



**Lessons learned:** 

# **Uncontrolled exothermic reaction** What happened?

In a trial to improve an established polymerization reaction, the catalyzing agent was added in a different order than in previous procedures consisting of the same reactants. The reaction resulted in a minor explosion.

#### What went wrong?

The researcher read the SDS of both reactants. Neither SDS stated there's a stability and/or reactivity problem with either substances or indication regarding incompatibility. There was a general warning that materials might explode in some conditions.

Following the explosion, the researcher did find information on the incompatibility between the reactants in an SDS of another manufacturer.

## What went right?

The researcher read all relevant SDS.

The researcher was wearing complete PPE.

The process was performed inside a fume hood.

The "new" procedure (in terms of the order in which the reactants were entered into the vial) was performed in an **extremely small scale**.

# $\oslash$

### How to prevent similar incidents in the future?

- A methodology of risk assessment for new procedures in the labs should be established. For any new system/reaction/machinery the researcher should identify the relevant hazards, understand the probability and severity of each cause, and take action to mitigate the risk. Consult all literature and relevant personnel, specifically the PI and a relevant safety officer. Be aware of actions during an emergency in case of failure.
- Use the "Cameo chemicals" website or application as a source of information.