



Joint News Release

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BASF and Linde Announce Collaboration Agreement for Natural Gas Processing Technology

- BASF and Linde collaborate to serve natural gas processing applications using BASF's adsorbent technology and Linde's adsorption & membrane technology.
- Customers benefit from simplified technical and procurement processes as well as increased reliability and performance of the membrane process.

Ludwigshafen, Germany and Pullach, Germany, February 22, 2019 - BASF and The Linde Group's Engineering Division have agreed on a collaboration to serve natural gas processing applications using BASF's adsorbent technology and Linde's adsorption & membrane technology. This collaboration brings together two leading companies in the fields of adsorbents, adsorption and membrane technology. With the combined capabilities of materials expertise from BASF and engineering expertise from Linde, the two companies are well positioned to expand their global leadership position in natural gas applications.

BASF's innovative Durasorb™ adsorbents will be used to improve Linde's high-performance membrane processes, which provide stability and selectivity advantages over competitive membrane processes. Membrane technology that can process gas high in CO₂ is becoming increasingly important in the natural gas industry. The ability to treat gas high in both heavy hydrocarbons and CO₂ will allow BASF and Linde to serve a part of the industry that now must rely on high cost alternatives.

Customers will benefit from a one-stop solution. BASF and Linde will perform the required design work to ensure that the adsorbent is well suited to the membrane. Linde will supply both units to the customer required to process natural gas: the membrane unit and the pretreatment unit located upstream, applying Durasorb™. This arrangement will simplify the technical and the procurement

processes for the customer as well as increase the reliability and performance of the membrane process.

BASF, the world's leading supplier of environmental and process catalysts, and Linde, a world-leading gases and engineering company with its outstanding adsorption and membrane plant technology, join forces and competencies. The collaboration is a strong signal to the natural gas industry and will open access to previously inaccessible gas compositions for treatment. "The partnership leverages the strengths of both companies and expands the market reach of Durasorb™, allowing BASF to serve together with Linde an even greater portion of the fast-growing natural gas industry," says Detlef Ruff, Senior Vice President Process Catalysts at BASF. "We are enthusiastic to cooperate with BASF in this strategically important market. A proper and sophisticated pretreatment of natural gas is key to deploy the full potential of high-performance membranes," says Tobias Keller, Executive Vice President of Linde Engineering's Product Line Adsorption and Membrane Plants.

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About BASF's Catalysts Division

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success. Further information on BASF's Catalysts division is available on the Internet at www.catalysts.basf.com.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The more than 115,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every

country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of more than €60 billion in 2017. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (BAS). Further information at www.basf.com.

About The Linde Group

In the 2017 financial year, The Linde Group generated revenue of EUR 17.113 bn, making it one of the leading gases and engineering companies in the world, with approximately 58,000 employees working in more than 100 countries worldwide. The strategy of The Linde Group is geared towards long-term profitable growth and focuses on the expansion of its international business, with forward-looking products and services. Linde acts responsibly towards its shareholders, business partners, employees, society and the environment in every one of its business areas, regions and locations across the globe. The company is committed to technologies and products that unite the goals of customer value and sustainable development. For more information, see The Linde Group online at www.linde.com.

The picture shows a Linde high-efficient membrane plant.