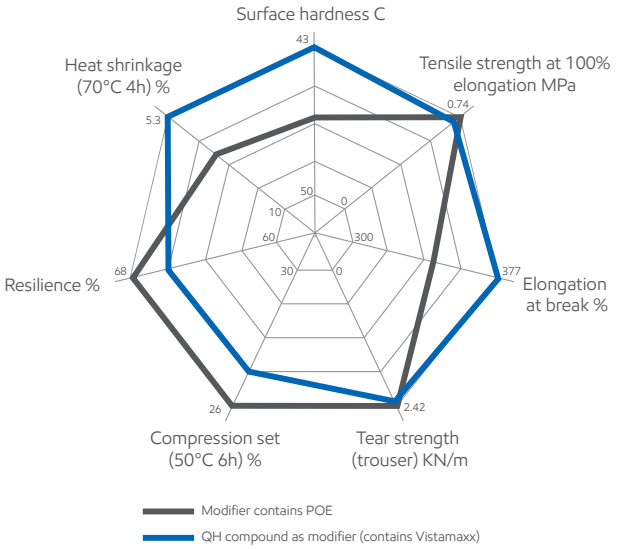
Result

Softer, more comfortable feel

Using Vistamaxx performance polymers to replace POE in EVA compounds produces shoes soles that are softer and more comfortable.

"Using Vistamaxx performance polymers to replace POE in our EVA formulations improves the overall properties of shoe soles, especially those used for slippers," said Mr. Xu Chao Qun, plant manager, Xiamen Qianheng Industry Co. Ltd. "Vistamaxx performance polymers improve the softness of the foamed material to deliver a comfortable feel for end-users."

Vistamaxx™ performance polymers also improve heat shrinkage while maintaining good mechanical properties, such as tensile, elongation and tear strength. There is also little change if any to resilience and compression set.



Data source: from Xiamen Qianheng Industry Co. Ltd.

Test	Qianheng's test method based on
Tensile strength at 100% elongation	GBT1040-2016
Elongation at break	GBT1040-2016
Resilience	DIN53512
Compression set	SATRA TM64
Surface hardness	SATRA TM205
Heat shrinkage	SATRA TM70
Tear strength (trouser)	SATRA TM30

Improved anti-skid properties

According to Qianheng, the addition of Vistamaxx performance polymers provides improved anti-skid properties, especially on wet surfaces, which can be important for personal safety.

	EVA+QIANHENG® QH series compounds (contains Vistamaxx)	EVA + EPDM + POE	EVA + POE
Coefficient of friction (Dry)	0.70	0.68	0.67
Coefficient of friction (Wet)	0.56	0.51	0.52

Data source: from Xiamen Qianheng Industry Co. Ltd.

Test	Test method based on
COF (dry/wet)	SATRA TM144

Smooth foaming process

The QIANHENG® QH series of compounds are easy and smooth to injection mold, producing a uniform foamed structure ideal for shoe soles.

Cost savings, new opportunities

Vistamaxx performance polymers can deliver cost savings, compared to using POE or another polymer modifier that is often used, OBC (olefin block copolymers).

"Vistamaxx has allowed us to develop new, improved compounds which are enabling our customers to develop new, innovative foamed shoe soles," said Xu. "We are very excited about the new growth opportunities this is creating for our business."

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. The composition of the products are unchanged, it is only the names that updated. We will be making these modifications over the next few months, through mid 2025, so you will see both old and new grade names highlighted during that time. 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**

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