



Joint News Release

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BASF obtains long-term access to bio-based 1,4-butanediol QIRA

- **Supply of Qore's® next generation 1,4 butanediol (BDO) QIRA® made from renewable feedstock to BASF**
- **BASF to expand its portfolio with bio-based BDO derivatives, including polytetrahydrofuran (PolyTHF®) and tetrahydrofuran (THF)**
- **QIRA with product carbon footprint (PCF) lower than corresponding fossil-based chemicals**

BASF is obtaining long-term access to QIRA® bio-based 1,4-butanediol (BDO) from Qore® LLC (Qore), a joint venture of Cargill and HELM AG. BASF and Qore have concluded an agreement to this effect. Qore will produce the bio-based BDO at Cargill's biotechnology campus and corn refining operation in Eddyville, Iowa. With QIRA, BASF will expand its existing offer of BDO derivatives with bio-based variants of, for instance, polytetramethylene ether glycol (polytetrahydrofuran, PolyTHF) and tetrahydrofuran (THF). The first commercial quantities are expected to be available in Q1 2025.

Qore produces bio-based BDO under the QIRA brand. QIRA® is made through the fermentation of plant-based sugars obtained from field corn and will be of the same quality as fossil-based BDO with the same specification.

"QIRA is the perfect drop in product, enabling the industry to switch to more sustainable alternatives fast and seamless," explains Jon Veldhouse, CEO of Qore and continues: "By switching to QIRA the product carbon footprint (PCF) can potentially be reduced by up to 86% compared to fossil-based BDO."

Using QIRA enables BASF to produce BDO derivatives with a PCF lower than the corresponding fossil-based chemicals. BDO derivatives based on QIRA have the same physical and technical properties compared to those based on fossil-based BDO.

“By gaining access to QIRA, we can offer our customers significantly larger volumes of BDO derivatives that not only have a reduced carbon footprint, but also a guaranteed physical content of the renewable feedstock,” says Wolfgang Müller, Global Strategic Marketing, BASF Intermediates division. “We are thereby further diversifying our existing portfolio of sustainable solutions, which already includes biomass-balanced products, low PCF products and products manufactured according to BASF’s ChemCycling® approach.”¹

“We are proud to partner with BASF to bring more sustainable material solutions to the market. This collaboration demonstrates that QIRA is an important alternative to fossil-based BDO and thus significantly improves the sustainability of its derivatives,” says Jon Veldhouse, CEO of Qore. “QIRA is an innovative platform chemical that can be used in various applications across markets such as apparel, automotive and electronics.”

Large variety of applications for BDO downstream products PolyTHF and THF

BDO is an important precursor for the production of PolyTHF, an essential starting material for elastic spandex and elastane fibers that are used for a wide range of textiles, for example swimsuits, sportswear and underwear, but also outerwear such as shirts and stretch jeans. PolyTHF also serves as a chemical building block for the production of thermoplastic polyurethanes (TPU), which BASF customers use to make highly abrasion-resistant and elastic hoses, films and cable sheathing, primarily for the automotive industry. Other applications include thermoplastic polyetheresters, polyetheramides and cast elastomers for the manufacture of wheels, for example for skateboards and inline skates. With a total of five production plants for PolyTHF in Europe, North America and Asia Pacific, BASF is among the largest suppliers of this versatile intermediate. BDO also serves as an intermediate for the production of THF, whose main application is in the manufacture of pharmaceuticals. BASF is among the world’s leading manufacturers of BDO derivatives.

Explanatory information:

- Qore[®] LLC is a joint venture of Cargill and HELM AG.
- Qore[®] LLC produces bio-based BDO under the QIRA[®] brand.
- PolyTHF[®] is a BASF brand in many countries.
- ¹More info on the sustainable product variants of BASF's chemical intermediates here:

<https://chemicals.basf.com/global/en/Intermediates/sustainability.html>

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About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. More than 111,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €87.3 billion in 2022. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the United States. Further information at www.basf.com.

About Qore[®] LLC

Formed through a joint venture by Cargill and HELM AG, Qore[®] helps leading brands replace fossil-based chemistries with bio-derived intermediates. At the heart of the joint venture is the production of QIRA[®], the next-generation bio-derived 1,4-butanediol (BDO). Made biologically through the fermentation of plant-based sugars, QIRA[®] can save up to 86% of greenhouse gas emissions when replacing today's widely used chemical intermediates made from traditional fossil sources. Bio-derived QIRA[®] can be used the same way as its fossil counterpart but with significantly better environmental performance. Qore[®] and QIRA[®] are trademarks of Qore[®] LLC. For more information and inquiries visit www.myqira.com