

Direct Heat Transfer to Dehydrogenation Systems via Electrical Heat Generation

Track Code: 2020-AGRA-69109

Categories:

- Chemical Engineering

Keywords:

- Alkenes
- Chemical Engineering
- CISTAR
- Dehydrogenation
- Natural Gas Liquids
- Shale Gas

Steam cracking requires use of a furnace to generate high heats needed for dehydrogenation reactions. The primary limiting factor in furnace steam cracking is the efficiency of heat transfer between the fuel combustion process into the coils used to heat the reactor. Researchers at Purdue University have devised a dehydrogenation reactor to increase energy and cost efficiency in steam cracking. To increase efficiency, Purdue researchers have demonstrated use of a heat source that directly transfers heat to the gaseous reactant stream. This high heat transfer results in a simpler dehydrogenation process which is highly beneficial for small scale and remote locations

Advantages:

- Increased Efficiency of Heat Transfer
- Lowers Costs
- Beneficial for Small Scale or Remote Locations

Potential Applications:

- Steam Cracking
- Shale Gas Processing
- Alkene Production

Technology Validation: Aspen Plus simulations

People:

- Agrawal, Rakesh (Project leader)
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- Oladipupo, Peter

Intellectual Property:

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