SYENSQO

Misleading Safety Data Sheets

EPSC 16th December 2025 Aachen

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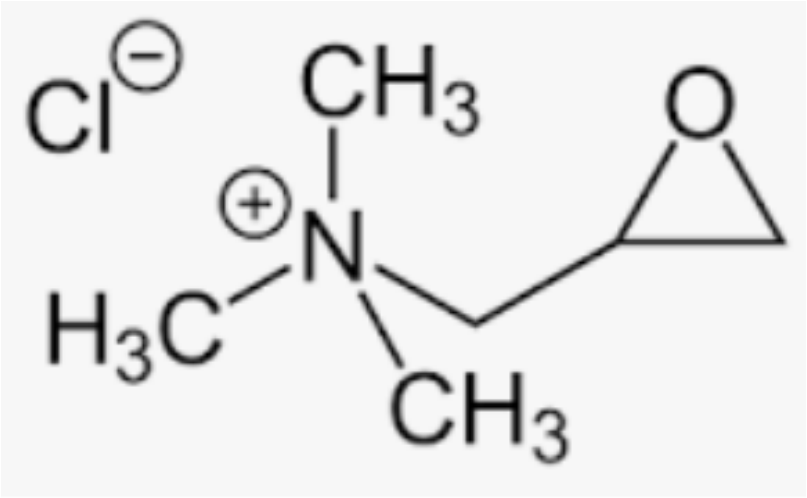
Contents

Glycidyltrimethylammonium chloride 70%

- Composition
  - 70% aqueous solution of glycidyltrimethylammonium chloride



- MSDS
  - Flash point 138 °C
  - Atmospheric boiling point 110 °C
  - Thermally stable up to 70 °C
  - Exothermic reaction from 70 °C

Glycidyltrimethylammonium chloride 70%

- Laboratory data (in house)
  - Non-inflammable
  - Thermal decomposition
    - Heat released 1020 J/g
    - Gas released 68 N litre/kg
    - Detection in VSP (0.2 °C/minute) 105 °C

- Self Accelerating Decomposition Temperature (SADT)
  - 1 m3 Intermediate Bulk Container 35 °C
  - 4 m3 Stock tank 39 °C

N-n-butylbenzenesulphonamide (BBSA)

- Modification to use BBSA on polyamide compounding line
- Several incidents of fire

Parameter	MSDS (Proviron)	Experimental (in house)
Fire hazard	Non-flammable	See below
Autoignition temperature	The study does not need to be conducted because the estimated flash-point is above 200 °C.	370 °C
Boiling point 1013 mbara	243 °C	358 °C
Flash point	> 200 °C	198 °C

Dichloromethane (CH_2Cl_2)

- 2015 incident in France
  - Explosion in a vent pipe.
  - Glass seal pot shattered
  - Polypropylene pipe ruptured in several places
  - Fragments thrown > 20 m
  - One person suffered temporary hearing loss
  - No harm to environment.

Dichloromethane (CH_2Cl_2)

- Explanation
  - Dichlormethane accumulated in off-gas lines
  - Side reaction generated oxygen
  - Dichloromethane is flammable especially in an oxygen atmosphere

Parameter	MSDS Our company	Literature 21% O_2	Literature 100% O_2
Flash point	No flash point		
Upper Explosive Limit	No data	22% v/v	68% v/v
Lower Explosive Limit	No data	14% v/v	12% v/v
Minimum Ignition Energy	No data	9300 mJ	0.137 mJ

Dimethylsulfoxide (DMSO)

