

## Questions About Safety

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### Secondary Containers of Hazardous Chemicals (2/11)

**Question:** Can you review the requirements for labeling secondary containers of hazardous chemicals?

**Answer:** If you remove any hazardous chemical substance from its original container you must label the new or “secondary” container with the following information:

- the identity of the hazardous chemical;
- appropriate hazard warnings to include target organs and applicable personal protective equipment; and
- name and address of chemical manufacturer, importer, or responsible party.

A label is not required for a portable container used to transfer hazardous chemicals for immediate use. There isn't an official labeling system—you could photocopy the original container label and affix it to the new container or you can purchase labels to meet the requirement. The goal is that everyone in the clinic understands and receives training about using your labeling system.



#### Reference

US Dept of Labor, Occupational Safety and Health Administration. 29 CFR 1910.1200, Hazard Communication. Final Rule. Federal Register 59(27):6126-6184, February 9, 1994.

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### Material Safety Data Sheets (MSDS) (8/07) **UPDATED** (11/07)

**Question:** What are the employer's responsibilities with respect to Material Safety Data Sheets?

**Answer:** Having a complete inventory of MSDSs is essential to a successful Hazard Communication (HAZCOM) Program. The Occupational Safety and Health Administration's (OSHA) HAZCOM Standard requires that employers maintain a MSDS for every hazardous chemical in the workplace. Chemical manufacturers and importers must prepare a MSDS for each product containing hazardous chemicals. The manufacturer is also responsible for providing a copy of the MSDS with each product. If one is not provided with the product, contact the manufacturer to obtain a copy. Employees must receive training on the location of the MSDSs in the office, on each MSDS applicable to their job and on how to effectively use the MSDS.

OSHA does not specifically prohibit any form of access to MSDSs as long as "no barriers to immediate employee access in each workplace" exist.

Electronic access to MSDS information is acceptable; however, a back-up system is required and several



A Material Safety Data Sheet (MSDS) contains information describing the hazardous chemical including, but not limited to, chemical composition, associated hazards, handling precautions, and personal protective equipment requirements.

items must be considered. (If considering electronic access for MSDSs, [click here](#).) AFI 90-821 (Hazard Communication) states that MSDS back-up systems may include, but are not limited to, paper copies, CDs at another non-impacted location, telephone, fax, or access through a nearby HAZMART or Bioenvironmental Engineering Flight. AFI 90-821 further states that local judgment must be used to determine an adequate back-up system on a case-by-case basis in case primary computer access is disrupted. For example, if a telephone service is selected for back-up, it must meet all OSHA requirements and a paper copy of the MSDS must be provided as soon as possible after the request; verbal transfer of hazard information over the phone alone is not acceptable. In some instances local policy may be more stringent, so as always, ensure that your MSDS program is consistent with local base policy.

OSHA requires that the MSDS is readily accessible and has defined "readily accessible" as "immediate." Furthermore, OSHA cautions users about completely relying on "paperless" systems and states that users "may want to maintain paper copies as a back up in case of system failure or an inability to readily access the data." Therefore, if choosing an electronic system as your primary access to MSDSs, it may be prudent for USAF clinics to maintain a notebook containing paper copies of all MSDSs as a backup to ensure immediate employee access at all times (e.g., during a power outage, during computer system disruptions).

### MSDS in a Nutshell

<b>Employer Responsibilities</b>	<b>Chemical Manufacturer/Importer Responsibilities</b>
<ul style="list-style-type: none"> <li>◆ Maintain a MSDS for every hazardous chemical in the office.</li> <li>◆ If a MSDS is not provided with a product, the employer must obtain one.</li> <li>◆ Make MSDS readily available to all employees.</li> <li>◆ Provide training to employees on                             <ul style="list-style-type: none"> <li>- how to find the MSDS (location in the office).</li> <li>- each MSDS applicable to their job.</li> <li>- how to read/use the MSDS.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>◆ Prepare a MSDS for each product containing hazardous chemicals.</li> <li>◆ Provide a copy of the MSDS with each product.</li> </ul>

#### Selected References and Additional Resources

- US Department of Labor, Occupational Safety and Health Administration. 29 CFR 1910.1200. Hazard communication. Federal Register 1994;59:17479.
- US Department of Labor, Occupational Safety and Health Administration. Recommended Format for Material Safety Data Sheets (MSDSs). Available at [www.osha.gov/dsg/hazcom/msdsformat.html](http://www.osha.gov/dsg/hazcom/msdsformat.html). Accessed August 2007.

### Items to Consider Before Going “Paperless” MSDSs

According to OSHA if electronic access to MSDSs is chosen you must ensure that there are “no barriers to immediate employee access in each workplace.” Electronic access to MSDS information is acceptable, however a back-up system is required and several items must be considered.

