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professional protection magazine

Published by Sundstrom Safety (Aust.) Pty Ltd
in the interest of Industrial Safety in Australia.

Number 1 1986

WELCOME

Welcome to the first issue of Professional Protection Magazine, a complimentary newsletter on industrial safety produced by Sundstrom Safety (Australia).

In coming issues, P P M will give simple and useful information about many facets of industrial safety. We will also strive to give you up-to-date information on trends and discoveries overseas.

Sundstrom Safety (Australia) has a knowledgeable backing in Sundstrom Respirator, the Swedish manufacturer of world-famous breathing equipment. This will help us keep in touch with developments, research, discoveries and controversies all over Europe. We also have extensive scientific back-up from the United States.

In order to make the most of our scientific and manufacturing connections, readers are invited to approach Sundstrom Safety with queries, questions and matters which may be of interest to others.



SUNDSTROM SAFETY

Sundstrom started out as a small family company in Sweden 70 years ago. Through the famous Swedish devotion for perfection, Sundstrom has become synonymous with the very best in breathing gear. Sund-

strom's philosophy is "design for easy use — design for optimal protection". Thus, Sundstrom masks, air supplies, glasses and other protection products have always enjoyed the distinction of being not a necessary evil, but a desirable aid. Users LIKE to wear it.

Sundstrom Safety (Australia) works independently from the Swedish manufacturer. Over the past few years, we have built up a network of distributors in all States. You are welcome to call your nearest Sundstrom representative with any query regarding breathing protection.

This issue of P P M gives a brief run-down on the effects **solvents** may have on the human body. Solvents are common not only in

modern industry, but also in the home. Yet, they are among the most dangerous substances in use: detrimental effects have been seen in many organs, ranging from the skin to the brain and reproductive cells. European scientists have started a research programme to establish the exact effects of solvents, and how to protect against possible damage. As the greatest danger lies in the breathing of solvents, Sundstrom are following these developments with great interest.

Our run-down on the risks of using solvents has been designed as a simple wall-chart which you may wish to display on your notice board for easy reference.

We hope that you will find the information useful and interesting.



SOLVENTS — TH

do you know

Brain and nerves

The nervous system may sustain damages resulting in serious psychological disturbances.

Heart and blood

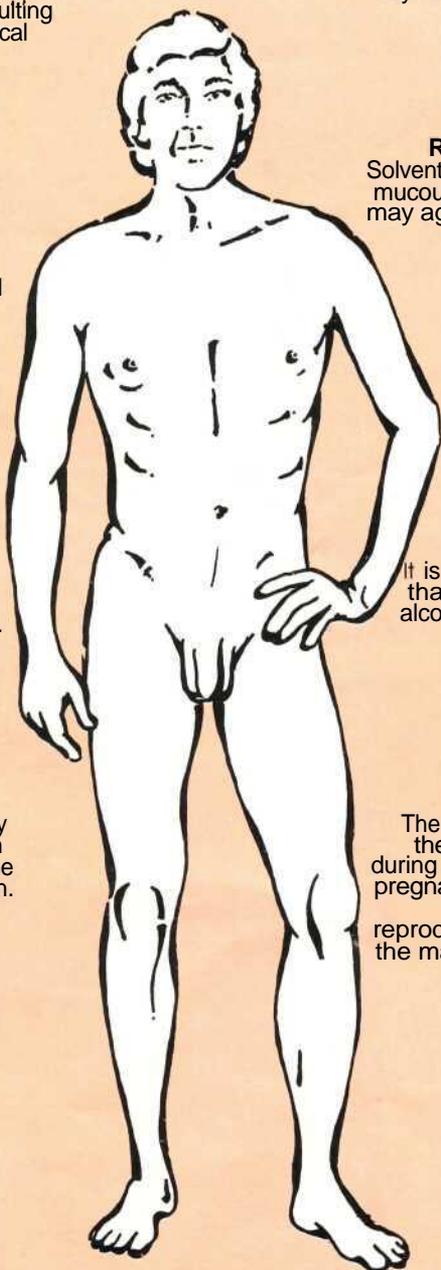
Several chemical substances may be harmful, e.g. to blood formation.

Kidneys

Evidence shows alterations in the way the kidneys work.

Skin

The skin becomes dry and sensitive. Certain solvents may enter the body through the skin.



Eyes

Eye irritation is common.

Respiratory tracts

Solvents cause irritation to mucous membranes and may aggravate bronchial conditions.

Liver

It is strongly suspected that a combination of alcohol and solvents is highly dangerous.

Reproduction

The risks of damage to the embryo are great during the early stages of pregnancy. Moreover, it is suspected that reproductive cells in both the male and the female may be affected.

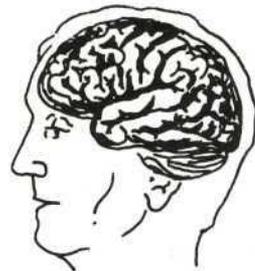
BRAIN AND NERVE CELLS

The most serious health risks in connection with the use of solvents are related to the brain.

The symptoms are difficult to detect, as they may also occur in people who have never been in contact with solvents.

The most important signs of damage are memory deterioration, emotional personality changes and, at a later stage, intellectual regression. Further signs include fatigue, poor concentration, headaches, sweating, poor sexual performance — in short, a general worsening of the psychological well-being.

