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ALLERGIES AT WORK HELP YOUR SKIN HELP ITSELF!

At least five per cent of the work force are suffering from eczema. In many cases, the condition is caused or aggravated by factors in the working environment. Can eczema be prevented or treated?

Contact eczema is a skin condition that occurs as a result of direct exposure of the skin to certain substances. Naturally, the hands are the most vulnerable part of the body. There are two main causes for eczema: the skin may be subjected to continuous or repeated irritation, or the eczema is an allergic reaction, involving the immune system,

Normally, the skin's outermost layer provides a barrier against foreign substances. In order to function properly, the skin must be moist and soft. When the skin dries out, small cracks appear, making it possible for irritating or allergy causing substances to enter deep into the skin, causing more serious damage. This creates a vicious circle, where damaged skin paves the way for further damage. Once the skin has been affected, it may take weeks or months before it regains its original form.



Eczema to the hands always means discomfort or handicap to the affected person. In severe cases, the hands are entirely disabled, and no manual work can be performed. Painful bleeding cracks may appear, making it impossible to bend the fingers or to touch or pick up things with the finger tips. Often, the eczema is so itchy that it affects normal sleep.

Is there a way to prevent contact eczema?

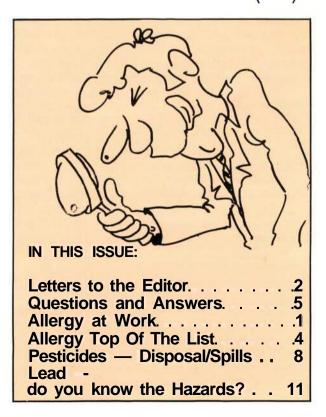
It all comes down to rigid personal protection.

Every work procedure can often be done in various ways. It doesn't have to take longer or be more difficult — and it may protect the hands from damaging soilage.

One of the first measures to take is to always wipe down tables and tools,

(cont.)

\$4.00





(Referring to "Handy Hints, PPM 2/88), may I say that it is misleading to describe "nearly all nonflammable materials in powder form" as explosion hazards. The subject, like many other you raise, is a great deal more complicated than such a simplistic "hint" suggests. . . It would be better to say something like:

"Many combustible materials in very finely divided forms (settled dusts, powders and the like) which can be dispensed in the air as a cloud have the create potential to explosive atmospheres which, if ignited, can be as dangerous and damaging as flammable vapour/air mixtures. The danger can even extend to a few materials — some finely divided metals for example — which are not commonly regarded as combustible. The greatest danger rises from settled deposits of such materials from a dusty work atmosphere when some operational mishap creates a shock wave which throws the deposits on plant, structural members and the like into the air in presence of a source of ignition. Since the primary mishaps are, from time to time, almost inevitable in many work situations, even well managed, the most single important preventive measure is good housekeeping to control all dust emissions so far as practicable and in any event to prevent all accumulation of settled deposits. . . the elimination of all potential sources of ignition in workplace situations being virtually impossible."

Yours truly, G. V. C. Consultant in Occupational Hygiene, Vic.

Dear G. V. C., I have a problem. **What** are we going to call it instead of "Handy" and "Hint"? Ed.



Sundstrom Safety (Australia) Pty. Ltd.

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Allergy (cont.) CONTACT ALLERGY

Always avoid direct contact with substances containing sensitising ingredients. This is not an easy task, as labelling may lack this information.

It is important to wash your hands in the correct way (see hints below).

Various types of substances require different cleaning agents. If the hands have been severely soiled, an abrasive may also be needed. If the substance is not water soluble, a detergent with a solvent may be required. The rule, though, is never to use stronger detergents than necessary.

Hands should be rubbed with skin lotion before work: this not only keeps the skin intact and soft, but also makes cleaning easier. Avoid skin lotions with unnecessary additivies, such as perfumes and colour.



PROTECT THE HANDS

Protective gloves are a good idea. The type of glove and glove material depends on the substances which are to be handled. Size and fit are also important.

Remember that some glove materials are themselves capable of causing allergies, such as rubber. Plastic gloves have been found to be very inert, and cases of skin allergies are extremely rare.

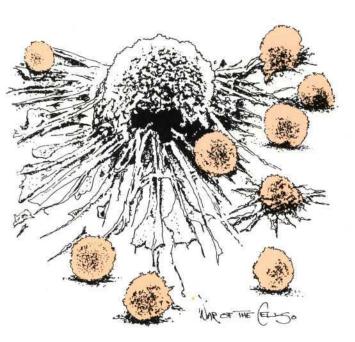
Replace the glove as soon as it becomes soiled inside or torn.

