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## Information and recommendations for patients

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- Patients exposed only to dimethyl sulfate vapor do not pose a significant risk of secondary contamination. Patients whose clothing or skin is contaminated with liquid dimethyl sulfate can secondarily contaminate rescue and medical personnel by direct contact or through evaporation of dimethyl sulfate.
  - Dimethyl sulfate can produce eye, skin, and respiratory tract irritation. Signs of accumulation of fluid in the lungs (shortness of breath, cyanosis, expectoration, cough) may evolve 12 hours or more after exposure. Skin reactions may be delayed and may heal very slowly.
  - Inhalation and skin contact may result in systemic absorption resulting in headache, nausea, vomiting, abdominal pain, lung, liver, and kidney damage.
  - There is no antidote to be administered to counteract the effects of dimethyl sulfate. Treatment consists of supportive measures.
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### 1. Substance information

Dimethyl sulfate (CH<sub>3</sub>)<sub>2</sub>SO<sub>4</sub>; CAS 77-78-1

Synonyms: DMS, methyl sulphate, sulfuric acid dimethyl ester.

Dimethyl sulfate is a color- and odorless (to faint onion odor) oily liquid with a melting point of about -32°C and a boiling point of 188 (-25,6°F, 370 °F respectively). It is not flammable and not explosive, the flash point is 83 °C 181 °F) and the vapor pressure is low with 65 Pa at 20 °C (68 °F). It is slightly soluble in water; soluble in alcohols, ether, and aromatic hydrocarbons. It rapidly hydrolyzes in the presence of water to produce sulfuric acid and methanol.

Dimethyl sulfate is mainly used as a chemical intermediate. Its major applications are as a methylating agent of many organic chemicals (e.g. amines, carbon acids, thiols and phenols) both in industry and in laboratories. DMS is used, for example, in the manufacturing of dyes, perfumes, pharmaceuticals, for the separation of mineral oils and for the analysis of automobile fluids. The substance has also sulphating properties.

#### What immediate health effects can result from exposure to dimethyl sulfate?

Most exposures to dimethyl sulfate occur from breathing the vapor. Exposure to small amounts can cause eye, nose, and throat irritation. More serious exposure can cause severe breathing difficulty which may not develop for as long as 24 hours after exposure. Skin contact with dimethyl sulfate vapor or liquid may cause irritation with redness of the skin, blistering, itching, and pain. Skin reactions may also be delayed and may heal very slowly.

#### Are any future health effects likely to occur?

A single small exposure from which a person recovers quickly is not likely to cause delayed or long-term effects. After a severe exposure, symptoms may not develop for 24 hours, and permanent breathing difficulty, recurrent respiratory tract infections, liver or kidney damage may result. The reverse side of this page lists some signs and symptoms to watch for- if any of them occur, seek medical care.

Dimethyl sulfate may cause cancer after long-term exposure.

## Follow-up instructions

Keep this page and take it with you to your next appointment. Follow only the instructions checked below.

- ( ) Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:
  - coughing or wheezing
  - difficulty breathing or shortness of breath
  - increased pain, itching, or a discharge from exposed skin or eyes
  - blister formation on the skin
  - stomach pain, vomiting, diarrhea
- ( ) No follow-up appointment is necessary unless you develop any of the symptoms listed above.
- ( ) Call for an appointment with Dr. \_\_\_\_\_ in the practice of \_\_\_\_\_  
When you call for your appointment, please say that you were treated in the Emergency Department at \_\_\_\_\_ Hospital by \_\_\_\_\_ and were advised to be seen again in \_\_\_ days.
- ( ) Return to the Emergency Department/ \_\_\_\_\_ Clinic on (date) \_\_\_\_\_  
at \_\_\_\_\_ am/pm for a follow-up examination.
- ( ) Do not perform vigorous physical activities for 1 to 2 days.
- ( ) You may resume everyday activities including driving and operating machinery.
- ( ) Do not return to work for \_\_\_ days.
- ( ) You may return to work on a limited basis. See instructions below.
- ( ) Avoid exposure to cigarette smoke for 72 hours; smoke may worsen the condition of your lungs.
- ( ) Avoid drinking alcoholic beverages; alcohol may worsen your clinical condition.
- ( ) Avoid taking the following medications: \_\_\_\_\_  
\_\_\_\_\_
- ( ) You may continue taking the following medication(s) that your doctor(s) prescribed for you: \_\_\_\_\_  
\_\_\_\_\_
- ( ) Other instructions: \_\_\_\_\_  
\_\_\_\_\_

Signature of patient \_\_\_\_\_ Date \_\_\_\_\_  
Signature of physician \_\_\_\_\_ Date \_\_\_\_\_

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