

PHOTOGRAPHY

Introduction

We won't stop making art but we **can** stop making ourselves sick!

This kit was designed by artists to warn you of the dangers and give you some tips to improve your working conditions. Here's to a long, healthy working life!

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PROTECT YOURSELF!

What are my art materials doing to me?

All art materials contain chemicals; many can harm or even kill you if they get into your body. You can breathe them in, absorb them through skin contact or swallow them accidentally if you eat, drink or smoke in the studio.

Inhalation (you're breathing it in)

Art materials produce dusts, gases, fumes and vapours which can damage your lungs. From there they can enter the bloodstream, and in some cases deposit toxins in your organs and fat tissue. Damage is not always immediately obvious, it can happen over a period of time. By the time symptoms appear, the damage may be permanent.

Skin contact (you're soaking in it)

Your skin absorbs some chemicals, particularly solvents, and carries them into the bloodstream. Unprotected cuts and sores are an open doorway for chemicals to enter your body. Solvents, acids, alkalis and bleaches destroy the protective barriers in your skin, which can cause eczema, dermatitis and allergies and allow other chemicals to enter your body.

Ingestion (you're swallowing it)

Would you eat your art materials if they were served to you on a plate? You may as well if you eat, drink or smoke in your studio! Gases, vapours and dust settle on everything including food and drink. Unwashed hands contaminate whatever they touch too. If you swallow chemicals they can damage your mouth, throat, stomach, nervous system, liver and kidneys. Chemicals can make you seriously ill.

Other factors

The effect of chemicals on your body will be *worse* if you smoke, drink heavily, or suffer from allergies or chronic illness, eg asthma, epilepsy. You should take special care if you are pregnant.

Bad work conditions and chemical exposure can contribute to *stress-related* illness and weaken your resistance to disease.

So where's the proof?

Many artists are so used to feeling unwell that it makes it hard to identify the symptoms of chemical poisoning. Some of us don't register anything much until it's too late. You could be feeling the effects of chemical poisoning if you regularly suffer from:

- headaches, tiredness, dizziness or faintness, extreme mood swings (generally after leaving the studio)
- allergies
- skin irritations, rashes, spots
- aches and pains in joints and muscles
- breathing problems at night and during exercise (like walking up the stairs!)

Have you noticed that these symptoms are not as severe when you're away from the studio for more than a few days?

What about my art equipment?

Ergonomically speaking like they say, *it ain't what you do but the way that you do it* that counts. Dangerous work practices make it harder to function efficiently and can cause accidents. Backaches and muscle-strain injuries are often the result of working at benches and easels that aren't adjusted to your height.

Overdoing it?

Working for long periods, particularly on repetitive tasks, can cause permanent injury to overused muscles and result in accidents.

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What's that you say?

Working regularly in a noisy environment, eg sculpturing with power tools, increases the risk of deafness, high blood pressure and stress.

What can I do about it?

Right Away You can clean up your act and that includes your studio! Pull up carpeting and lay down cheap linoleum or another non-absorbent surface that can be wet-mopped or vacuumed (sweeping stirs up dust).

Organize your studio so that everything has a place including separate storage for dangerous chemicals. Store your materials in suitable containers (refer to **Material Safety Data Sheet** on the product). Label your materials clearly.

Set your benches and chairs to a good working height, see Diagram 1.

Use an adjustable overhead lamp, eg daylight, colour corrected tube.

Breathe Easy You need air in your studio - if you can't afford exhaust ventilation, open a window or an outer door. A basic rule of thumb is that air should move from behind you, across your work and away from your face to the outside, see **Diagram 2**. When you work with dangerous chemicals, protect yourself with overalls, correct gloves and masks.

Remember, a mask is no substitute for ventilation. The mask must fit your face properly, making an air-tight seal. Make sure you have the correct cartridge for the chemical you are using and change the cartridges regularly.

