

Inline Measurement with the MIVI Viscometer: Viscosity Advantages for Polymerization



France (June 2013) - Polymerization occurs through a variety of reaction mechanisms that differ in complexity.

The **MIVI process viscometer** detects, monitors, and controls the polymerization process' numerous phases and is perfectly adapted for the chemical industry's extensive requirements.

For **mass, solution, suspension, and emulsion**, wide measurement ranges are achieved with MIVI installations along polymerization key points. Viscosity control allows **molecular weight** and **separation monitoring** as well as **polymer concentration measurement**.

As viscosity indicates a **physical property**, polymerization reactions can be stopped when the required viscosity is reached. The **MIVI** provides instant information that controls reaction stages. If the reaction is too fast and / or exothermic, the result is defective, heterogeneous, polymer quality. If the reaction is too slow, manufacturing time increases which causes increased energy consumption and low productivity. The **MIVI** is the best solution for consistent and superior polymer quality.

The **MIVI viscometer** in **polymerization batch processes** monitors the extent of reaction and verifies polymer specifications. Since the polymer quality is reproducible, the need for lab controls is decreased. Inline viscosity control in batch processes shortens reaction times, increases output, and reinforces safety. The viscometer can be mounted on a reactor wall, on a circulation loop, and in an immersion tube. In addition, downtime is reduced since the vibrational **MIVI sensor** is easily cleaned between batches.

During **continuous polymerization processes**, measuring viscosity is useful for single-point quality control between each reaction stage, the extent of reaction at multi-points, as well as downstream measurements. Viscosity control **improves product quality** in many ways: molecular weight, branching extent, and polymer concentration. MIVI viscometers can be installed on a pipe angle, in a measuring chamber, and in-line. Cleaning the **MIVI sensor** occurs between turnovers or during the circulation of a pipe-cleaning product.

In every polymerization process, **manufacturing capacity is improved** by optimizing various process steps such as the polymerization start, the extent of reaction, and the end-point. Due to the **MIVI's** precise viscosity measurement, the **end-product quality is better**, solidification is prevented, and process safety and security are increased. The **MIVI sensor** reduces cleaning time, prevents rejected batches, and eliminates the need for new a reactor and / or instrumentation.

Roughly 20% of Sofraser products are used in the polymerization industry and with more than 30 years' experience with world-renowned chemical companies, **MIVI** installations contribute to increased productivity and rapid **return on investment**.

About Sofraser

Sofraser is a 40 year fluid specialist and the inventor of the vibrating viscometer held at resonance frequency. Patented in 1981, it is now widely considered the most reliable in viscosity process instrumentation. For more information on our products and to access our expertise, visit sofraser.com or contact us at instruments@sofraser.com.