

Atlas Syringe Pumps Advanced Dosing Protocols

pH Controlled Dosing

Combined with an Atlas pH probe and node, the Atlas Syringe Pump can automatically dose an acid and/or base to keep the pH of your reaction within a defined range. Automated pH control can save chemists valuable time by removing the need to manually add small amounts of acid/base over the course of a reaction.

A wealth of chemical and biological transformations exist that show a strong correlation between pH and rate of reaction. Many starting materials, reactive intermediates, and products are sensitive to acids/bases, so accurate pH control is essential for reactions to progress reliably. Automated and precise pH control enables chemists more control over certain chemistries, such as catalytic reactions, bio-reactions, and enzymatic reactions, and enables measurement of reaction kinetics and conversion.

Temperature-Dependent Dosing

The Atlas Syringe Pumps offer temperature-dependent dosing, allowing you to pause reagent addition until your reactor temperature is within a defined range. Automatically mitigate against exotherms and endotherms, increasing laboratory safety and saving valuable time.

Accurate temperature control and monitoring is vital for accurately predicting the scale-up of chemical processes, and in biochemistry, temperature control is critical to avoiding denaturing or damaging the product.

Autosampling

The Atlas Syringe Pump enables automated sampling of up to 6 samples with each syringe/valve, directly through the syringe pump or through the Atlas PC Software 1.

Chemists can define a number of variables for complete control, including; the number of samples needed; the volume of each sample; the time it takes to aspirate the sample; the delay before the first sample is taken; and the delay between each sample.

Pseudo-gravimetric dosing

Atlas Syringe Pumps can perform pseudo-gravimetric dosing, a powerful technique for the accurate introduction of a reagent into a reactor, utilizing a mass balance to ensure that the desired quantity of reagent is dosed. In test experiments, the process gave excellent results with an error in dosing of less than or equal to 0.1% of the required dosed amount.