Survival tips

Don't

- eat, drink or smoke in the work area
- use solvents to clean your hands- use a safe, non-toxic hand-cleaner, eg baby oil
- expose yourself unnecessarily to dangerous chemicals
- work in your bedroom, kitchen or other living area
- work in a pile of garbage
- put solvents or other toxic chemicals in the sewer
- work with solvents if you are pregnant (foetal damage may result)
- expose children, pets or friends to solvents and other dangerous art materials
- store art materials in food containers or the domestic fridge
- use eating utensils to mix or store your materials, and don't prepare or use them in the kitchen
- overload your domestic power system or run a tangle of cords that can trip you up

Do

- protect yourself
- use safer chemicals where possible (non-toxic or less toxic art materials are available)
- work in a well ventilated area. If you can't afford local ventilation open an outer door or window, or work outside
- wash hands before eating, drinking, smoking or going to the toilet
- use an appropriate mask, splash goggles and protective clothing when you handle solvents, acids and inks
- keep lids on containers and trays when not in immediate use
- label containers clearly and store all flammable
- keep chemicals in a fire-proof cabinet away from flames and heat
- tie back your hair, don't wear loose-fitting clothing and remove jewellery when you work with machinery. Learn operating and emergency stop procedures

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Have a regular medical check-up (give your doctor a list of the chemicals you use and the tasks you perform)

Educate yourself

Make sure you know what's in the materials you use. Keep a file of Material Safety Data Sheets (available from manufacturers and suppliers)

Organize yourself

- make a place for everything and put it all away at the end of the day
- keep clean & dirty rags separate. Store dirty rags in metal bins with lids. Dispose of rags frequently
- adjust work benches and chairs to a safe working height
- maintain a first aid kit with burn cream, bandaids, eye wash (for chemical burns) and antiseptic cream
- keep a small chemical fire extinguisher on hand (BCF type for multipurpose use)
- wet-mop your work area regularly (sweeping stirs up dust). Mop up spills immediately (refer to Material Safety Data Sheet for correct procedure)

Spoil yourself

- take frequent rest breaks when you perform repetitive tasks
- wash hands and exposed skin in soap and water immediately after work
- shower and change into uncontaminated clothing as soon as possible after work (or you and your friends will be soaking in chemicals all night)

Assert yourself

- insist that manufacturers and suppliers provide thorough Material Safety Data Sheets: don't buy from people who won't
- lobby for public access studios with good health and safety provisions

Accidents

- If chemicals have been accidentally swallowed do not induce vomiting unless specified on the product label.
- Call an ambulance immediately.
- Skin contact with chemicals flush the area with cold, soapy water for at least 15 minutes.
- Eye contact with chemicals flush the eye with cold water for at least 15 minutes.
- Seek medical attention for severe burns or exposure to fumes. You can call the Poisons Information Centre.

Setting up a safe studio

Carolyn Lewens is a well known Melbourne photographer. Her concern about health and safety is reflected in the layout of her studio and in her work practices.

Ventilation. Carolyn has installed local ventilation in her darkroom. A range hood and fan system have been installed above the darkroom sink. This extracts fumes from the developer and fixer. Another extractor fan is placed in the ceiling. Clean air is provided by a light-proof vent in the darkroom door.

The Floor is covered with padded, non-slip lino which makes standing more comfortable and is easy to wet mop.

Chemicals. Carolyn avoids using toxic materials, eg chemical powders. If she does have to use them, she works outside and wears a mask. Running water is used instead of stop bath for all printing. Colour work is processed by a colour laboratory. Carolyn wears a rubber apron and gloves to avoid skin or clothing contact with chemicals. All chemicals are stored in concertina containers and kept on shelves.

Waste disposal. Carolyn uses the silver reclamation system for fixer chemicals.

Safe work practises. Carolyn doesn't eat, smoke or drink in the darkroom. She takes regular rest-breaks outside whenever she works for long periods in the darkroom.

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What you do effects everyone else: the people you live and work with, your friends and the general community. The chemicals you use go into the air we breath and if you're careless they can end up in our water and food.

Exposing others to risk

The Environment

There is no safe exposure to cancer-causing materials; substitute other products. Aerosols often contain toxic, flammable propellents that will harm you and the environment; use an atomiser instead but remember to use a suitable mask, goggles and gloves.

Dispose of all your materials carefully. Almost everything you use can be recycled. Your local council can also pick up paper and waste for recycling. Commercial recycling companies accept artists' refuse and, in some cases, pay money for them. Don't mix your chemicals, store them separately for disposal.