 Wet hands. If soap must be apply a small at to the palm of the never the reverside of the hand Rinse thoroughly Dry hands thorous Rub in a small at of skin lotion. 	mount ne hand erse l. '. ughly.
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WHAT IS ALLERGY?

It is important to differentiate between allergy and hypersensitivity. Allergies are most often triggered by organic substances from animals or plants, and are caused by irregularities in the body's immune system. Almost all cases of respiratory allergy are produced by relatively large proteins which reach our lungs' mucous membranes "riding" on dust particles.

Through the millennia, the human immune system has specialised in detecting substances from other life forms (such as bacteria, parasites and viruses), and to protect our body from these intruders. Sometimes, however, the immune system has trouble differentiating between dangerous and harmless proteins. An allergy occurs when the immune system is so "confused" that it starts to stage violent counter attacks against harmless substances, such as pollen, grass, plants, flour, spices, etc.



What about chemicals? Many people have severe reactions to certain chemicals — is this not allergy?

Not usually. When you repeatedly inhale an irritating or damaging substance for a longer period of time, the mucous membranes in the lungs may be damaged and inflamed. Such damage results in an increased sensitivity to air-borne chemicals in much the same way as a tight shoe causes the skin of the foot to be more sensitive to chafing.

This hypersensitivity is not an allergy, since the immune system has nothing to do with it.

SKIN ALLERGIES

The skin, on the other hand, may become allergic to certain chemicals. This condition is known as allergic contact eczema. Common causes include metals, rubber, perfumes and certain plastics.

AMINES AND ISOCYANATES

In the plastic industry, amines and isocyanates are used together. The isocyanates give plastics some important characteristics, such as a foamy consistency. The amines are added to speed up the process.

Both substances are difficult to handle safely, but the isocyanates are worse.

Amines is a group of several very different chemicals with very different characteristics. There are two things they have in common, though: they often have a strong smell, and they are all related to ammonia.

Many amines have been shown to cause asthma and other conditions. Some are skin irritants and capable of causing contact eczema.

Amines are used in the chemical industries to produce detergents, paints, Pharmaceuticals and pesticides. Amines are also applied in the plastics industry, and as hardeners for epoxy glue.

The amines are usually difficult to measure, even with modern testing equipment. They can often fool the nose by either producing a very strong smell even at low concentrations, or by dulling the sense of smell so that they can't be detected.

When it comes to allergy, certain amines are of more concern than others. One example is *piperazine*. Recent research shows clearly that this substance causes asthma if inhaled.

Another amine of great concern is EDA (ethylene diamine). This chemical may damage the upper respiratory tract, causing asthma-like reactions, and also produces allergic contact eczema to the skin. Once the skin has been sensitised to EDA, only small amounts are required to produce severe symptoms for the rest of the life of the affected person.

As is always the case with skin allergies, THE WHOLE BODY is affected. If the allergy has been sustained by EDA on the hands, the substance can cause eczema on the face, neck, ankles, etc. Moreover, the allergy is there to stay: it does not disappear with time.

People who are allergic to EDA are often sensitive to related substances, even if they have never come into contact with them. This phenomenon is called cross-allergy.

ISOCYANATES

Isocyanates are of great concern in the area of asthma and respiratory allergies.

Isocyanates are used to produce plastics of the polyurethane family. Pplyurethane can be used for materials with widely varied characteristics, depending on the production process. They are therefore very important in the industry, and used for foam plastics, lacquers, glues, paints and many other applications.

The body's immune system normally does not react to chemicals that have been inhaled. The molecules are too small to be detected by the immune defence.

Isocyanates, however, have special traits: the isocyanate molecules are capable of "hooking on to" larger substances — large enough to be detected by the immune system. The body is fooled into becoming allergic. This type of isocyanate allergy may be traced through the urine of the affected person.

The most common effect of isocyanates is irritation and inflammation of the bronchi and lungs.

Skin allergies caused by isocyanates are rare.

PREVENTION!

The only viable solution in areas where amines and isocyanates are used is to take prevention measures. The working environment must be carefully monitored. Find out as much as possible about the chemicals. Try to replace dangerous substances with less hazardous ones. A thorough work safety program is essential.



