

Breakthrough Hydroprocessing Technology for the Upgrading and Refining Industry

The technology used to add hydrogen to hydrocarbon feedstocks in a refinery or upgrading complex is key to moving these heavy oil molecules up the value chain. Recent advancements in hydroprocessing technology can be of interest to those with processing plans for premium synthetic crude oil or ultra low sulphur transportation fuels.

DuPont™ IsoTherming™ hydroprocessing technology is a new approach to hydroprocessing applicable to the upgrading and refining industry which now must produce today's ultra low sulphur transportation fuels.

In conventional hydroprocessing technology, the reactions occur in the liquid phase. A large volume of hydrogen rich recycle gas is combined with the reactor feed to ensure that the required hydrogen for the reactions can be transferred to the liquid phase. A large recycle compressor proves the circulation of recycle gas.

The heart of IsoTherming™ technology is the ability to provide the hydrogen necessary for the reactions through a saturated liquid recycle stream. By removing the need for hydrogen dissolution in the reactor, the process has removed the mass transfer limitation of the reaction. The reaction rate is now kinetically limited. As a result, the reactor can now be sized for the hydroprocessing reaction itself rather than the dissolving of hydrogen in the reaction mixture

The key benefits of this new hydroprocessing technology design include:

- Smaller and less expensive reactor systems
- No recycle gas compressor required
- Improved yields, qualities and catalyst life

Improved hydroprocessing technology can be applied to many segments of the oil sands processing industry, from field upgrading to full production of finished products.

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