

# Safety Talks!

HANDOUT

Chemical Safety ■ T1906-03

## 4,4' Methylenedianiline (MDA)

### WHAT'S AT STAKE

Exposure to 4,4' Methylenedianiline (MDA) can be short-term or long-term. The effects of exposure can range from skin and eye irritation to liver damage or cancer.

### WHAT'S THE DANGER

Exposure to MDA can occur through skin contact, swallowing it or inhaling it.

Exposure to MDA causes liver damage, including acute liver injury and jaundice. Symptoms of liver problems can include tender liver, weakness, abdominal pain, nausea, vomiting, headache, fever, chills and muscle pain.

MDA can also cause irritation of the skin and eyes, as well as an allergic reaction.

Here's what some safety agencies have to say about MDA: The Occupational Safety and Health Administration (OSHA), considers 4,4' Methylenedianiline as a suspect human cancer causing agent. The International Agency for Research on Cancer (IARC) also classifies this chemical as a potential cancer-causing agent. MDA is suspected to cause bladder cancer in those who are exposed to it on the job.

### EXAMPLE

4,4' Methylenedianiline is used as in the chemical process of manufacturing a variety of products. The materials made using MDA include polyurethane foam, coating materials, glues, dyes and rubber.

One example of how an exposure may occur and what the effects are includes some workers who had been in the tile installation business for more than 12 years.

They were laying a tile floor when they were exposed to vapors and dust in the air. They also came into direct contact with the powder in the epoxy used to glue the floor tiles down. The epoxy was made using MDA. The symptoms that resulted from this MDA exposure included acute liver injury, abdominal pain, jaundice, nausea, shortness of breath and muscle weakness. The workers were hospitalized for four days.

### HOW TO PROTECT YOURSELF

- You should be aware of the hazards associated with exposure to MDA, as well as the allowable exposure limits, which are extremely low.
- Protection from exposure to MDA includes the use of engineering and work practice controls.
- In addition, you may need to use personal protective equipment, such as aprons, protective clothing, respirators, gloves and goggles.
- Good hygiene, such as handwashing and the routine washing of contaminated work clothes is important.

### FINAL WORD

*4,4' Methylenedianiline is an irritant and can cause allergic reactions and liver damage. It is also suspected of being associated with bladder cancer. Exposure can have both long- and short-term effects on your health, so you need to be aware and take the proper precautions.* ■

### TEST YOUR KNOWLEDGE

1. 4,4' Methylenedianiline is used as a chemical intermediate in the manufacture of other materials, but you can still be exposed to the MDA in the end product.  
☐ True ☐ False
2. The exposure limit for MDA is very low.  
☐ True ☐ False
3. Good hygiene, including handwashing is an important part of protecting yourself from exposure to MDA.  
☐ True ☐ False
4. Work practice and engineering controls are always enough to protect you from MDA exposure.  
☐ True ☐ False
5. One of the more important concerns about MDA exposure is liver injury.  
☐ True ☐ False

### What Would You Do?

You are at work when you see a cloud of dust coming from the section of the plant where MDA is used to make your company's final product, glue. What should you do to protect yourself and warn others?

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T1906-03

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# Safety Talks!

FOR THE LEADER

Chemical Safety ■ T1906-03

## BEFORE THE TALK 7 PREPARATION TIPS

- 1** This safety talk is about a specific chemical hazard present in many workplaces. Find out if it is used in your plant.
- 2** Are your workers exposed to any chemical hazards? Make sure they understand the dangers and precautions.
- 3** Locate the material safety data sheets for any chemicals used or stored in your work area. All of your workers should have access to these documents at all times, including night shifts.
- 4** Does everyone know what to do in case of a spill or unintentional release of a hazardous chemical? Review emergency procedures.
- 5** Check on the chemical spill cleanup supplies and ensure everyone authorized to use them is up to date on training.
- 6** Are you aware of any problems with safety engineering related to chemicals in your workplace? Report any concerns about ventilation and location and labeling of pipes.
- 7** Does everyone know how to use the required personal protective equipment for chemicals? Schedule a review if necessary.

■ For information on a variety of safety topics, check out Bongarde's online network for safety professionals at <http://www.SafetyXChange.org>

■ If you want the latest in job safety news, tips, photos, health-related articles, fatality reports and audio talks, sign up for Safety Smart! Weekly Briefing at <http://www.SafetySmart.com>

## AFTER THE TALK CHECKLIST

- Provided extra training to workers who did poorly on quiz

Date: \_\_\_\_\_

- Observed workers

Date: \_\_\_\_\_

- Refresher training

Date: \_\_\_\_\_

- Other (describe)

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Date: \_\_\_\_\_

Date: \_\_\_\_\_

Location: \_\_\_\_\_

Meeting conducted by: \_\_\_\_\_

**MEETING WAS ATTENDED BY:** Each participant is to sign below, for record kept on file.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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Answers to T1906-03 Quiz:

1. True 2. True 3. True 4. False 5. True