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**INVISTA AND KOCH-GLITSCH EXPAND PARTNERSHIP TO OFFER INNOVATIVE EXOS™
TECHNOLOGY TO ACHIEVE 10 PPM SULFUR LIMIT IN GASOLINE BLENDSTOCK WHILE
MINIMIZING OCTANE LOSS**

The ExoS™ solvent extraction technology allows refineries to optimize operations by preserving octane, reducing hydrotreater load, and saving money

WICHITA, Kan. – INVISTA Performance Technologies (IPT) and Koch-Glitsch, affiliates of Koch Industries Inc., announced today an expansion of their partnership to offer the proprietary ExoS™ technology to customers. The technology allows refineries to generate an olefin rich C6/C7 raffinate with less than 10 ppm sulfur that bypasses the FCC naphtha hydrotreater for direct blending.

With eight units in commercial operation and seven units in the design and construction phase, the technology is commercially proven to deliver value by preserving octane and reducing hydrotreater size, operating expenditures, and capital expenditures when installed with a new hydrotreater. As a revamp, the technology preserves octane number, lowers operating expenditures, and frees up hydrotreater capacity and hydrogen availability.

The ExoS™ process technology – developed and commercialized by China Petroleum University-Beijing (CUPB) and Hebei Refining Technologies (HRT) – utilizes a proprietary solvent to extract sulfur and aromatics from mid-cut FCC naphtha (C6/C7). The sulfur-rich extract is sent to the FCC hydrotreater for sulfur removal while the olefin rich raffinate with less than 10 ppm sulfur is sent directly to the blending pool. This reduces the hydraulic load on the hydrotreater and avoids the saturation of the high-octane number olefins. Alternatively, this low-sulfur, olefin-rich, mid-cut FCC naphtha can also be utilized as feed for other processes to further increase its value.

“Refineries worldwide are facing the challenge of ever decreasing total sulfur limits in the gasoline pool,” said Christoph Ender, Koch-Glitsch senior vice president of global sales and business development. “Expanding our partnership with INVISTA Performance Technologies to offer ExoS will provide our customers with a valuable solution that is easier to operate, lower in cost, and more environmentally friendly to stay ahead of the sulfur curve versus hydrotreating alone.”

Approximately 40 wt% of the olefins in full range naphtha are in the mid-cut (C6/C7) and approximately 90 wt% of the sulfur species are thiophenic. The ExoS™ solvent is formulated to extract the thiophenic sulfur from the mid-cut naphtha for further processing in the hydrotreater. The process utilizes a series of extraction and distillation columns optimized to recover more than 90% of the olefins in the raffinate and more than 95% of the sulfur in the extract.

“We are excited to add the ExoS technology to our expanding refinery portfolio,” said Mike Massa, INVISTA Performance Technology Licensing Director. “The refining industry no longer has to accept significant octane loss to meet mandatory sulfur limits. The ExoS process provides an option to preserve octane, and optimize the hydrotreater design and operation.”

To learn more about the ExoS™ technology and to see how the technology can generate value for your refinery in your facilities, you can contact IPT at <http://www.ipt.invista.com/en>, contact a local Koch-Glitsch representative, or email KGProcessTechnology@kochglitsch.com.

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About INVISTA Performance Technologies

INVISTA Performance Technologies (IPT) is the technology licensing group within INVISTA. IPT provides the resources and know-how to deliver world-scale technology for licensing to a growing portfolio of technologies in the polyester, polyurethane, nylon and refining value chains. Plant process design and project execution skills have been married with expert functional engineering and production know-how to provide unparalleled expertise in technology licensing. www.ipt.invista.com/en.

About Koch-Glitsch

Koch-Glitsch is a global leader in developing, engineering, designing, and manufacturing a complete line of mass transfer and separations technology equipment for the chemical, petrochemical, refining, and gas processing industries. Koch-Glitsch can provide a complete solution for each unique project with its wide range of products and service capabilities, in addition to its knowledgeable and experienced Refinery Specialist, Troubleshooting, and CFD Modeling teams. These solutions allow for designs that are faster and safer for new constructions and revamps. Koch-Glitsch is headquartered in Wichita, Kansas, with additional sales and manufacturing locations across the globe. Koch-Glitsch is a Koch Engineered Solutions company. More information is available at www.koch-glitsch.com.

About China University of Petroleum-Beijing

CUPB is a leading Chinese university in the refining, petrochemical space. State Key Laboratory of Heavy Oil Processing of CUPB is a leading R&D facility in oil processing and clean fuel production. More information is available at www.cup.edu.cn.

About Hebei Refining Technologies

HRT is a technology-driven company dedicated to desulfurization technology development, petrochemical agents and special equipment manufacturing. HRT provides technologies and services in refinery gas, fuel gas, LPG and naphtha desulfurization. More information is available at www.hbjingzhikeji.com.

About Koch Engineered Solutions

KES provides uniquely engineered solutions in mass and heat transfer, combustion and emissions controls, filtration, separation, materials applications, automation and actuation. KES is located in Wichita, Kansas, and is a subsidiary of Koch Industries, one of the largest private companies in the world. KES delivers superior value in developing, integrating, and applying innovative technical and service solutions for industrial value chains. More information is available at KochEngineeredSolutions.com.



Photo caption: The ExoS™ Process... extracting sulfur, preserving octane and generating value