



EXACT-S[®] Grade

The Sensible Presulfiding Agent for Petroleum Catalysts

Bulletin # 201B

Oct 2007

Many organosulfur compounds are available for pretreating catalysts. The choice of a presulfiding agent should be guided by these factors:

- Operational safety
- Toxicity
- Odor
- Environmental impact
- Cost effectiveness

EXACT-S[®] DMS is one of the least toxic organic chemicals. It is easier and safer for plant personnel to handle than many other sulfur compounds. By using advanced manufacturing procedures and state-of-the-art, high pressure shipping equipment, Gaylord Chemical carries through on its intention of not releasing DMS into the environment.

No toxicity problems have ever been encountered with EXACT-S[®] DMS since it became available in the late 1960's. Risks to workers are minimal. Its measured LC₅₀ concentrations show it has much lower acute toxic levels than dimethyl disulfide, ethyl or butyl mercaptan, and hydrogen sulfide.

Inhalation Toxicity of Presulfiding Agents in Common Use (LC₅₀ for Rats)

EXACT-S[®] DMS	40,250 ppm	Dimethyl disulfide	805 ppm
Ethyl mercaptan	4,420 ppm	Methyl mercaptan	675 ppm
Butyl Mercaptan	4.020 ppm	Hydrogen sulfide	444 ppm

Most organosulfur compounds have an odor. That of dimethyl sulfide is considered to be less obnoxious and less persistent. The Gaylord presulfiding equipment and technology helps insure a leak- and odor-free process. If a leak or spill occurs, EXACT-S DMS is easily converted to dimethylsulfoxide with sodium hypochlorite (liquid bleach).

Gaylord Chemical Company, L.L.C. (GCC) is the world's leading provider of Dimethyl Sulfoxide (DMSO) solutions. Beginning in the early 1960's, GCC has been dedicated to the development of new uses for DMSO. In order to meet customer-specific needs, GCC has pioneered the development of multiple grades of DMSO, including DMSO USP.

Gaylord Chemical's solutions-based approach has contributed to the development and growth of industries including pharmaceuticals, hydrocarbons, electronics, polymers, coatings, agricultural chemicals, and industrial cleaners.

Gaylord Chemical's headquarters are located in Slidell, Louisiana with manufacturing, research, and development facilities in nearby Bogalusa, Louisiana. GCC remains the only producer of DMSO in the Western Hemisphere.

Gaylord Chemical Company, L.L.C.
Your Global Leader For DMSO Solutions!



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Representative Specification

Specification	Values
Assay, (% Min. by GLC)	99.2%
Water (% Max.)	0.07
Color, (APHA Max.)	10
Nitrogen, (ppm Max.)	20
Methyl Mercaptan, (ppm Max.)	500
Hydrogen Sulfide, (ppm Max.)	200
Carbon Disulfide, (ppm Max.)	20
Nonvolatile Residue, (ppm Max.)	10

This illustration does not constitute the specification. Specifications are available upon request.

EXACT-S[®] DMS at a Glance

Physical Parameter	Value
Molecular weight	62.134
Percent sulfur (mass %)	51.5%
Boiling point	37.34° C
Freezing point	-98.27° C
Density (20°C)	0.847 g/cc
Critical temperature	229° C
Critical pressure	42,664 mm Hg
Heat of vaporization ΔH_v (25°C)	106 Cal/g
Dielectric constant (20°C)	6.2
Flash point, closed cup	-38° C
Autoignition temperature	206° C

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Catalysts Decomposition Temperatures Hydrotreating Catalysts in Hydrogen Atmosphere		
	Catalyst	
Sulfur Agent	Nickel-molybdenum	Cobalt-molybdenum
EXACT-S [®] DMS	435° F	472° F

Note: The temperatures shown above have been observed in hydrotreaters in the field to release sulfur for the generation of H₂S. The catalyst determines the decomposition temperature for the spiking agent.

Regulatory

CAS:75-18-3 , EINECS:200-846-2

HMIS Hazard Ratings: Health -2, Flammability -4, Chemical Reactivity-0

NFPA Hazard Ratings: Health -1, Flammability -1, Chemical Reactivity-0

Packaging

45,000 lb Tank Truck

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