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## NF93-125 Arts and Crafts Can Be Hazardous

Shirley Niemeyer

University of Nebraska--Lincoln, [sniemeyer2@unl.edu](mailto:sniemeyer2@unl.edu)

Wendy Rich

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## Nebraska Cooperative Extension NF93-125



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## Arts and Crafts Can Be Hazardous

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*Shirley Niemeyer, Extension Specialist, Home Environment*  
*Wendy Rich, Graduate Student*

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### What Can Be Hazardous About Arts and Crafts?

Some craft materials contain toxic or harmful chemicals, yet products often lack adequate information about ingredients or precautions of which the user should be aware. Artists may lack training in safety procedures for chemical use, even though they are using chemicals.

Some types of chemical exposures are cumulative, meaning chemicals entering the body are not flushed out and larger amounts may accumulate in the body. Another hazard is the risk of multiple chemical exposures. Some chemicals may be relatively safe when used singly, but can be dangerous when combined with other materials. Since it is impossible to test all combinations, individuals should minimize exposures.

Much information related to art hazards comes from knowledge of industrial situations and consequences. When working in the home, the craftperson's working environment may pose greater risks, due to lack of awareness, ventilation or other variables, and may result in greater exposure periods than those occurring in an industrial situation.

**Exposure.** Exposure can occur dermally, by inhalation or by ingestion.

**Dermal Exposure.** Dermal exposure means exposure through the skin, a protective organ consisting of dead cells, natural oils and waxes and keratin (protein).

The skin can be penetrated and/or destroyed by acids, alkalis (bases), peroxides, organic solvents, bleaches and other chemicals. Exposure to these chemicals can result in skin problems and dermatitis.

**Inhalation.** Smoke, fumes, dusts and spray mists can be inhaled, and are potentially damaging to the lining of airways and lungs. Some examples of dusts encountered include dust from dehydrated forms of clay, paint and plaster.

**Ingestion.** Ingestion of dangerous materials can occur by eating, drinking, smoking or preparing food using contaminated hands or clothing and by doing any of these activities in a contaminated area or by using contaminated containers or utensils for food.

**Methods of Preventing Exposure.** Know the components of the materials you are using. Substitute materials known to be potentially hazardous with less hazardous materials. The work area should be properly ventilated and materials should be stored properly. Personal protection equipment should be used at all times.

**Become Knowledgeable About The Materials You Use.** Read the packaging label and precisely follow the directions and precautions stated. Material safety data sheets (MSDS's) should be obtained from the manufacturer or distributor for the materials you use or keep on hand. If a manufacturer or distributor declines to provide MSDS'S at your request, find a new supplier. Advertisement of "non-toxic" means that a product has passed the acute or short-term toxicity test specified by the Federal Hazardous Substance Act. However, nothing is implied about the long-term toxicity about the product. Therefore, materials which could cause long-term toxicity could carry a "non-toxic" label.

**Labeling Hazardous Art Materials.** In November, 1990, a new law, The Labeling of Hazardous Art Materials Act, took effect requiring that labels of hazardous art materials disclose the potential for chronic health hazards. The law requires labels for all art materials that present chronic long-term health hazards, such as cancer. Most art materials have been voluntarily labeled for such hazards, but the new law mandates labeling standards.

Formulations of products have begun to change due to labeling. Manufacturers are starting, and continuing, to research different formulations in their attempts to provide safer products that do not need to be labeled as presenting chronic long-term health hazards.

**Substitute for Hazardous Products.** Use less hazardous materials and solvents in place of more hazardous products. There are many substitutions that work effectively, yet more safely. Use water based instead of oil-based products, which allows for cleaning using water rather than an oil-based solvent. When possible, it is safer to purchase supplies in premixed paste or liquid formulations instead of powder form. This may require a slightly greater short-term monetary expense, but the long-term safety and reduced exposure to dusts is worth it. Avoid the use of aerosol sprays, as they produce a very fine mists which can be inhaled. Instead, use liquid formulations whenever possible.

**Keep Studio Work In Proper Facility.** Working in living areas puts family, children and pets at risk of exposure. A separate area should be set aside for craft work, and it should be carefully planned and equipped for safety for the intended craft. Children and pets should be kept out of work areas, as children (born and unborn) and pets are susceptible to smaller amounts of harmful materials. They may also unintentionally transport materials and dusts from the studio to living areas such as kitchen, bedrooms and bathrooms. Use food-preparation utensils or containers for food only. Even if something is used just once in the studio, NEVER use it again in the kitchen. A surface, utensil or container appearing clean may be porous and contain hazardous residuals which can migrate into food and then be ingested.

**Properly Equip Work Facility.** Smoke detectors should be installed and regularly checked. Obtain a fire extinguisher appropriate to the materials present, and learn to use it in a relaxed setting, before a panic situation makes learning difficult. Store flammable materials in an approved container, such as a fire-proof cabinet. Post emergency phone numbers by the telephone so they can be found easily and immediately when needed. Floors and counter surfaces should be hard and smooth for easy and

thorough cleaning. Fabric floor coverings trap dusts and spills which evaporate and become airborne later. Always clean up spills immediately using techniques appropriate to the materials. Wet mopping or sponging is preferred to sweeping, as sweeping can stir up dusts which may remain air borne for days while you breathe it.

**Ventilate — It Is Vital.** Ventilation of the work area is important for your safety. An exhaust system, such as a fume hood, removes airborne hazards at the source before it circulates into the work area. Dilution ventilation consists of a fan blowing air out of one window while another open window lets fresh air in. Dilution ventilation may not be sufficient ventilation. A fan simply moving air around a room is not an effective method of ventilation and allows vapors to disperse throughout the building.

