GENERAL GUIDELINES FOR DMSO STABILITY

- Pure DMSO is thermally stable: it can be heated at 150°C during 24 hours with less than 0.1% purity loss. DMSO decomposition temperature is above 190°C but in presence of some materials self accelerating exothermic decompositions can occur at lower temperatures.

- DMSO is generally stable in neutral or basic conditions but some strong bases like sodium hydride or potassium *ter*butoxide should be used with great care in presence of DMSO.

- Some acids can cause a rapid decomposition of DMSO.

GENERAL GUIDELINES FOR DMSO STABILITY

As some salts or chemical compounds in certain conditions can decrease the DMSO thermal stability, the accumulation of salts or by-products or impurities in processes involving DMSO must be controlled.

Particularly during a distillation, for the recovery of DMSO in aqueous solution, salts should be removed prior to distillation (see our specific brochure).

Please contact us to get bibliographic examples.

GENERAL GUIDELINES FOR DMSO STABILITY

Hazard study

Some accidents can occur

- in case of heat accumulation,
- during the recovery (see our specific brochure),
- in case of mistake during loading,
- if some parameters are changed :

  duration of the reaction

  temperature of the reaction

  contamination

  ….

=> For each chemical reaction involving DMSO it is necessary to make an expensive hazard study.

GENERAL GUIDELINES FOR DMSO STABILITY

Hazard study

To help you to handle DMSO in safe conditions in your application our process and safety Labotech can provide you experimental data on the behavior of DMSO in reaction.

- thermal stability
- kinetic data for decomposition
- reactivity with potential contaminants
- simulation of operating failures
    - loss of cooling
    - loss of stirring
    - contamination
    - mistake on the concentration of a catalyst or inhibitor
    - mistake on the products introduction sequence

GENERAL GUIDELINES FOR DMSO STABILITY

Hazard study : tools of the labotech

Thermal analysis
Several DSC from 10 mg to 1 g and from -120°C to 1600°C

Calorimetry
reactionnal calorimetry (RC1)
adiabatic calorimetry
closed pressure vessel test (explosive properties)