If considering electronic access for MSDSs.....	When selecting a company to provide electronic MSDS access.....
<ul style="list-style-type: none"> <li>• <b>ACCESS</b></li> <li>- Does everyone have immediate access to a computer?</li> <li>- If a CAC card is needed, is it always available and does it work on all computers in the building?</li> <li>- Is the MSDS information up-to-date in the electronic database—do all MSDSs match the date/lot number for all chemicals used?</li> <li>- Is a working printer available to print a copy of the MSDS to take when the individual goes for medical treatment/follow-up or to provide to emergency response personnel?</li> <li>• <b>BACK-UP</b></li> <li>- Does the back-up system meet all OSHA HAZCOM requirements?</li> <li>• <b>COMMUNICATION/TRAINING</b></li> <li>- Is everyone trained to locate the MSDS information on the computer and use it appropriately?</li> </ul>	<ul style="list-style-type: none"> <li>- Does the product meet the OSHA HAZCOM requirements for MSDS format and access?</li> <li>- Is the MSDS program reliable? How often is the MSDS information updated?</li> <li>- Who is responsible for updating the information—you or the company?</li> <li>- Is the program easy to use? How are the MSDSs organized?</li> <li>- Is the computer database/program compatible with your computer system and DoD standards for installation?</li> <li>- Is the company reliable?</li> <li>- Will the program save time?</li> <li>- Is the system cost-effective?</li> </ul>

**Note:** Electronic databases may be used to maintain MSDSs, however careful consideration must be given to the potential barriers for access both for the primary and back-up system. After reviewing USAF and OSHA regulations it may be prudent for USAF dental clinics to maintain a notebook containing paper copies of all MSDSs to ensure immediate employee access at all times.

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### Eyewash Unit Locations (12/05)

**Question:** How many eyewash units are required in a dental clinic?

**Answer:** According to Air Force Occupational Safety and Health Standard 91-501 (available at [www.e-publishing.af.mil](http://www.e-publishing.af.mil)) eyewash units should be placed in a central location where the need is the greatest. The standard also states that travel distances to eyewash stations should not exceed 100 feet from corrosive substances or shall not take more than 10 seconds to reach. Additionally, workers should not have to open any doors to reach the station. Therefore, it may be necessary to have more than one eyewash station in a dental clinic. Furthermore, the eyewash units must be identified with highly visible signs in a well-lit area. The area around or behind the unit, or both, may be painted with green and white stripes if needed to increase visibility. If your facility was built or renovated prior to July 2004 when Air Force Standard 91-501 became effective, check with the installation ground safety and/or bioenvironmental engineering staff at your base to see if it is necessary to modify or replace any of your eyewash equipment.



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## Fire Safety and Alcohol-Based Handrubs (7/04)

**Question:** I've read that it is unsafe to use alcohol-based handrubs in health-care settings because of the fire risk. Is there any new information about safety precautions that we should take to minimize the risk of fire if using alcohol-based handrubs?

**Answer:** In Europe, where alcohol-based hand rubs have been used extensively for years, the incidence of fires associated with such products has been low.<sup>1</sup> The results of a recent survey in the U.S. also supports this.<sup>2</sup> However, since alcohols are flammable, precautions should be taken to minimize any potential fire risk. Recently, the National Fire Protection Association (NFPA) published amended guidance to the Life Safety Code (LSC) allowing alcohol-based hand rubs in health-care facilities if several safety conditions are met:<sup>3</sup>



- The egress corridor width is 6 feet or greater and dispensers are separated at least 4 feet apart.
- The maximum individual dispenser fluid capacity is 1.2 liters for dispensers in rooms, corridors, and areas open to corridors and 2.0 liters for dispensers in suites of rooms.
- If using wall-mounted dispensers, do not install over or directly adjacent to electrical outlets and switches.
- In locations with carpeted floor coverings, dispensers installed directly over carpeted surfaces are permitted only in areas with sprinklers.
- Each smoke compartment may contain a maximum aggregate of 10 gallons of alcohol-based hand rub solution in dispensers and a maximum of 5 gallons in storage.