**Store Materials Safely.** Date materials according to when you received them. Keep containers tightly closed when not in use to prevent spills and evaporation. Keep materials in their original containers to assure that containers are suitable for the specified material and the contents are properly labeled. Never store materials in food containers! A pop bottle is expected to hold pop, an orange juice carton, orange juice. The risks of using food containers are great, as you or someone else could make a fatal mistake! If a storage container other than original packaging must be used, label it clearly and thoroughly with all of the information from the original container.

**Personal Protection.** Avoid skin contact by wearing protective apparel, such as gloves, long sleeves, long pants and full-cover shoes. Leave these garments in the studio to avoid carrying dusts into living areas. Wash them frequently and separately from other laundry. If skin contact occurs, wash with water and mild cleansers. Never use solvents or bleaches to clean your skin. These can impart more danger than the original offending stain. Some solvents are readily absorbed through the skin and move directly into the blood stream and to internal organs while others remove skin oils, a natural protective barrier, making penetration of other materials possible.

Goggles should be worn if there is a chance of a splash or flying debris, and if the noise level requires you to raise your voice to be heard by someone near, ear protection is warranted. Wear a well-fitted and appropriate respirator when called for. A dust mask filters out only particulate matter while a gas respirator filters out vapors. Select a mask and filters appropriate for the task. Remove jewelry and tie back long hair that can be caught or tangled in work. Avoid ingestion of hazardous products by not eating, drinking or smoking in the work area. Always wash hands before eating, drinking, smoking, applying makeup or other personal hygiene.

It is important to quit working when you are tired, as the chance of an accident increases with fatigue. Long work periods can also result in high exposure levels, and the body needs adequate time to recover from the exposure and to get rid of pollutants.

Always provide your doctor with precise information about the materials you use in your craft work. Symptoms of chemical poisoning may appear to be cold or flu symptoms. A simple test may be able to detect the difference, if your doctor knows what to look for.

## **Examples of Craft Related Potentially Dangerous Chemicals**

- Adhesives
  1. casein, epoxy, formaldehyde resins;
  2. hide, white cyanoacrylate glues
- Ceramics
  1. clay — powdered aluminum silicates, silicon dioxide; glazes — heavy metal

- Dyes
  1. fine powders — irritate lungs;
  2. acid alkalis — irritate skin, lungs; high
  3. temperatures — burn
- Glue (Model, Epoxy, General Purpose, etc.)
  1. Toluene, methyl ethyl ketone, acetone, hexane, methylene chloride
- Lapidary
  1. gems — silicon dioxide;
  2. adhesives — epoxy
- Paint (Latex, Oilbase, Art and Model Paints, etc.)
  1. Toluene, xylene, methylene chloride, halogenated aromatic hydrocarbons, mineral spirits
- Paint Thinner and Stripper (Remover)
  1. Toluene, chlorinated aliphatic hydrocarbons, esters, alcohols, chlorinated aromatic hydrocarbons, ketones
- Painting/Drawing
  1. heavy metals in pigments — chromium yellow, flake white (lead), lemon yellow (barium chromate), vermilion red (cadmium and mercuric sulfides);
  2. solvent thinners — hydrocarbons, ketones, alcohols
- Plastic
  1. resins — amino and phenolic thermosetting adhesives, styrene, methyl ethyl ketone, isocyanates
- Photography
  1. solutions used in developer, stop bath
- Sculpture
  1. stone-free silica in granite, sandstone, slate
- Soldering
  1. heavy metals and fumes — lead, tin, zinc
- Spinning/Weaving
  1. dusts, molds in fibers — lung irritation
- Stain/Varnish/Sealant
  1. Methylene chloride, mineral spirits, petroleum, methyl and ethyl alcohol, benzene
- Wood Finishing
  1. vehicles — organic solvents, petroleum distillates, turpentine, xylene
- Wood Stripping
  1. strippers — methylene chloride, toluene, alcohol, acetone
- Woodworking
  1. dust — asthma, allergies, pneumonitis, fibrosis

## Resources

- *A Personal Risk Assessment for Craftsmen and Artists*. Available from College, University and School Safety Council of Ontario, Workers Compensation Board, 80 Bloor Street, West, Suite 604, Toronto, Ontario, M 5 S 2 V 1. Phone (416) 965-8726
- Art Hazards Information Center, Center for Safety In the Arts, 5 Beekman Street, Suite 1030, New York, NY 10038. Publishes *Art Hazards News*, four pages, 10 issues/year and offers workshops regarding Art Safety.
- Clark, Nancy, Thomas Cutter, and Jean-Ann McGrane. *Ventilation, A Practical Guide*. New York: Center for Occupational Hazards, 1984.

- Foundation For the Community of Artists (FCA), 280 Broadway, Room 412, New York, NY 10007. Publishes *Artist Update* — resources, information, referral, group health insurance.
  - McCann, Michael, and Monona Rossol. *Health Hazards In The Arts and Crafts*, New York: Center For Occupational Hazards, 1981.
  - McCann, Michael. *Health Hazards Manual For Artists*, New York: Nick Lyons Books, 1985.
  - McCann, Michael. *Artist Beware: The Hazards and Precautions in Working with Art and Craft Materials*. New York: Watson-Goptill Publications, 1979.
  - Rossol, Monona. *The Artists Complete Health and Safety Guide*. Arts Crafts and Theater Safety (ACTS), 181 Thompsen Street, #23, New York, New York 10012.
  - Shaw, Susan, and David Featherstone. *Overexposure: Health Hazards In Photography*. Carmel, CA: Friends of Photography, 1983.
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