

# Improve impact strength and maintain clarity of sports drink bottles

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## Key advantages

- Improved toughness for less product failure
- Clarity maintained
- No changes to tooling/molding
- Easy to process
- Approved for food packaging

Vistamaxx™ performance polymers as a modifier in random copolymer polypropylene make sports drink bottles strong and clear.

LH Plus Sdn. Bhd., a leading manufacturer of high-quality, consumer plastic products based in Malaysia, has turned to Vistamaxx polymers from ExxonMobil Chemical to improve the impact strength of its new sports drink bottles made with random copolymer polypropylene (RCP). Vistamaxx polymers also maintain the clarity of the bottles.

LH Plus transitioned from using 100 percent RCP to manufacture drink bottles after some product testing failures. With the enhanced benefits provided by the addition of Vistamaxx polymers to the formulation, the USA brand owner now expects zero bottle failure in these tests.

## RCP strength issue

While there was no breakage during manufacturing, some occurred during end-use simulation testing. As part of the quality control (QC) process, bottles are randomly selected and filled with varying levels of water. They are then dropped from different heights to simulate use by consumers.

LH Plus was exploring the addition of an impact modifier to strengthen the bottle, so that the breakage issue could be resolved without modifying the tooling.

## New possibilities with Vistamaxx polymers

LH Plus turned to Drex-Chem (M) Sdn. Bhd., a distributor of ExxonMobil Chemical's polymers, with whom it had a long-standing relationship. Drex-Chem recommended Vistamaxx polymers as a modifier to tailor, enhance and balance the properties of the RCP to meet the needs of the application.

Drex-Chem and ExxonMobil Chemical provided technical information and support on impact strength improvement levels with different grades and concentrations of Vistamaxx™ performance polymers. This helped reduce product development time. Also, Vistamaxx polymers are internationally approved in food packaging materials and do not require product prequalification.

LH Plus ultimately selected 5 percent Vistamaxx 3000 for bottles larger than 590 ml. The impact drop tests met the customer's requirements.

#### **A stronger, clear bottle**

The bottles are stronger and clarity is maintained. Clear bottles allow users to see the volume and quality of the liquid inside the bottle.



"Using Vistamaxx polymers has increased the impact strength of the sports drink bottles compared to RCP," said Mr. Callum Chen, chief executive officer, LH Plus. "We are now able to confidently manufacture them to our customer's highest standards."

To help maintain quality standards, LH Plus records the raw material batch, the machine number and the operator for each production day. Every bottle has a date code molded on the base which indicates the month/year of manufacture to allow traceability, if needed.

"Vistamaxx polymers are easy to process. We dry blend Vistamaxx polymers with the RCP before we injection mold and then blow mold the bottles," said Mr. Chen. "There has been no change to our tooling or molding process and we are manufacturing an excellent product."



Mr. Callum Chen,  
Chief Executive Officer of LH Plus Sdn. Bhd.

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Contact us for more information:

[exxonmobilchemical.com/vistamaxx-compounding](http://exxonmobilchemical.com/vistamaxx-compounding)

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