



**Product Code . JL-TWL-9131**

## Isothermal Continuous Stirred Tank Reactor

### Description

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Isothermal Continuous Stirred Tank Reactor

#### **Description:-**

In an ideal Isothermal Continuous Stirred Tank Reactor (CSTR), the contents of the reactor are well mixed and have a uniform composition throughout.

The entire set-up is used to study a non-catalytic homogeneous second order liquid phase reaction under isothermal condition.

This type of reactor is known as mixed flow reactor.

Thus the exit stream has the same composition as the fluid within the reactor.

It has two feed tanks through which two reactants are fed to the reactor.

The magnetic drive pump is used for circulation of feed.

JLab CSTR is fitted with a stirrer for proper mixing.

To determine the individual flow of Chemicals, Rotameters are used.

The flow rate can be adjusted by operating the needle valves provided on respective Rotameter.

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From the top outlet of it, samples are collected for analysis.

Constant temperature water bath arrangement is provided to conduct the experiment at various temperatures.

Isothermal Continuously Stirred Tank Reactor JLab is used to augment the feasible and reliable bio-process system for the treatment of hydrocarbon-rich industrial wastewaters.

This condition is applicable when we try to use a continuous agitated tank reactor to get the desired output.

The behaviors of CSTR are determined by using a Continuous Ideally Stirred Tank Reactor (CISTR).

These reactors are also known as vat or back mix reactor.

All calculations are based on perfect mixing.

JLab CSTR is a model which helps to get an idea of the key unit operation variables.

### **Experiment:-**

Saponification Reaction study in Isothermal Continuous Stirred Tank Reactor (CSTR).

To determine the Reaction Rate Constant and effect of temperature on it.

### **Utilities Required:-**

Electricity Supply: I Phase, 220VAC, 1.5kW.

Water Supply and Drain.

Instruments, Laboratory Glassware, and Chemicals required for analysis as per the system adopted.

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