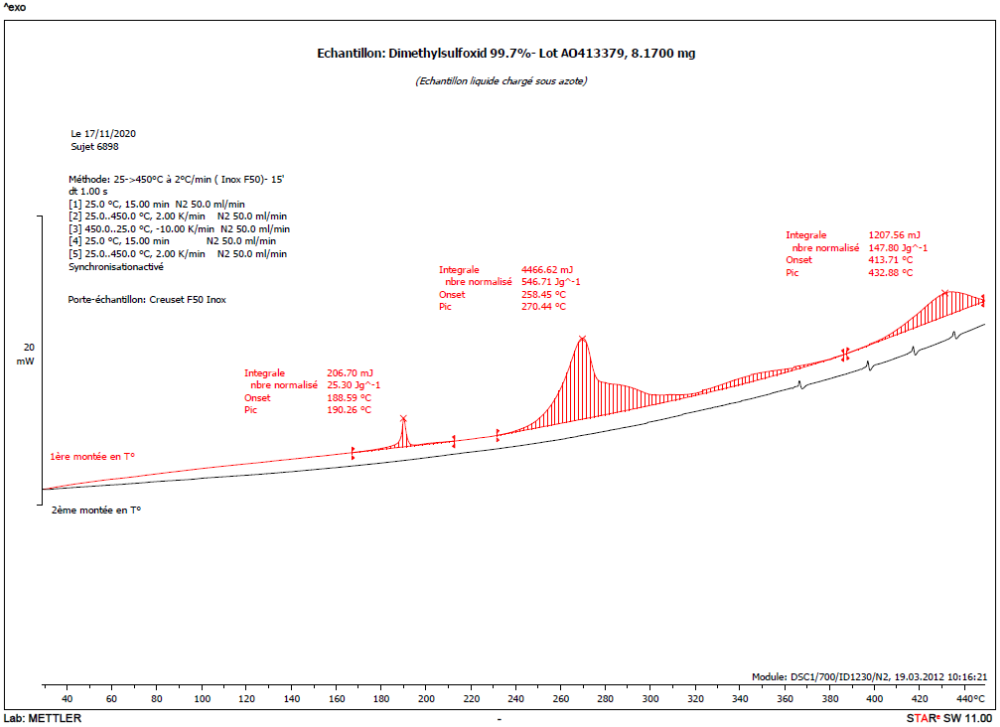
- Incident of 2022 in a laboratory
  - Sealed glass tubes containing DMSO + solid polymer
  - Heated in oven to 200 °C.
  - Left in the oven at 200 °C to dissolve the polymer
  - Explosion of tubes after 2 hours.

Dimethylsulfoxide (DMSO)

- MSDS
  - MSDS SIGMA-ALDRICH Version 6.6 of 03.09.2021
    - Decomposition temperature > 190 °C
  - MSDS THERMO-FISCHER SCIENTIFIC Revision 7 dated 24/12/2021
    - Decomposition temperature > 190 °C
  - MSDS GAYLORD Version 6.02 of 10.02.2022
    - Decomposition temperature = 190 °C
  - Technical bulletin GAYLORD
    - Chemically, DMSO is stable above 100° C in alkaline, acidic or neutral conditions.
    - Prolonged refluxing at atmospheric pressure will cause slow decomposition of DMSO.

Dimethylsulfoxide (DMSO)

- Our laboratory data
  - Exotherm 700 J/g
  - Gas 60 N litres/kg
  - Autocatalytic
  - Onset 4 hours at 210 °C
  - Above 210 °C – shorter
  - Below 210 °C – longer



Potassium acetate

- MSDS Merck
  - Flammabililty : Does not sustain combustion
  - Autoignition temperature : Does not ignite

- Laboratory tests on material ground and sieved < 125 µm
  - P_{max} = 3.9 bar gauge
  - K_{St} = 79 bar.m/s
  - MIE (Hartmann tube without inductance) > 1000 mJ
  - MIT (cloud) = 470 °C

Reliable sources of data

- Bretherick's Handbook Of Reactive Chemical Hazards
- L.G. BRITTON Avoiding Static Ignition Hazards in Chemical Operations
- EN ISO/IEC 80079-20-1 Explosive atmospheres – Part 20-1: Material characteristics for gas and vapour classification
- GESTIS : https://gestis-database.dguv.de/search
- NFPA 497 Flammable liquids and vapours
- NFPA 499 Combustible dusts
- GB 50058-2014 Chinese code for explosive atmospheres

Summary

- Misleading Safety Data Sheets cause incidents !
- Always check Safety Data Sheets :
  - Is the data self-consistent ?
  - Does the data make sense ?
  - Does the data agree with the literature ?
- When in doubt ask for tests in Syensqo Process Safety Labs :
  - Lyon, France
  - Stamford & Bristol, USA
  - Shanghai, China
- No excuse for using inaccurate safety data !