



## Environmental Health and Safety

### Recommended Practice on Hand Creams and Hand Lotions in the Research Laboratory

#### Introduction

Unprotected human skin is an effective barrier against aqueous solutions and most reagents in research laboratories. When working with hazardous materials (biological, chemical, and radiological), the routes of exposure that have the most risk include inhalation through the lungs, exposure to mucus membranes, or penetrating the skin by sharps (percutaneous exposure) or through damage to the skin. Therefore it is important for laboratory staff to ensure that their skin is in good condition to prevent unintended exposures to hazardous materials.

Unfortunately, the most effective way of mitigating infection risks in the laboratory, routine hand washing and the use of alcohol based antiseptic solutions, also dries the skin causing cracking and micro abrasions. To address this concern, OSHA in 1993 stated that hand creams and lotions designed to prevent skin damage, cracking and reduction of skin barrier is not a cosmetic. This is significant since cosmetics are prohibited in research laboratories based upon guidance from the Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Ed.

Therefore, hand creams or lotions that do not contain petroleum based materials, mineral oil, fragrances, dyes or antibiotics should be considered first aid and not cosmetics and can be used in research laboratories with protective gloves.

When selecting protective gloves it should be noted that latex gloves can be damaged by some oil based hand lotions. Nitrile gloves are preferred as they are impermeable to most chemicals and is less likely to be damaged by hand creams or lotions. It is best to purchase hand creams and lotions sold by glove manufacturers to insure the cream is compatible with the glove.

#### 1. Definitions

- A. "First Aid" according to OSHA First aid refers to medical attention that is usually administered immediately after the injury occurs and at the location where it occurred. It often consists of a one-time, short-term treatment and requires little technology or training to administer. First aid can include cleaning minor cuts, scrapes, or scratches; treating a minor burn; applying bandages and dressings; the use of non-prescription medicine; draining blisters; removing debris from the eyes; massage; and drinking fluids to relieve heat stress. OSHA's revised recordkeeping rule, which went into effect January 1, 2002, does not require first aid cases to be documented.
- B. A "Hand Lotion" is a liquid [suspension](#), [solution](#), or [emulsion](#) for external application to the body. A medicated preparation consisting of a liquid suspension or dispersion intended for external application. A liquid preparation applied externally to protect the skin or to treat a dermatologic disorder.
- C. A "Cosmetic" is a preparation, such as powder or a skin cream, designed to beautify the body by direct application, to enhance appearance. Something superficial that is used to cover a deficiency or defect.

- D. A “Barrier Cream” is a cream used to protect the skin, especially the hands, from dirt and from the action of oils or solvents

## **2. General Application and Use**

- A. Hands should be washed prior to application of hand lotion or barrier cream and also prior to putting on protective gloves.
- B. Washing hands with soap and water is the best way to reduce the number of microbes on them in most situations.
- C. Oil in water emulsions with no silicone, fragrance, dyes or antibiotics can be used prior to gloving. Some barrier creams can be used with protective gloves.
- D. Hands must be washed after removal of gloves and prior to further application of hand lotion or barrier creams.
  - 1. Gloves should be disposed of when removed.
  - 2. Hand lotion or barrier cream can be reapplied after removal of gloves and hands have been washed appropriately.

## **3. Storage of Hand Lotion or Barrier Cream**

- A. Hand lotion or barrier cream dispensers should be mounted to the wall and refilled on a regular basis.
- B. If facility provided hand lotion containers are unavailable, hand lotion or barrier cream bottles should be kept near a sink designated for hand-washing. Note: hand-washing protocol must be followed prior to application and removal of gloves and lotions.
- C. Proper use, donning and donning and doffing, of Personal Protective Equipment (PPE, i.e. gloves) must be followed.
- D. It is critical to avoid skin damage both dermatitis and cracking and maintain intact hand skin. It is recommended to buy hand creams or lotions sold or recommended by glove manufacturers