



## APPLICATION NOTE

### 3.06 PHARMACEUTICAL & BIOTECH CENTRIFUGE CONTROL

- Real time continuous measurement
- Optimize centrifuge operation
- Quality control

Centrifugation is a process which involves the use of centrifugal forces for the sedimentation of heterogeneous mixtures, it uses separation by means of accelerated gravitational force achieved by rapid rotation. This can either replace normal gravity in the sedimentation of suspension or provide the driving force in the filtration through a filter medium of some kind.

#### APPLICATION

##### Production of bulk drugs:

After crystallization the API are separated from the mother liquor by centrifugation.

##### Production of biological products

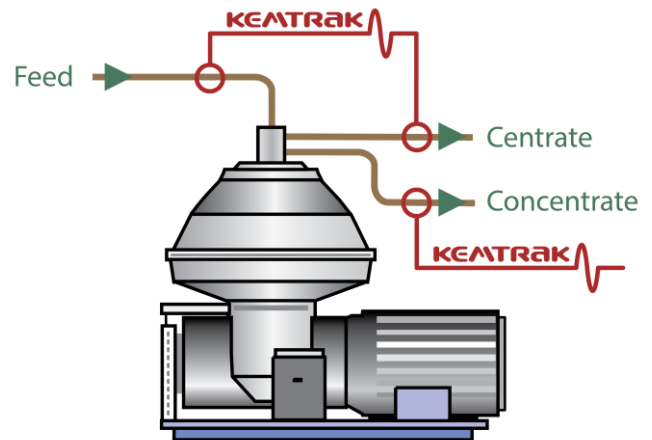
Most of the biological products are either proteinaceous or macromolecules. During manufacturing they remain in colloidal dispersion in water. By normal methods of filtration, it is difficult to separate the colloid particles. In those cases, centrifugal methods are used.

##### Evaluation of suspensions and emulsions

To enhance the rate of sedimentation and creaming the suspension or emulsion is introduced in a centrifuge and rotate at an rpm of 200 to 3000. If still the problems do not appear then the suspension or emulsion can be taken as stable formulation.

#### INSTALLATION

[Kemtrak TC007 turbidimeters](#) installed at inlet and outlets of a centrifuge will greatly improve the control and performance of the centrifuge, increasing yield and ensuring product uniformity.



##### Feed (Inlet)

Feed may often have a high variable solid content and can adversely affect separation performance. By monitoring changes in the feed prior to the separator with a [Kemtrak TC007 turbidimeter](#), the feed rate can be optimized based on real-time solids concentration measurements.

Flow may be adjusted to optimize performance and prevent overloading or clogging of the separator

##### Centrate (Outlet)

The separator centrate outlet is a common position to install a [Kemtrak TC007 turbidimeter](#).

By using the real time data to control discharge based on need, instead of manual or timed discharges may reduce the number of discharge cycles significantly, resulting in increased yield, and helps optimize the efficiency of the system.

Monitoring the centrate for increases in solids or concentrate carryover provides input to the centrifuge control system to keep it operating at its optimum level and protects downstream filtration and processing equipment.

##### Solids Discharge

Measuring the solids discharge stream of the separator enables assessment of separation performance (yield) and purity (product quality).

