



FlexyLab-1 HFC

Your platform for Thermal Process Optimization with isothermal Heat Flow Calorimetry (HFC)

You like to control

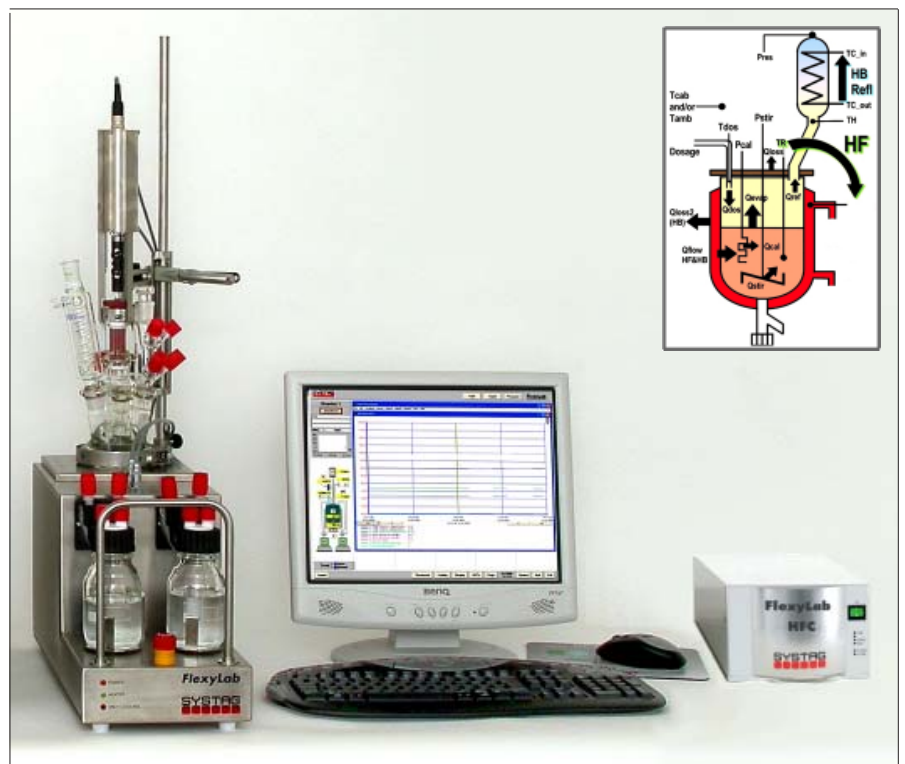
- Temperature
- Stirrer speed
- pH
- 2 parallel Dosages
- Pressure - Vacuum *

You want to use

- Glass Reactor 250 ml
- Volumes from 10ml ... 400ml *
- Autoclaves up to 100 bar *

You need to know

- Power of Reaction
- Heat of Reaction
- Adiabatic Temperature (MTSR)
- Accumulation of Reaction



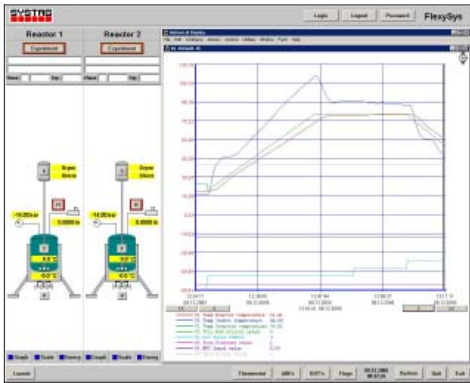
FlexyLab-1 HFC, a perfect fit to your thermal process optimization

Your advantages

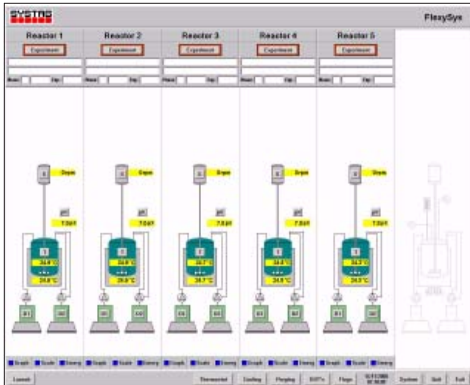
- High efficiency with a plant-related experimental setup
- High reproducibility and accuracy
- Small footprint
- Cost-optimized solution thanks to modular philosophy
- High functionality with the standard module already
- Expandable up to 6 reactors

