

Alliance between Sulzer Chemtech and Shell:

World-Class Separation Technology

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The separation of gases from the interfering liquid portions is an important process step in the extraction and cleaning of natural gas. Shell Global Solutions International has a great deal of experience with the separation of gas-liquid mixtures and features a portfolio of high-quality products developed in Shell's Amsterdam research facilities. The strategic alliance enables Sulzer Chemtech to expand its product portfolio with high-performance separators of the latest generation and make them available to all Sulzer customers.

▶ A mist collector/separator is an arrangement that retains the drops of liquid that are carried along in a flow of gas and in this way effects a separation between the gaseous and liquid phase. In order to be able to remove droplets from the gas, the particle trajectories of the liquid must deviate from the flow pattern of the gas.

High Efficiency Separators

The alliance between Shell and Sulzer Chemtech includes the worldwide and exclusive sale of internals from the Shell high-performance separator product range. Depending on the combination of the individual components, the separator systems are known as:

SMS™	SVS™	SMSM™	SMMSM™
Schoepentoeter Mesh-demister Swirldeck	Schoepentoeter Vane Pack Swirldeck	Schoepentoeter Mesh-demister Swirldeck Mesh-demister	Schoepentoeter Mesh-demister Mesh-demister Swirldeck Mesh-demister

The Shell SMS technology for the separation of gas-liquid phase mixtures is based on the patented combination of Schoepentoeter™, Mesh-demister and Swirldeck™. The Schoepentoeter (Fig. 1) separates at the early stage a significant portion of the entrained liquid.



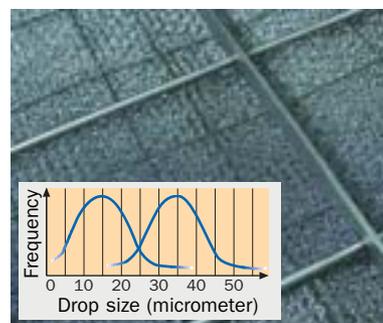
Separators made of wire mesh (mesh-demisters) form the subsequent agglomeration stage. These are operated at high gas load factors, which bring about flooding of the mesh packing (Fig. 2). During this coalescence stage, agglomeration of very fine drops results in larger drops that can then be separated without problem in the next Swirldeck stage (Fig. 3). The separated liquid is collected and led into the column sump through drain pipes.

Good Performance at High Loading

Even at very high gas loads, the SMS separators achieve an outstanding liquid separation performance. In comparison with conventional wire mesh separators, up to 2.5 times more gas throughput can be processed. Even operation at reduced loads of up to one tenth of the nominal gas flow are also efficiently handled due to the fact that at least one of the three equipment components provides a high separation efficiency at any operating condition.

Comprehensive Range of Products

In addition to the basic SMS separator model, the product family from Sulzer Chemtech also includes other Shell separator types. In the SVS separator, a package of guide plates (the vane pack) is used as the coalescence stage in-



2 A physical effect takes place in the wire mesh of the demister, whereby the finely divided droplets are aggregated and finally form larger drops, i.e., they coalesce. The diagram shows the shift of the drop spectrum towards larger sizes.

stead of a wire mesh. This type is always used wherever excessive pollution with solids is expected.

If a higher separation performance is necessary, the SMSM separator is used. In this case, the so-called secondary gas, which escapes with the separated liquid through the slits in the swirl tube, is cleaned by an additional wire mesh separator fitted above the Swirldeck.

The application area of the SMMSM separator is in critical separation processes with two very different condensate components, such as hydrocarbons and glycols. The separation performance is improved even further by using two mesh-demisters with different wetting characteristics tuned to the liquids that are to be separated to provide coalescence stages before the Swirldeck.

1 The Schoepentoeter—“Schoep” means “turbine blade” in Dutch—is a gas inlet system with curved guide vanes. These and other modern technologies for the separation of gases and liquids are now offered by Sulzer Chemtech through the alliance with Shell Global Solutions.

