Comprehensive Safety Information
in One Click with iC Safety™

Quickly understand the risks of process hazards and get your process right the first time, and in less time.

iC Safety™ is a crucial tool for evaluating the thermal risks of a chemical reaction at industrial scale for use by novice, as well as advanced users. In addition, iC Safety™ summarizes key safety information in an easy-to-understand graphical format and provides access to detailed safety data for expert users.

iC Safety™ – Transforming Data into Information
iC Safety™ is designed to speed and simplify the calculations of thermal safety values associated with complex chemical reactions critical for safe process design and scale-up. It automatically converts reaction calorimetry data into information and safety knowledge providing the basis for correct thermal risk assessment.

The iC Safety™ module:
- Helps to understand safe operating conditions more quickly
- Decreases analysis and reporting time
- Provides critical safety data early in the process

iC Safety™ makes potentially hazardous reactions more predictable by providing fundamental safety information, such as:
- Heat of reaction, molar enthalpy
- Heat removal rate for scale-up, reaction rate and dosing rate
- Thermal conversion and thermal accumulation
- Adiabatic temperature rise
- MTSR (Maximum Temperature of Synthesis Reaction)
**IC Safety™ – How it Works**

Based on heat flow, heat transfer coefficient, specific heat of the reaction mass, and the mass balance, IC Safety™ calculates the safety relevant parameters for the desired reaction.

Understanding accumulation is one of the key questions in the risk assessment of a process. It can be easily determined by reaction calorimetry in combination with IC Safety™. Subsequently, the maximum accumulation of reactants, the related thermal accumulation, and the thermal conversion are displayed.

The heat of reaction, the heat release rate, the specifics of dosing and many more details of the process are conveniently presented in a table.

Knowing, defining and eliminating the potential hazard triggers, i.e. those conditions that initiate secondary reactions or decomposition reactions leading to a runaway reaction, are essential for an inherently safe process.

**IC Safety™ – Enables you to Characterize the Risk**

The severity of a runaway reaction however, is directly linked with the energy of a reaction. Hence, the adiabatic temperature rise, the MTSR (Maximum Temperature of Synthesis Reaction), and subsequent values are important facts provided by IC Safety™.

IC Safety™ in combination with iControl RC™ is an intuitive application that provides a better understanding of the thermal risks of chemical processes and helps solve problems with scale-up, heat transfer and process safety issues.