* optionally

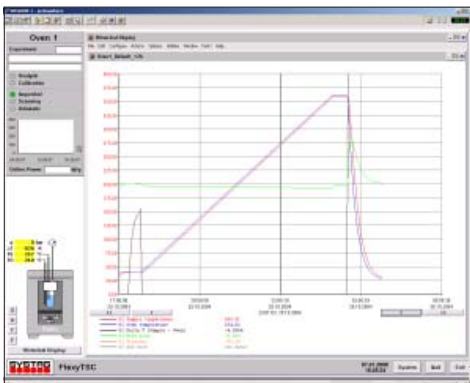
FlexySys - A Philosophy for all Applications



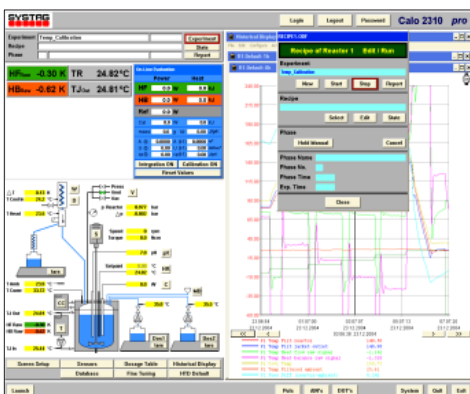
FlexyAUR



FlexyLab



FlexyTSC-Solo



Cato 2310

Uniformity in Variety

A common operating philosophy **Flexy-Concept** has been developed for the various applications and synoptic screen layouts. All functions can be accessed by clicking on the function keys of the relevant windows. This provides complete, manual experiment control.

1 to 6 Independent Reactors can be controlled by a Single PC

FlexySys takes into account the limited space available in laboratories. A single PC can control up to 6 reactors.

Simultaneous Operation and Graphics Function

FlexySys allows simultaneous operation and graphics display by using the same screen. This keeps you informed on the total process.

Combination of Manual and Recipe Control

FlexySys has been designed for process development. It can perform recipe sequences, but manual changes can also be made should the sudden need arise.

Automatic Protocol

Whether in manual or recipe mode, an automatic and complete protocol is always performed in the background. Using a word template, individualized layouts can be created.

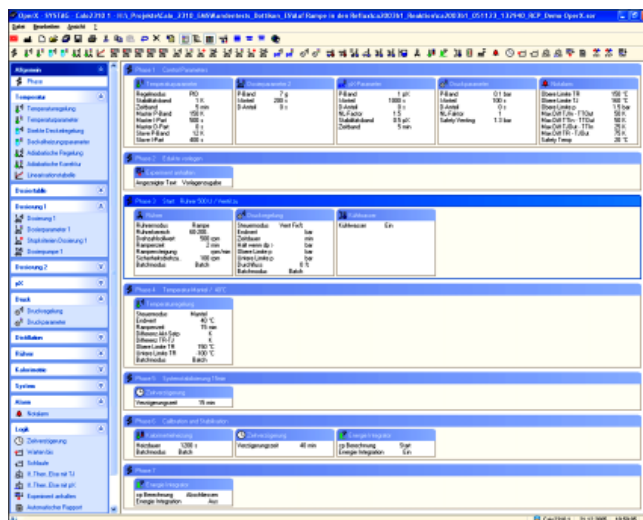
Remote Control and Maintenance

FlexySys is constructed in such a way that can be operated by remote control from a nearby office, or for control purposes from home. A manual intervention is possible all times. SYSTAG also offers maintenance support when needed for problem solving via the Internet.

The new Recipe Editor for FlexyConcept

Advantages

- Drag and drop technique
- Each recipe step can contain up to 5 Basic Operations
- Repetitive procedures can be stored as methods (partial recipe)
- Methods can be conveniently entered into recipes
- Methods allow for most simple execution of SOP's (Standard Operating Procedure)
- Simple to use, operation Windows compatible
- Suitable for CFR21, Part 11 requirements (only with SecureX)
- Designed for the whole SYSTAG product line



Typical Recipe: on the left all Basic Operations, on the right, steps below each other, with up to 5 Basic Operations in parallel

