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Ethylene Design Considerations in the Polymer Industries

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Ethylene, a widely used compound in everyday products, takes center stage in this paper. The discussion includes benefits and applications, focusing on essential design factors for polymer industries. A thorough overview of ethylene's basics and its role in the industry while discussing its use in key applications like polymer polyethylene (PE) and ethylene dichloride (EDC), a precursor for making polyvinyl chloride (PVC). We also touch on market trends, including global production and consumption patterns. The core of the paper delves into key design considerations. This includes insights into some process engineering related activities such as line sizing, equipment sizing and design, process control, relief calculation and disposal strategies conforming to typical local regulations. Mitigation techniques against extreme conditions and the incorporation of auto-refrigeration mechanisms while maintaining a strong emphasis on safety. An example of this technique is shown using Aspen Hysys calculation based on a sample project. The paper concludes with pragmatic recommendations that aim to enhance the practical implementation of good engineering practice in polymer industries. By offering a bridge between theoretical understanding and practical application, this study aims to contribute to the industry's advancement while prioritizing safety.

Biography:

Angeli Gilbuena has twenty-one (21) years of Process Engineering experience in pre- FEED, FEED and detailed engineering in various units in petrochemicals, chemicals and utilities and offsites plants. She joined Fluor in 2005 as a Process Engineer. She is the local SME for hydraulics and in house PALS software and currently Process Engineering Department Manager in Fluor Manila office.