Adherence of health-care personnel to recommended hand-hygiene procedures has been poor with an overall average rate of 40% in hospital settings. Common self-reported reasons are the lack of sinks, soap, and paper towels. Alcohol-based hand rubs have been proven effective and they may help improve adherence to hand-hygiene protocols in many health-care settings. Although alcohol-based hand rubs have the potential to increase hand hygiene compliance, sinks and other hand-hygiene supplies are readily available in dental operatories, making the use of these waterless hand-hygiene agents optional. In dental settings, alcohol-based hand rubs may be useful in exam rooms or radiology work areas where multiple patients are seen in a short period of time and frequent handwashing is indicated. Another indication may be in dental residencies where staff members perform frequent patient checks. Because dispensers should not be installed near electrical outlets and the restrictions on the amount of product in operatories, dental clinics may want to consider using smaller pump dispensers instead of purchasing wall-mounted dispensing systems. In summary, careful evaluation and ongoing educational and motivational programs to maintain awareness of the importance of hand hygiene are indicated before deciding to introduce alcohol-based hand rubs into a dental practice.

### References

1. Widmer AF. Replace hand washing with use of a waterless alcohol hand rub? *Clin Infect Dis* 2000;31:136–143.
2. Boyce JM, Pearson ML. Low frequency of fires from alcohol-based hand rub dispensers in healthcare facilities. *Infect Control Hosp Epidemiol* 2003;24:618–619.
3. [Air Force Medical Logistics Letter](#) (AFMLL) 05-2004. May 2004.

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## Maintenance of Eyewash Units (1/04)

**Question:** How frequently should eyewash facilities be tested?

**Answer:** According to Air Force Occupational Safety and Health Standard 91-501 (available at [www.e-publishing.af.mil](http://www.e-publishing.af.mil)) permanently installed eyewash units shall be activated weekly to verify proper operation. Documentation may be kept in a log, computerized, or affixed to the equipment by tag or label. The unit only needs to be activated long enough to ensure there is adequate pressure and volume of water available and all orifices are free of obstructions. AFOSH 91-501 also states that permanently installed eyewash units provide the best emergency protection for personnel whose eyes have been exposed to hazardous materials. Self-contained units and eyewash bottles at best, offer minimum protection and they can only be used when approved by the installation ground safety manager and the bioenvironmental engineer (BEE). If used, self-contained units shall be tested and inspected according to the manufacturer's instructions. When tap water is used, fluid should be replaced at least monthly. Less frequent intervals of fluid change, as recommended by the manufacturer, are acceptable where a solution or water additive is used. Fluid level will be checked monthly.



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## Storing Flammable Liquids in the Work Area (Originally published in May 1996)

**Question:** What is the maximum amount of a flammable liquid that can be stored in a work area outside of a flammable storage cabinet?

**Answer:** Up to 1 pint of virtually any flammable liquid can be stored in the work area. The Occupational Safety and Health Administration (OSHA) categorizes flammable liquids in 29 CFR 1910.106 into classes Ia through IIIb with Ia liquids being the most flammable. Most dental laboratory monomers fall into either the Ia or Ib category based on their flashpoint and boiling point. Table H-12 in 29 CFR 1910.106 specifies the maximum amount of each class of flammable liquid that can be stored outside a flammable cabinet. For class Ia liquids (most flammable), the limit is 1 pint. For class Ib liquids, the limit is 1 quart. Therefore, before storing more than 1 pint in the work area, check the Material Safety Data Sheet (MSDS) or consult with your base bioenvironmental engineering personnel to be sure that the liquid is not in class Ia.

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## Plugs and Electrical Equipment (Originally published in Jan 1996)

**Question:** We have a new piece of equipment that we just received from the manufacturer. Medical maintenance said we cannot use it because it has a two-prong plug instead of a grounded, three-prong plug. It seems strange that a company can make an electrical product and sell it to the government, but we can't use it once we receive it.

**Answer:** In most cases, what you were told is correct: electrical equipment used in a patient care area does need to have a three-prong plug because this provides a ground for the equipment. However, National Fire Protection Association (NFPA) and Underwriters Laboratories (UL) guidelines indicate that one particular type of electrical equipment with a two-prong plug may be safely used during patient care. This equipment is classified as "double insulated," which means that it has no exposed external metal parts that are connected to the internal chassis. Because of its construction, electricity cannot easily be conducted through it. It is, therefore, permitted to have a two-prong plug because a three-prong plug is not required for safety. It is important, however, that double-insulated equipment be checked by a Biomedical Equipment Technician (BMET) to ensure that it passes the electrical safety test for portable electrical equipment, and that it complies with Air Force instructions and with the NFPA and UL guidelines.

for double insulation. The following references can be consulted if questions arise as to the need for certain equipment to have a three-prong plug.

#### References

- AFI 41-201, *Managing Clinical Engineering Programs*
- AFI 41-203, *Electrical Safety in Medical Treatment Facilities*
- NFPA 99, *Standard for Health Care Facilities*, 7-5.1.2
- UL 544, *Standard for Safety - Medical and Dental Equipment*, 7.2.2.1 - 7.2.3.5; 24.1 - 24.7; 42.6.3.1

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### **Pregnancy and Working with Hazardous Chemicals in the Dental Clinic** (Updated June 2006)

**Question:** A female dental laboratory technician in our clinic just found out she is pregnant. Can she still work in the laboratory? She's concerned about working around the chemicals they use there.

