

News release

Johnson Matthey and Eastman Chemical Company licence new ethylene glycol technology to Jiutai

Johnson Matthey and Eastman Chemical Company (Eastman) announce that their advanced, proprietary technology for the production of ethylene glycol from coal has been selected by Inner Mongolia Jiutai New Material (Jiutai) for its planned 1,000,000 tonnes per annum ethylene glycol facility.

Ethylene glycol, commonly referred to as mono ethylene glycol (MEG), is a key industrial chemical and is also a building block in the production of polyesters for fiber and packaging applications. Today, the majority of the world's MEG is produced from ethylene but this new process enables the production of MEG from a variety of raw materials, including coal, natural gas, or biomass, thereby enabling companies to produce MEG without the need to access ethylene.

"Jiutai is pleased to select Johnson Matthey and Eastman's novel technology for the production of MEG. Jiutai's aim is to utilise local coal and other precious resources, such as water, in a clean and sustainable manner to produce high value MEG at its new Coal to Chemicals Complex at Togtoh Industrial Park, Togtoh, Inner Mongolia. With the combined efforts of all parties involved in this important project, we are focused on implementing the project in a timely manner and bring great value to the Company in a world class facility," commented Mr Cui Lianguo, Chairman of Jiutai Group at the contract signing ceremony held on 9th September.

Jiutai's Coal to Chemicals complex will produce synthesis gas by gasification of coal. The synthesis gas will be converted to methanol which will then be converted to formaldehyde from which MEG will be produced.

Johnson Matthey has also licensed to Jiutai its world leading technologies and catalysts for the production of methanol and formaldehyde in an integrated MEG facility, which will maximise feedstock conversion and reduce utility consumption across the multi-step route from syngas to MEG. This, combined with the advanced technology for MEG production and the large capacity, provides significant value addition whilst using abundantly available coal. The methanol plant will be a world scale facility and any excess methanol above that required for MEG production will be used in other Jiutai facilities. The formaldehyde plant will have an annual capacity of 1,500,000 tonnes per annum and will be among the largest single site facility for formaldehyde production in the world.

“We are delighted that Jiutai has selected the MEG technology developed under a collaboration between Johnson Matthey and Eastman. Our focus is to provide highly efficient, sustainable technology and catalysts which enables our customers to maximise their feedstock conversion. Over the past fifty years, JM has applied its world class science and technology to bring many new process technologies and catalysts to the market which have created significant value for our customers. This new MEG technology is the latest addition to our portfolio and we are excited to bring this to market for our customers.”, said Jane Toogood, Sector Chief Executive, Efficient Natural Resources, Johnson Matthey.

Eastman and Johnson Matthey began development of the MEG technology from synthesis gas over a decade ago. Extensive testing was conducted at the research facilities of Eastman and Johnson Matthey, and the MEG process was developed by combining the complementary capabilities of scientists and engineers of both companies. MEG produced in the process meets all international and Chinese specifications and independent tests have confirmed the quality is maintained over prolonged period of storage.

“The MEG technology was developed through many years of sustained research and development, and by combining the expertise of Eastman and Johnson Matthey in synthesis gas chemistry we are pleased to license this advanced process to Jiutai”, said Dr Peter Miller, Vice President of Stream Development and Operations Technology for Eastman.

Ends

About Jiutai

Jiutai Group, established in 2002, is a large-scale private joint-stock enterprise. Jiutai produces Dimethyl Ether, Methanol and other downstream products.

Over the last ten years, Jiutai has grown into a large enterprise group with bases in Shandong, Inner Mongolia, and the Yangtze River Delta and Pearl River Delta, and integrated with energy and chemical industry. Jiutai has a number of subsidiaries in Linyi, Erdos, Guangzhou and Zhangjiagang.

About Johnson Matthey

Johnson Matthey is a global leader in science that enables a cleaner and healthier world. With over 200 years of sustained commitment to innovation and technological breakthroughs, we improve the function, performance and safety of our customers' products. Our science has a global impact in areas such as low emission transport, pharmaceuticals, chemical processing and making the most efficient use of the planet's natural resources. Today more than 14,000 Johnson Matthey professionals collaborate with our network of customers and partners to make a real difference to the world around us.

For more information, please visit: www.matthey.com

About Eastman

Eastman is a global advanced materials and specialty additives company that produces a broad range of products found in items people use every day. With a portfolio of specialty businesses, Eastman works with customers to deliver innovative products and solutions while maintaining a commitment to safety and sustainability. Its market-driven approaches take advantage of world-class technology platforms and leading positions in attractive end markets such as transportation, building and construction, and consumables. Eastman focuses on creating consistent, superior value for all stakeholders. As a globally diverse company, Eastman serves customers in more than 100 countries and had 2017 revenues of approximately \$9.5 billion. The company is headquartered in Kingsport, Tennessee, USA and employs approximately 14,500 people around the world.