Teaching

Maybe you don't care what happens to **you** but you shouldn't impose unsafe work practices on others - besides that **you could get sued** for negligence! It's your responsibility as a teacher to be informed about the chemicals you are using and to ensure that your students use art materials safely. Make sure you know how to treat injuries and deal with accidents. Adults with chronic illnesses and all young children should **not** be exposed to solvents, solvent-based adhesives, oil paints, permanent marker pens, aerosol sprays, acids, indian inks, non water-based paints and inks, dyes, clay dusts, glazes and oxides, epoxy resins and photo chemicals.

Your Rights

The Occupational Health and Safety Act outlines rights and responsibilities for art schools, teachers, artists, suppliers and manufacturers.

Manufacturers and Suppliers insist that manufacturers tell you what is in their products (ask for a **Material Safety Data Sheet or MSDS**). The MSDS lists the contents of the product safety procedures for ventilation, protective clothing, fire and spillage, storage and first aid. If the supplier or manufacturer won't give you an MSDS, refuse to buy their product. Choose products that are well labelled. A product is not necessarily safe just because the label says **non toxic**.

Other Artists don't let the people you work with inflict their bad habits on you. Discuss safe work procedures with your colleagues.

Self-Employment nobody else is going to take care of you. Budget for health and safety in your grant applications, when you take on commissions, or other employment as an artist. Build in a health and safety component when you price your artwork for sale. You can also declare your health and safety expenses, including fans, protective clothing and materials, on tax; keep all your receipts.

Art Schools and Public Access Darkrooms should provide a safe work environment but poor funding limits their ability to do this. You can help them to help you by lobbying for health and safety funding.

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It's important to know what's in the chemicals you're using.

This is a brief guide to tell you what to look out for.

- Many products used in photography are toxic in their dust, fume, gas and liquid form. Substitute safer products where possible.
- A local ventilation system is a priority. If you don't have local ventilation wear a particulate or gas mask, gloves, goggles and protective clothing as indicated. Buy pre-mixed chemicals in solution. If you must mix your own, do so in a dust cabinet, wear a particulate mask, gloves and goggles.
- You will substantially reduce your exposure to toxic chemicals if you keep lids on the photographic chemical trays between processes. ie keep lids on the developer and stop bath while you are using the fixer.
- Wet mop surfaces after use.
- Add chemicals to water, not the reverse.
- Keep lids on trays and bottles when not in use.
- Keep waste in a sealed metal bin and empty regularly. Store flammable chemicals in a fire-proof cupboard.
- Don't pour chemicals down the sink. Install a chemical trap and purifier in your sink. See our section Exposing others to risk for disposal advice.

Black and White developers

Skin, eye and respiratory irritants and sensitizers. Long-term effects can include allergies. Toxic developers are amidol, pyro- catechin (don't use), pyrogallol. Less toxic developers metol, hydroquinone. Safer developer phenidone. Don't put your bare hands in the chemicals; wear gloves or use tongs. Remember local ventilation is the only safe way to work with these chemicals.

Stop bath

Skin, eye, gastro-intestinal and respiratory irritant. Long-term effects can include dermatitis, bronchitis, allergies, lung damage, death. Smoking increases the risk. Contents: acetic acid and potassium chrome alum as a hardener. Don't put your bare hands in the chemicals; wear gloves or use tongs. Remember local ventilation is the only safe way to work with these chemicals. Use frequently changed water instead of stop bath.

Fixer

Skin and respiratory irritant. Long-term effects can include allergies, lung, gastro-intestinal and kidney damage, poisoning.

Smoking increases the risk. Contents: hypo-acetic acid, alum, boric acid. Don't heat or add acids to fixer, the chemical reaction produces toxic gas. Don't put your bare hands in the chemicals; wear gloves and use tongs. Remember local ventilation is the only safe way to work with these chemicals.