Sources: A special project financed by the Swedish Work Environment Fund, with specially commissioned specialists from Gothenburg's Sahlgrenska Hospital: Lars Belin (occ. allergologist), Urban Wass (occ. hygienist), Gerd Bergmark (lab. assistant), Birgit Medling (occ. dermatologist). Published in Arbetsmiljoe 9/87 - 2188.

ALLERGY TOP OF THE LIST

Over a thousand substances have been shown to cause allergies, and the list is growing. Recently 5,000 people were tested in a Swedish survey on skin allergies. Here are the top ten substances:

> Nickel Perfume compounds Compounds used in Iotions, e.g. wool fat and preservatives Rubber chemicals Cobalt Natural resin Chromium Epoxy Formaldehyde

Nickel is by far the most common allergen: 14% of all tested people showed a positive reaction in the skin surface test.





SHOWER WITH CARE Beware of irritating particles falling from your hair into your eyes and mouth in the shower. What to do? Well, either shut the hatches, or shower upside down!



QUESTIONS AND ANSWERS

"What danger is there to humans from *Paradichlorobenzene* and *Naphthalene* **Fumes?**"

K.G.A. - South Perth

Paradichlorobenzene, mainly used as a fumigont, is classified as a "Slightly Hazardous" substance according to the World Health Organisation. The main route of entry is orally. In concentrations of 100 ml/m³, it causes strong eye and throat irritating character usually precludes the chance of any serious exposure. Solid particles in the eyes are very painful. Repeated exposure to small amounts may affect the liver and kidneys. No extensive skin absorption. Acute damage to the central nervous system is hardly possible, due to the strong warning signs.

Naphthalene is a moth repellant, also used in chemical and dye manufacturing. Fumes are emitted above 55-100°C. Only minor effects are likely in humans. Fumes and fine particles may cause eye irritation, headache and fatigue. Massive exposure could cause cataracts. Loss of appetite is possible. Skin problems can occur after repeated skin contact over a long period. Some people may be hypersensitive to Naphthalene, and may develop severe skin irritation even from small amounts.

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Sources: Merkblaetter Getaehrliche Arbeitsstoffe, Kuhn-Birrert, Ecomed, Germany 1985; Chemical Hazards of the Workplace, Proctor and Hughes, Lippincott (publ.), Philadelphia; Encyclopaedia of Occupational Health and Safety, ILO, Geneva 1985.

CERAMIC FIBRE

We have received questions about ceramic fibre and glass wool. The Professor of the Occupational Health at Linkoping University in Sweden, Olav Axelson, claims that the cancer risk from these fibres has been grossly exaggerated, and has commenced a thorough study project on the subject. We expect the results in a few months.

DO YOU HAVE A QUEST	TION?
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······································
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HOW TO DISPOSE OF PESTICIDE EMPTIES:

COMBUSTIBLE CONTAINERS (Paper, plastic bags, cardboard, eta)

NON COMBUSTIBLE CONTAINERS (Metal, glass, moulded plastics)

SPOT

Only permitted in remote areas!

Smoke must not go over oads, people, livestock, props or valuable plants. Burning must also satisfy he Clean Air Act.

Do not burn volatile Desticides such as 2,4-D and 2,4,5-T.

keep away from smoke and wear breathing protection.

ire should be as hot as



BURY IN SAFE SPOT

Glass: remove cap and crush. Metal or plastic: remove cap pierce sides, squash. Non-combustible containers may be fired before burial to remove traces of pesticides.

TAKE TO DISPOSAL FACILITY

Call your State Pollution Authority for details on suitable facilities. Containers should be pierced. Remove all caps. If possible, crush containers. Most Councils will accept bags and rinsed containers at local tips.

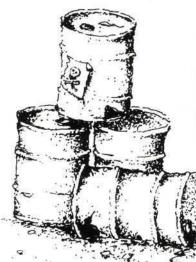
RE-USE OR RECYCLING

TO DRUM RECONDITIONER

TO SUPPLIER

TO SCRAP METAL MERCHANT

Usually only applies to 200 litre drums. Supplier or manufacturer might not accept returned drums. Check with them prior to transport.



PESTICIDE DISPOSAL

pecial Feature

The State Pollution Control Commission has given out guidelines for the disposal of pesticides, containers, spray and spills. The information is published by the department of Agriculture.

It may be easy to forget about the disposal of surplus pesticides, and to concentrate instead on safe application and handling procedures. However, commercial users may often accumulate large quantities of surplus pesticides or empty containers, or be involved in serious spills.

