

PRESS RELEASE

Newly developed block system

The InnoPET FreshSafe QuadBlock from KHS – the new heart of PET bottle lines

- Future-proof machine block for manufacture of PET bottles with integrated barrier coating
- Longer shelf lives and improved protection for products filled into lightweight bottles
- Increased line efficiency plus smaller machine footprint

Dortmund, September 16, 2025 – With its InnoPET FreshSafe QuadBlock, KHS GmbH is setting new standards. The unique system combines stretch blow molding, labeling and filling modules with [InnoPET Plasmax barrier technology](#) for the very first time in a groundbreaking innovation for PET bottle manufacture.

Stretch blow molding, filling and labeling: these core PET bottle manufacturing processes on the tried-and-tested [InnoPET TriBlock](#) from KHS all function with maximum efficiency. With the InnoPET FreshSafe QuadBlock, KHS GmbH has now logically further developed the TriBlock and in doing so introduced a new product to the world market. The block permits complete manufacture of PET bottles with an integrated barrier coating, thus ensuring a high degree of protection and considerably longer shelf lives for the filled product.

“For us, the InnoPET FreshSafe QuadBlock is the next logical step in machine blocking,” says Dr. Joachim Konrad, head of the Large Machine Product Division at KHS. “By further developing our existing blocks for PET bottle

manufacture and filling, we're not only boosting our customers' line efficiency but also helping them in their effort to be more sustainable."

Stable, lightweight PET bottles with an integrated barrier coating

The InnoPET FreshSafe QuadBlock efficiently manufactures and fills PET bottles in various shapes and sizes. They all have one thing in common: an extremely low weight coupled with optimum stability. This allows customers to save on packaging materials and at the same time benefit from maximum product safety.

This is facilitated by KHS' InnoPET Plasmax barrier technology. This process applies a wafer-thin layer of glass to the inner wall of the PET bottle, effectively protecting sensitive products from carbon dioxide loss and oxygen pickup. "The InnoPET FreshSafe QuadBlock unfolds its full potential with carbonated beverages in particular: product shelf lives can be extended so that they're two to six times longer," explains Philipp Langhammer, product manager for barrier technology at KHS. The barrier technology has another key advantage when the coated bottles are returned to the recycling loop: like pure PET, they are fully recyclable.

Optimized process sequences and improved line efficiency

Besides the integrated coating module, the new block is also convincing with its optimized process sequences. On the InnoPET FreshSafe QuadBlock, after coating and prior to filling the bottles are labeled when dry – without disruption from cleaning water or condensation. This enables an entire blower unit for bottle drying to be dispensed with, plus the energy needed to power it. The buffer table upstream of the labeler is also no longer required, reducing the number of drives on the container conveyor by 60%. The block is thus more sustainable and has a higher availability.

In addition, with the new system KHS is addressing further current and future requirements of the beverage industry. "Making effective use of available space

is also a major challenge for our customers. Block systems provide the prime solution to this problem,” says Langhammer. The InnoPET FreshSafe QuadBlock saves valuable space by blocking not three but four machines. This has been brought about by making the container conveying segments much more streamlined than on the TriBlock and applying end-to-end neck handling that needs fewer transfer points.

Full flexibility and simple operation

The turnkey system is also compelling regarding its machine handling, for in their blocked state the modules run in common mode. For beverage producers, this means simplified operation and thus a lower personnel requirement. Despite blocking, the modules can be serviced and activated separately from one another. Maintenance work can therefore be carried out in parallel.

A holistic line concept has also been consistently applied to the new machine. “The InnoPET FreshSafe QuadBlock produces finished PET bottles of the highest quality – they’ve been coated, labeled, filled and capped,” Konrad concludes. “The products then only have to be packed and palletized.” A direct link to downstream packers and palletizers using a simple buffer system ensures seamless integration into the PET line. This makes the InnoPET FreshSafe QuadBlock the heart of an efficient, end-to-end chain of production.

For more information go to:

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Pictures and captions

(Sources: Frank Reinhold, Joerg Schwalfenberg and Rüdiger Sternal)

Image download: <https://KHS.dphoto.com/album/5i4egpvc>

Picture captions:

Dr. Joachim Konrad (source: Frank Reinhold)

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Philipp Langhammer (source: Joerg Schwalfenberg)

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InnoPET FreshSafe QuadBlock (source: Rüdiger Sternal)

With the InnoPET FreshSafe QuadBlock, KHS GmbH is setting new standards: the unique system combines stretch blow molding and coating technology modules with labelers and fillers for the very first time.

Optimized transfer units for increased line efficiency (source: Rüdiger Sternal)

By blocking four machines, the InnoPET FreshSafe QuadBlock takes up less valuable space. The heavily streamlined container conveying segments also considerably boost line availability.

About the KHS Group

The KHS Group is one of the world's leading manufacturers of filling and packaging systems for the beverage and liquid food industries. Besides the parent company (KHS GmbH) the group includes various subsidiaries outside Germany, with production sites in Ahmedabad (India), Waukesha (USA), Zinacantepec (Mexico), São Paulo (Brazil) and Kunshan (China). It also operates numerous sales and service centers worldwide. KHS manufactures modern filling and packaging systems for the high-capacity range at its headquarters in Dortmund, Germany, and at its factories in Bad Kreuznach, Kleve, Worms and Hamburg. The KHS Group is a wholly owned subsidiary of the SDAX-listed Salzgitter AG corporation. In 2024 the KHS Group and its 5,626 employees achieved a turnover of around €1.654 billion.

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