Reducers

Skin, eye, gastro-intestinal and respiratory irritants. Long-term effects can include allergies and poisoning. Safer reducer: farmer's reducer (potassium ferricyanide and hypo). To avoid creating toxic gases, don't add ordinary fixer (ammonium thiosulphate) to farmer's reducer, add only sodium thiosulphate crystals. Don't put your bare hands in the chemicals, wear gloves. Reducers are highly toxic when heated, exposed to ultra-violet light or added to acids. Wear a gas mask. Remember local ventilation is the only safe way to work with these chemicals. Reduce exposure by using a spot reducer pen.

Toners

Skin, eye, gastro-intestinal and respiratory irritants and sensitizers. Long-term effects can include allergies, bronchitis, asthma, lung scarring, major organ and blood damage, anaemia, pulmonary oedema, poisoning, cancer. Toxic toners: hypo-alum, nelson's gold toner (creates sulphur gas), polytoner (potassium sulfide, selenium), selenium toner. Sepia toner (thiourea) is a carcinogen - **don't use it**. Don't put your bare hands in the chemicals, wear gloves. Nelson's gold and hypo-alum toner have to be heated to high temperatures at which they become highly toxic. Other toners are also toxic when heated, exposed to ultra-violet light or added to acids. Wear a gas mask.

Remember local ventilation is the only safe way to work with these chemicals. Safer toner: tea toner (tannic acid).

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Colour Developers

Skin, eye, gastro-intestinal and respiratory irritants and sensitizers. Long-term effects can include allergies, bronchitis, asthma, major organ and blood damage, anaemia, behaviour changes. Contents: same as black and white plus toxic solvents, eg benzyl alcohol, ethylene glycol, cellosolve; and amines, tbutylamine borane, phenylenediamine, trisodium phosphate, potassium thiocyanate, sodium metaborate. Don't put your bare hands in the chemicals; wear gloves and use tongs. Remember local ventilation is the only safe way to work with these chemicals. Consider having film processed at a lab if you don't have good local ventilation. Colour photocopying is a cheaper and creative option.

Stop bath and fixers (see Black and White processing)

Bleaches

Skin, eye, gastro-intestinal and respiratory irritants and sensitizers. Long-term effects can include anaemia, blood disorders, mental confusion, psychosis. Most toxic bleaches: ammonium bromide, sodium nitrate, sulfamic acid. Safer bleach: disodium phosphate. Don't put your bare hands in the chemicals; wear gloves and goggles. Remember local ventilation is the only safe way to work with these chemicals.

Choose protective equipment that carries the Australian Standards logo.

BEFORE WE KNEW THE DANGERS

The following is a case study of an artist whose health is permanently effected as a result of unsafe exposure to toxic chemicals. Due to possible legal action we cannot name either the artist or the art school concerned.

Artist X was a teacher of photography and an established exhibiting artist. He developed hyper-sensitivity to toxic chemicals, especially those used in photography, after working for a number of years in a poorly ventilated darkroom at an institution.

Although both teachers and students developed bronchial complaints and allergies, the art school made no attempt to address the problem. The studios were ventilated by an air conditioning system which recycled toxic fumes to and from the printmaking and photography areas. For over a year, a faulty thermostat in the system heated chemicals to over 27 degrees c allowing toxic gases to form and posing a potentially explosive fire hazard.

Artist X was frequently asked to work weekends under these conditions. He saw many staff leave as a result of ill health. At the same time his own health began to deteriorate rapidly. The school doctor, inexperienced in the diagnosis of chemically-induced illnesses, was unable to treat his severe attacks of bronchitis and skin allergies.

Artist X was forced to take time off work. More visits to doctors proved fruitless until an allergy test showed that repeated exposure to toxic levels had made him hyper-sensitive to petro-chemicals. **Artist X** took sick leave from the art school and was promptly sacked and his superannuation cancelled. Unable to cope with the toxic level of petro-chemicals in the city, **Artist X** must now live on an isolated country property. He cannot use photo-chemicals any longer and has had to give up his career as a teacher and photographer. This story could have ended differently if he had been informed of the dangers and had been employed in a well ventilated studio.

© 1989 Produced by Project Staff for the Community Arts Network of Victoria and Redletter Community Workshop. Funded by the Victorian Health Promotion Foundation. The information in this kit is meant as a basic guide only.

The information in this kit reflects the views of the authors and experts consulted and is accurate at time of printing

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