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MARCH 12, 2020

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Honeywell UOP Polybed™ PSA technology provides a proven and economical source of hydrogen for chemical processes

DES PLAINES, Ill., March 12, 2020 – Honeywell UOP announced today that Zhejiang Petrochemical Co. Ltd. (ZPC) will use four Honeywell UOP **Polybed™** pressure swing adsorption (PSA) units to supply high-purity hydrogen for the second phase of an integrated refining and petrochemical complex in Zhoushan, Zhejiang Province. The complex is one of several new large industrial sites that are part of China's current national economic development plan.

Zhejiang Petrochemical earlier awarded petrochemical process technology licensing, engineering design and catalysts for the first two phases of the project to Honeywell UOP. When completed, the new plant will be the largest crude-to-chemicals complex in China and one of the largest in the world, manufacturing petrochemicals to make plastic resins, films and fibers, as well as fuels.

"More petrochemical manufacturers and refiners in China are choosing UOP's PSA technology because it is an extremely competitive and reliable source of high purity hydrogen," said Bryan Glover, vice president and general manager, Petrochemicals & Refining Technologies at Honeywell UOP. "High-purity hydrogen is a critical element in the efficient operation of these complexes because all of the conversion technologies in them depend on it."

UOP announced the **first phase** of the ZPC project in 2017, including technologies for hydroprocessing and heavy oil upgrading, and production of **aromatics** for plastic resins, films and fibers. ZPC awarded the **second phase** of the project in January 2019, doubling the plant's aromatics capacity to about 12 million metric tons per year. With more than 50% of its crude capacity converted to petrochemicals, it will move China closer to self-sufficiency in paraxylene production and be a major new source of propylene and other products.

Polybed PSA systems are skid-mounted, modular units complete with hardware, adsorbents, control systems and embedded process technology, enabling quick and efficient installation to reduce cost and downtime.

The PSA process uses proprietary UOP adsorbents to remove impurities at high pressure from hydrogen-containing process streams, allowing hydrogen to be recovered and upgraded to more than 99.9% purity to meet refining needs. In addition to recovering and purifying hydrogen from steam reformers and refinery off-gases, the **Polybed PSA** system can be used to produce hydrogen from other sources such as ethylene off-gas, methanol off-gas and partial-oxidation synthesis gas.

Since its introduction in 1966, UOP has improved Polybed PSA technology with new generations of adsorbents, enhanced cycle configurations, modified process and equipment designs and more reliable control systems and equipment. Today, Honeywell UOP has installed more than 1,100 Polybed PSA units in more than 70 countries. As a result, Polybed PSA is a proven technology with dozens of large-scale unit references globally.

The Zhoushan facility is the largest integrated refining and petrochemicals project in the world. It includes two complexes, together containing two UOP VGO **Unicracking** units with a total capacity of 8 million metric tons per year (mmta), and two diesel Unicracking units with a total capacity of 7 mmta. The complexes also include RCD **Unionfining**

and RFCC units, each with a capacity of 5 mmta, four **CCR Platforming** units with a total capacity of 15.2 mmta, a **Butamer** unit with a 400 kmta fresh feed rate, four **LD Parex** trains with a total capacity of 8.8 mmta, and a **C3 Oleflex** unit with a capacity of 510 kmta.

Honeywell UOP (www.uop.com) is a leading international supplier and licensor of process technology, catalysts, adsorbents, equipment, and consulting services to the petroleum refining, petrochemical, and gas processing industries. Honeywell UOP is part of Honeywell's Performance Materials and Technologies strategic business group, which also includes Honeywell Process Solutions (www.honeywellprocess.com), a pioneer in automation control, instrumentation and services for the oil and gas, refining, petrochemical, chemical and other industries.

Honeywell (www.honeywell.com) is a Fortune 100 technology company that delivers industry specific solutions that include aerospace products and services; control technologies for buildings and industry; and performance materials globally. Our technologies help everything from aircraft, buildings, manufacturing plants, supply chains, and workers become more connected to make our world smarter, safer, and more sustainable. For more news and information on Honeywell, please visit www.honeywell.com/newsroom.

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