Not only insecticides may be dangerous, but all pesticides, including fungicides, herbicides, acaricides and many other substances. All of these require careful handling and correct disposal. Incomplete or careless disposal and spillage procedures may have serious consequences.

Three legal acts are concerned with pesticides, namely, the Poisons Act, the Pesticides and Allied Chemicals Act, and regulation 123 of the Public Health Act. These texts place a responsibility on the user to know how to dispose of the product properly, and on the local council, Metropolitan Waste Disposal Authority, or State Pollution Control Commission to provide disposal facilities.

How To Dispose Of Leftovers

There are three ways of dealing with surplus chemicals:

- 1. Pass on for use by someone else.
- 2. Take to disposal facility.
- 3. Dispose in safe spot.

If you have to dispose of the chemical yourself, you may either bury it in a safe spot, or apply it to plant growth, for example in an unused area.

How To Choose A

Spot For Safe Burial

- Select a spot well away from people, crops, livestock, fodder, grain, produce and water courses.
- Remember that the spot you choose is to be reserved for disposal only for all future.
- 3. Clearly mark and fence the area.
- 4. Ensure that the soil is porous and level, so that the chemicals won't run off.
- 5. Prevent any chances of the chemicals reaching the water table, wells or water courses.
- 6. If you're disposing of residual herbicides, beware of nearby trees.

Burial Procedures

- 1. Dig a pit or trench at least half a metre deep.
- 2. Cover bottom with plenty of hydrated (slaked) lime.
- 3. Dilute chemical to spraying strength or less.
- 4. Pour into pit carefully.
- 5. Fill pit with soil. Build up a mound so that rain water runs off.

Burial can be made even safer by encapsulating the chemicals in cement before burial. Portland cement should be used especially if the pesticide contains organochlorines or metals such as arsenic, cadmium, mercury or zinc.

Of course, wear protective clothing and breathing protection if recommended.



Surface Application

Instead of burying the chemicals, you may choose to spray surplus pesticide on to crops or unused land. Do not apply to already sprayed crops, and only apply to recommended crops at the recommended rate. At any rate, dilute the chemical to less than the recommended concentration.

Remember that it may be necessary to mark and fence sprayed areas, and to prevent livestock and people from entering the site.

> Never pour pesticides down the drain or toilet! Never attempt to burn or incinerate pesticides!

Old Containers

How to rinse:

- 1. Make sure all liquid has been drained from the container.
- 2. Fill with about 1/4 of water and seal.
- 3. Shake or roll or tumble the container.
- 4. Drain into sprayer or mixing tank.
- 5. Repeat twice. When draining the third time, puncture the container at the rim and drain through puncture.
- 6. 1 ml of detergent added for each litre of volume of the container may assist in draining.
- 7. Cross out labels but do not make illegible.
- 8. Retain in a safe place while awaiting disposal.

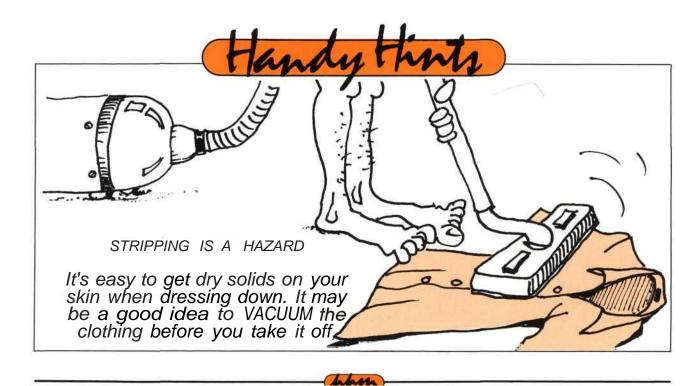
Note: Bags should NOT be rinsed.

NEVER leave glass or plastic containers at community collection centres unless there is a special provision for pesticides!

- **NEVER** use containers for other purposes, such as floats, buoys or holders for feed or water!
- NEVER burn aerosol containers, closed or unpunctured containers!
- **NEVER** puncture aerosol containers!

THE GOLDEN RULE:

In order to avoid surplus chemicals, always try to mix slightly less pesticide than you need — it is easy to mix a small amount to top-up at the end.



SPILLS

It is the user's responsibility to know how to deal with a spill, and to have the necessary equipment and protective devices at hand.

