Environmental Health and Safety

It’s in Your Hands: Preventing Hand Diseases and Injuries among Artists and Art Students

The human hand is a marvel of design, construction and operation. It is subject to damage by chemicals, physical and mechanical forces. There are 29 bones, 3 major nerves and 2,500 nerve endings per square centimeter of skin on the hand. This allows for fine motor control by the fingers and thumb. The circulation of the blood through the capillaries and vessels in the three layers of the skin: the epidermis, dermis and hypodermis allow toxic chemicals that penetrate through these skin layers to be carried throughout the body.

The most common skin diseases are primary dermatitis and allergic contact dermatitis and generally result from chemical exposure of the skin. Lacerations, punctures, heat burns and electrical burns are injuries that result from physical and mechanical forces in contact with the hand.

The primary method to protect the hands is by the use of the correct gloves.

Selecting the correct glove or combination of gloves

All Art Materials are chemicals or mixtures of chemicals. Every Artist and Art Student has to evaluate each chemical to be used for hand exposure and severity of damage to the hand from that contact. This is a 5 step process.

Step 1: Read the ingredients label and any warnings on the container or package; read section 8 of the Safety Data Sheet provided with each Art Material. Section 8 specifies the type of hand protection recommended by the manufacturer to prevent skin contact with the chemical.

Step 2: Assess the degree of dexterity you need; in general, the thinner the glove material, the higher the dexterity; it is also true that tighter gloves provide improved dexterity however tight gloves lead to sweating, resistance to fine movements and increasing discomfort over time.

Step 3: Assess the length of exposure and the frequency of exposure. Some chemical resistant gloves are disposable while others are reusable gloves.

Note: Reusing gloves covered in paint or pastel dust or glaze dust is possible only if the gloves are removed and stored without contaminating the inside surface of the glove!!

Step 4: Assess whether the gloved hand will be immersed in liquids or solids or be limited to sprays and spatters from liquids and powders.

Step 5: Assess each chemical that will be handled; then, assess whether there are other physical or mechanical hazards created while handling chemicals such as use of sharp knife, needles or other tools. Using a combination of gloves, both hazards can and should be reduced if not eliminated.

Chemical resistant gloves

There are 8 different materials that are used to make chemical resistant gloves:

- Latex or Natural rubber
- Nitrile
- Polyvinylchloride PVC or Vinyl
- Neoprene (aka chloroprene)
- Polyvinyl alcohol (PVA)
- Butyl
- Viton
- Laminated foil aka Silver Shield
These gloves come in different sizes, disposable or reusable and in different thicknesses.

Selecting gloves for oil painting

Nitrile gloves are the most resistant to turpentine, citrus oil, mineral spirits and alcohols. However, nitrile is much less effective for acetone. Also note that odorless mineral spirits such as Gamsol have reduced volatile aromatic petroleum distillates than lacquer thinner or turpentine.

Nitrile gloves provide slightly less dexterity than latex gloves. More importantly, latex gloves can lead to latex protein allergies and the development of allergic dermatitis. Latex provides significantly less chemical resistance than nitrile.

Need More information?

There are six major glove manufacturers and each has a webpage with a list of chemicals and state what gloves are best:

- **Ansell**
  - [http://www.ansellpro.com/](http://www.ansellpro.com/)

- **North (Honeywell)**
  - [http://www.honeywellsafety.com/USA/Brands/North.aspx](http://www.honeywellsafety.com/USA/Brands/North.aspx)
  - [http://207.20.33.136/IndGlovesMain.aspx](http://207.20.33.136/IndGlovesMain.aspx)

- **Superior Glove**

- **Showa**

- **Memphis Glove (MCR Safety)**
  - [http://www.mcrsafety.com/gloves](http://www.mcrsafety.com/gloves)
  - [http://www.mcrsafety.com/resources/tools](http://www.mcrsafety.com/resources/tools)

- **MAPA**
  - [http://www.mapa-pro.com/home.html](http://www.mapa-pro.com/home.html)

Q. I do not like the feel of gloves. Gloves prevent me from contact with the media and my creation. Are there any other options?

A. Many artists in the past have shown evidence of mental illness. It’s likely that the signs and symptoms in some cases were caused by poisoning through contact with their art materials via their hands. Barrier creams are available to apply to the skin of the hands before handling art materials. The chemicals stick to the skin for a period of time and limit additional chemical contact with the skin and entry of those chemicals through the skin. **Gloves in a Bottle**¹ and **Artguard Barrier Cream**² are two of many such products marketed to artists. The Creams also make removal of art materials from the skin simpler. Note that some Creams will damage glove materials so they cannot be used together without confirming information from the manufacturers of the cream and the glove.

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