**Answer:** First, let me say that this response is addressed to all females who work in the dental clinic, not just dental laboratory technicians, because all workers have the potential to be exposed to hazards. The first step for someone who has just learned she is pregnant is to inform her supervisor. The individual, her supervisor, and the clinic safety representative should then contact their Bioenvironmental Engineering (BE) unit or the Public Health (PH) section. They, in turn, will review the Material Safety Data Sheets (MSDS) for the chemicals used in her work area to determine if any are considered to be fetal hazards. Chemicals identified as fetal hazards will then serve as a justification for completing Air Force Form 422 (Physical Profile Report). Next, the supervisor should identify the tasks the lab person performs that involve the hazardous chemicals. These tasks should then be avoided during the pregnancy. It is very important for clinics to have an MSDS for all products used in the facility. This enables BE or PH to render a judgment about all the potentially hazardous chemicals. Also, keep in mind that the list of chemicals that are considered to be hazardous to pregnant females may be different from clinic to clinic, because clinics differ in the chemicals that they stock and use. It is a good idea for all workers to review the MSDS of the products used in their workplace so they become familiar with associated hazards. If you are pregnant and uncomfortable with the guidance you have received about working with certain chemicals, consult your physician or health care provider. More information can also be found on the Web sites listed below:



#### **NIOSH Pocket Guide**

[www.cdc.gov/niosh/npg/](http://www.cdc.gov/niosh/npg/)

#### **"If I'm Pregnant, Can the Chemicals I Work With Harm My Baby?"**

[www.cdph.ca.gov/programs/hesis/Documents/pregnant.pdf](http://www.cdph.ca.gov/programs/hesis/Documents/pregnant.pdf)

#### **Occupational Safety and Health Administration, Reproductive Hazards**

[www.osha.gov/SLTC/reproductivehazards/index.html](http://www.osha.gov/SLTC/reproductivehazards/index.html)

#### **NIOSH/The Effects of Workplace Hazards on Female Reproductive Health**

[www.cdc.gov/niosh/docs/99-104/](http://www.cdc.gov/niosh/docs/99-104/)

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## The Beryllium Blues (Originally published in Sep 2002)

**Question:** Recently OSHA published a hazard information bulletin on preventing adverse health effects from exposure to beryllium in dental laboratories. Is this bulletin going to drive any changes in how we perform our duties day to day?

**Answer:** The Occupational Safety and Health Administration (OSHA) bulletin published in April of 2002 has raised some concerns about the use of beryllium in dental laboratories. That bulletin, along with one published in September of 1999, give a good background on the metal and its hazards. Beryllium is an essential ingredient in several nickel and chromium base-metal alloys currently used throughout the USAF. Some of these include Ticonium alloys (Ticonium Co.), Rexillium alloys (PENTRON Laboratory Technologies), and Litecast B (Ivoclar/Williams). OSHA has established criteria for limiting workers to beryllium exposure. OSHA has established the following permissible exposure limits (PELs) for beryllium: 2 micrograms/m<sup>3</sup> time-weighted exposure limit for 8 hours; 5 micrograms/m<sup>3</sup> ceiling limit not to be exceeded for more than 30 minutes at a time; and 25 micrograms/m<sup>3</sup> as a peak exposure never to be exceeded. However, OSHA has recently received information that the 8-hour time-weighted PEL may not be adequate to prevent the occurrence of chronic beryllium disease. Accordingly, the American Conference of Governmental Hygienists (ACGIH) has recently published a Notice of Intended Change for its Threshold Value Limit (TLV) for beryllium that would lower the TLV from the current level of 2 micrograms/m<sup>3</sup> to 0.2 micrograms/m<sup>3</sup> averaged over an 8-hour work shift. When the ACGIH ruling becomes binding, USAF facilities will be required to follow the more stringent threshold. If your laboratory is using beryllium, it would be advisable to have air sampling done by Bioenvironmental Engineering to determine if exposures are below the proposed level of 0.2 micrograms/m<sup>3</sup> time-weighted exposure limit for 8 hours. If levels are higher than this, steps should be taken to minimize the hazard. The OSHA bulletins below have guidance on how to lower exposure levels:

[www.osha.gov/dts/hib/hib\\_data/hib20020419.pdf](http://www.osha.gov/dts/hib/hib_data/hib20020419.pdf)

[www.osha.gov/dts/hib/hib\\_data/hib19990902.html](http://www.osha.gov/dts/hib/hib_data/hib19990902.html)

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