IMMEDIATE ACTION:

Evacuate the area. Keep vehicles, livestock and people away from the site.

Determine whether outside help is needed. Leaking containers should be turned so that leaking is stopped. It may be a good idea to place leaking containers in oversized bags or drums. Wrapping leaking containers in plastic may also provide a solution.

SPILLS ON SOIL

Powder: Carefully collect uncontaminated top layer and place in suitable bags or containers. Then collect the rest along with the soil and shovel into an open drum. Close and label.

If the powder tends to blow away with the breeze, moist it before collecting.

Dispose of thoroughly.

Liquid: Emulsifiable concentrates and persistent pesticides should be placed in open drums along with a thick layer of the affected soil. Fill the hole with clean soil. Close and label drums for disposal.

Other pesticides should be washed further into the soil with copious amounts of water. Then cover the area with a thick layer of clean soil.

SPILLS ON CONCRETE, ROADS, PATHS, ETC.

Powder: Recover uncontaminated powder and return to container. Scoop and brush remainder into a waste drum. It may be necessary to cover the spill with an absorbent (sand, vermiculite, etc.) before sweeping up. Highly hazardous powder spills should be dampened and covered with slaked lime. If necessary, cover with lime again after scooping up, wait for an hour, and flush into a sump. The washings should be disposed of properly.

Liquid: Contain the spill with soil, sand, etc. Do not use combustibles, such as saw dust. Then handle as powders.

NOTE: Some pesticide concentrates, especially organochlorines and organophosphates, may penetrate into the ground or floor. Should this be the case, spray with a 50/50 mixture of laundry bleach and water, cover with slaked lime, and wait for an hour before removing. If the area is likely to be contacted by food containers, bare feet or pets, call local authorities. It may be necessary to break up a section of the floor, or to coat it with a hard sealant.

SPILLS IN PUBLIC PLACES SHOULD BE HANDLED BY FIRE BRIGADE OR DEPARTMENT OF MAIN ROADS!

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Source: Information provided by the State Pollution Control Commission.



SMALL SPILLS -SERIOUS RESULTS

Even a tiny spill can have disastrous consequences if you don't know the precaution, prevention and protection procedures.

A particularly tragic incident occurred earlier this year near Esk, west of Brisbane.

A 20-year old farmhand died in agony after spilling a small amount of Lannate on himself while mixing chemicals for tomato spraying. Lannate contains methomyl, an insecticide of the carbamate type. Methomyl is classified as a "Highly Hazardous" product by the World Health Organisation.

Although the farmhand took off his overalls immediately after the spill, the chemical was rapidly absorbed through his skin. He collapsed at the wheel of his vehicle on his way to help.

Frothing and convulsing violently, he died at Esk hospital, where two nurses became ill from the methomyl fumes emanating from his body.

A post mortem detected methomyl in the young man's internal organs. He would have died an extremely painful death, pathologists said.

A specialist from the Total Environment Centre said that Lannate had the capacity to accumulate in the body without any direct symptoms. An accidental spill, however small, could "top up" the concentration and cause a violent reaction.

Lannate is manufactured by Du Pont. The labels prescribe the use of chemically impervious gloves of elbow length, as well as a face shield when handling the chemical. A supply of atropine tablets should be kept easily available at all times.

It is not known whether the young man was wearing the appropriate protective equipment or following prescribed handling procedures. However, fellow farmers said he was "very experienced" with handling the pesticides.



Sources: Greg Roberts, Sydney Morning Herald, 5 September, 1988. Encyclopaedia Of Occupational Health and Safety, ILO Geneva 1985.



LEAD DO YOU KNOW THE HAZARDS?

Lead is an extremely poisonous material. It is also one of the most commonly used metals, ubiquitous in a wide array of industries.

Lead has the capability to accumulate in the body — that is, minute amounts may gather in the body over extended periods of time until the concentration of lead in the system is so great that it causes serious, sometimes permanent and irreversible, damage

The most common entry route is through the lungs. It is easy to inhale lead fumes from hot metal (over 550°, such as in welding), dust from polishing and cutting, or mist containing lead, for example in paints and surface coatings.

The second major entry route is ingestion, for instance, if you haven't washed your hands when having a smoko or meal break.

Once the lead reaches the lungs or intestine, it immediately enters the blood stream. However, the "favourite" gathering spot for lead is the bones and bone marrow.

