

## Mixing Equipment for Polymer

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### **Abstract**

Laboratory mixing equipment – lab mixers, lab stirrers and lab homogenizers (sometimes known as high shear mixers) – are important research tools. Which to use depends on several factors including but not limited to sample size, sample viscosity, the purpose of the mixing or stirring action and whether or not heating the sample is desired. Nomenclature can be confusing at times. What's the difference between a mixer and stirrer and homogenizer? Because they are often used interchangeably we will describe them by how they work.

Lab homogenizers are often the instruments of choice when developing pilot-plant procedures to be scaled up to production line operations. Typically laboratory homogenizers are suspended over beakers or flasks containing samples to be processed but it is hard to control the parameter so the laboratory batch reactors are the ultimate systems when it comes to optimizing and reproducing chemical reaction, mixing, dispersing, and homogenization processes on a lab scale. The laboratory reactors can be simple and need little supporting equipment, and is therefore ideal for small scale experimental studies on reaction kinetics. Researchers typically use a batch reactor to study reaction kinetics under ideal conditions. A batch reactor can be used to find the reaction rate constant, activation energy and order of the reaction. The data reflect the intrinsic kinetics for the reaction being investigated.