FlexyLab-1 HFC - Technical Data of Reactor System

Reactor	Volume Material Lid and connectors Temperature range Heating system Cooling system Stirrer Ventilated housing Cooling of FlexyLab Housing	250 ml, optional 70, 100 or 400 ml borosilicate glass lid with following connectors: NS 29 for stirrer, NS19 for dosage multiple inlet with standard 4 GL connectors, NS19 for reflux unit, NS19 for reactor probe, NS19 for pH probe as well as NS19 for pressure connection. -80°C up to +280°C Electric heating mantle 230 VAC, 500 W Cooling from a central thermostat / cryostat. Stirrer motor with electronic speed control, range 35 -700 rpm , 25 Ncm. the system can be flushed with air or N ₂ . Necessary for applications at low temperatures (to avoid condensation and freezing) and high temperatures (cooling) as well as in case of chemically aggressive atmosphere. Mains water, approx. 20l/h, operated in series; connection with a reflux condenser is provided for.
Dosings	2 x simultaneous, gravimetric container type Dosing pump Dosing volume and Medium	scaling range max. +/-600 g, resolution 0.1 g 250 ml round flask (available from Systag) Electronically controlled peristaltic pump, variable volume approx. 1 to 100 % Dependent on tube diameter and material; max.250 ml/h Tubing materials: Silicon, Viton, Novoprene (Standard), Chemsure (PTFE)
Calorimetry	Heat Flow Calorimetry (HFC)	Accuracy 5% to 10%, isothermal mode, calibration heater 5 W. Evaluation by SysGraph
Dimensions	Ambient temperature Power supply Power requirement for 1 reactor unit Measurements reactor unit Weight reactor unit	10...35°C 230 VAC, 10 A, 50 or 60 Hz, single phase, without interruption single phase, 600 VAC 260/800 x 200 x 550 mm (height x width x depth) approx. 10 kg each unit

Heat Flow & Balance Calorimetry

Isothermal Heat Flow Calorimetry (HFC)

Isothermal heat flow calorimetry is a standard in this system. Accuracy of measurements is approx. 5-10%. Evaluations is done by SysGraph.

Isothermal Heat Balance Calorimetry (HBC) *

As an option additional isothermal Heat Balance Calorimetry (HBC) at the reflux condenser can be delivered.

Your advantages

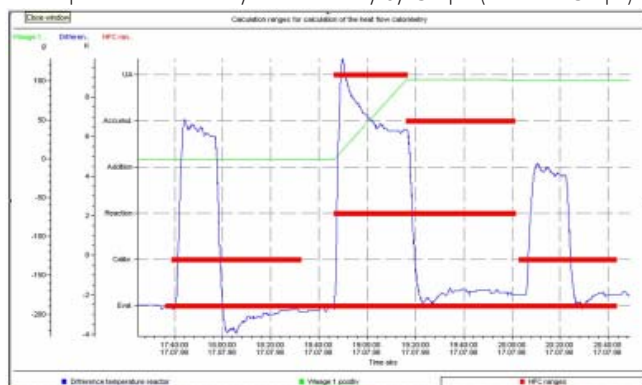
Thermal process optimization is becoming more and more important. For this calorimetric data is needed. Depending on the system (with or without condenser balance calorimetry) you can evaluate

- Reactor and condenser: power and heat curves
- Accumulated heat after partial dosage
- Adiabatic temperature increase
- Accumulated heat at any time for reactor & condenser terms

Purpose of SysGraph

With SysGraph the user can select his desired diagram and display immediately. It is easy to gather all the important data or do calculations. For documentation and evaluation purposes this gives an unambiguous display on which all scales are visible.

Example of a calorimetry evaluation by SysGraph (with KaloGraph)



* optionally

Note: Windows XP, Excel, Word, are products and registered trademarks of Microsoft, U.S.A., respectively.

Technical details are subject to change without notice

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SYSTAG

 automatically better

FlexyLab Options

Exchangeable Glass Reactors, from 70 ml to 400 ml

This variety of exchangeable glass reactors allows to operate a volume range from 10 ml to 400 ml. The robust and high quality products keeps the operational cost low and save your maintenance and repair budget.



70 ml Glass Reactor



100 ml Glass Reactor



250 ml Glass Reactor



400 ml Glass Reactor

Glass Autoclave, up to 6 bar

The glass autoclave 6 bar is suitable for an operational range of -50°C to 200°C. It is fitted with a steel lid, equipped with a quick-lock facility and a magnetic stirrer clutch arrangement. Ideally suitable for hydrogenations etc.

Steel Autoclave, up to 100 bar

These steel autoclaves with a volume of max. 300 ml are suitable for a -50°C to +200°C temperature range. They are alternatively available in a Hastelloy C22 version.

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