LEAD POISONING

The accumulated metal causes lead poisoning. The severity of the problem depends on many factors, but may constitute a very serious health hazard. Excessive lead accumulation in the body could cause irreversible damage, and even death.

Chronic lead poisoning is the most common problem among industry workers. It is caused by long term, repeated exposure to tiny amounts of lead. The disease affects many body functions, including kidneys and liver, the digestive system, the central nervous system, and the blood. It can also cause reproductive disturbances in both men and women.

By the time any obvious symptoms appear, the lead concentration in the blood may already be dangerously high, and recovery may be extremely difficult, even impossible. Symptoms include fatigue, insomnia, muscular pain, sore joints, irritability and loss of appetite.

PREVENTION—PROTECTION—PRECAUTION

Lead fumes and dust require efficient mechanical exhaust, such as a fume hood.

Protective clothing should be worn, as well as long gloves.

Keep work clothes away from your normal clothing, and NEVER wash the two together.

The work area should be cleaned daily. Do not sweep or blow dust away: instead, wet-wipe or vacuum.

Keep hands and sleeves away from your mouth at all times during work.

Wash hands and face thoroughly before meal breaks. Smokers should wash before lighting a cigarette. Work clothes must NOT be worn during meal breaks.

Lunch boxes, sweets, tablets or cigarette packets should be stored well away from the work area.

At the end of the day, have a shower AT WORK — don't wait until you get home.



Sources: Scriptographic series 18028A-6-87 and 1312A-1-81, Safety Concepts (dist.); Sundstrom Chemical Database 1988; Encyclopaedia of Occupational Health and Safety, ILO Geneva 1985.

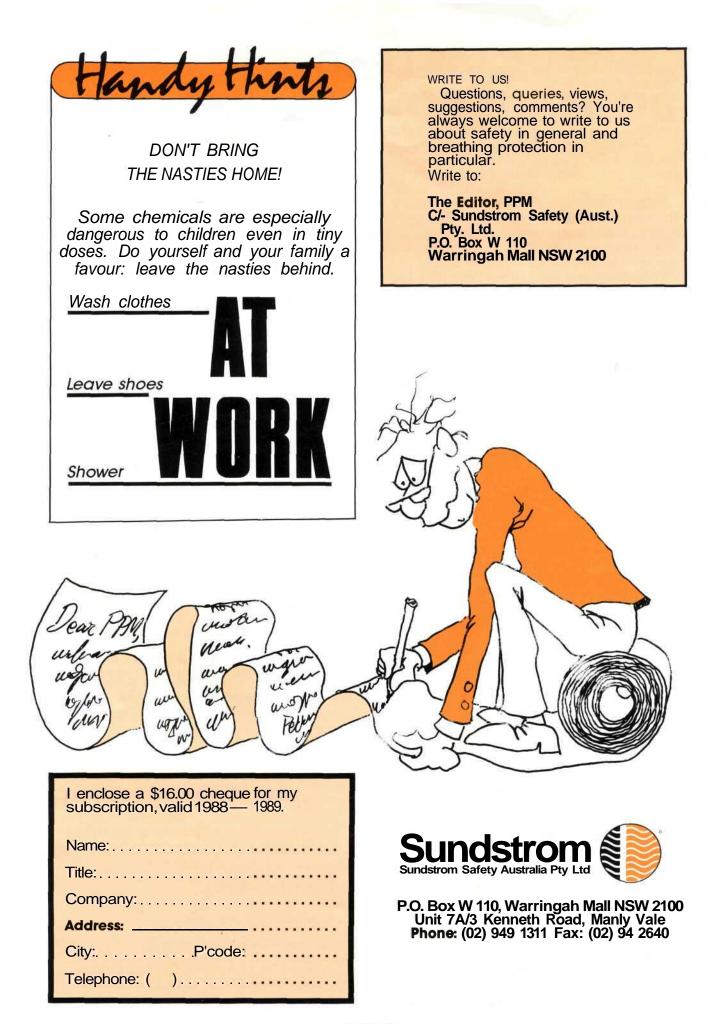
INFORMATION BOOKLETS

A wide range of informative booklets on over 60 safety topics are available from the Sydneybased company, Safety Concepts. The Scriptographic booklets are designed for distribution to employees, and give brief but powerful information in an easily digestible form. The range includes two excellent titles on lead, "What you should know about LEAD SAFETY", and "What everyone should know about LEAD POISONING".

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Review copies are available free from Safety Concepts,

P.O. Box 2404, North Parramatta NSW 2151.



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