Typical examples of how the damage may pronounce itself are: forgetting where you parked the car, inability to remember three shopping items, forgetting what tools to take to a job on location, poor recall of important addresses, repeatedly checking that doors are locked and the stove is off, oversensitive and irritable behaviour.



HEART, BLOOD VESSELS AND BLOOD FORMATION

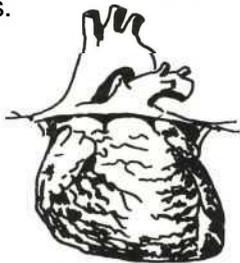
These areas are affected to a somewhat lesser extent than the brain. A dramatic increase in chronic heart disease has been observed in cases of

THE HEALTH RISKS

the dangers?

exposure to high concentrations of carbon sulphide (CS_2).

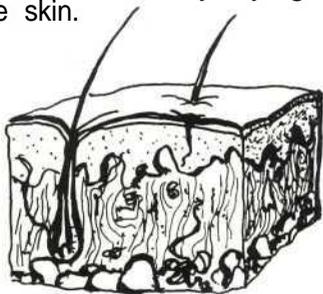
The bone marrow, where the blood corpuscles are produced, can also be affected by solvents. This should be of concern even in the home, where children and adolescents often come in contact with hobby glues and paints.



SKIN

Solvents dry out the skin. The skin's protective coating of fat is dissolved, increasing the risk of penetration by substances which may cause further damage. Irritation and rashes are early signs.

The affected area becomes itchy, often flaking and smarting. Once the damage is sustained, other substances, like hot water, also hurt. The risk of eczema increases. In the past, allergic reactions were common amongst those who worked with turpentine. Most modern solvents, however, cause irritation by drying out the skin.

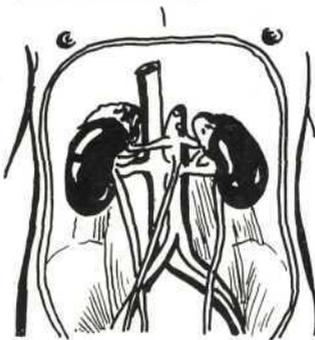


LIVER

Enlargement of the liver is an insidious process whose symptoms are difficult to detect. Damage to the liver through solvents is believed to be rare. However, greater susceptibility to the effects of alcohol may point towards a dangerous combination of alcohol and solvents.

KIDNEYS

Chronic inflammation of the kidneys will give no early warning signs. There is no sudden deterioration, and the disease is usually detected through routine health checks. In many cases, the doctor has been consulted for swelling of the legs, fatigue, headaches, or other ailments.



RESPIRATION

Solvents irritate mucous membranes in the respiratory tract. The throat becomes sensitive, and an affected person may cough or experience difficulties in breathing, especially if he has a history of lung ailments, e.g. through smoking or bronchitis.

EYES

Contact with solvents may often result in eye irritation.

BIRTH DEFECTS

A number of solvents are suspected to cause genetic damage. Solvents may also be linked with miscarriages and still births. Brain disorders in children have been recorded in cases where the mother has been subjected to solvents during her pregnancy.



TUMOURS

Certain solvents have been labelled as carcinogenes. The use of these particular substances is prohibited or restricted. This area has not been fully explored, and further research is underway. It seems, however, that the cancer risk is not significantly greater for people who are handling solvents than for any other group.

* * *

If you would like to find out about the health risks of any particular chemical substance in your workplace, please write to Sundstrom. We will use our extensive international sources to provide a prompt answer to your query. Write to:

Sundstrom Safety Pty Ltd
P.O. Box W 110
Warringah Mall NSW 2100

PROTECTION AGAINST SOLVENTS

is there a solution?

To anyone who knows a little about solvents and their chemical qualities, it is sad to watch people use solvents with only a thin paper mask over their face — or even without any protection.

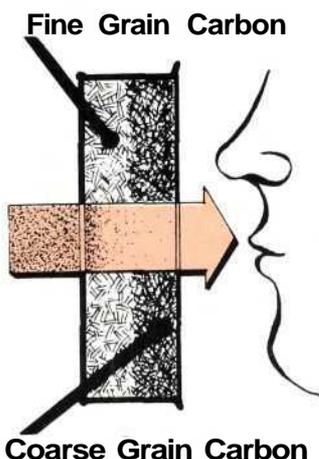
Solvents are extremely volatile substances, and a paper mask provides no protection whatsoever.

Considering the wide use of solvents and the serious damage they can cause to vital body organs, it is baffling why these chemicals are handled with such casual insouciance.

Effective protection can only be achieved through a carefully designed active carbon filter. The most important characteristic of active carbon is that it is extremely porous. Through specialised production processes, the solid carbon is shaped into tiny cylinders which are packed into the

filter canister. When the solvent fumes pass through the filter, the molecules "stick" on to the porous surface of the carbon granules.

The problem in designing a mask is that the filter must provide a good airflow to make breathing easy,



without letting harmful chemicals through. The trick is to make the absorption surfaces of the carbon as large as possible, and then shape each grain in a way that permits easy flow-through of air.

By using highly sophisticated production techniques, Sundstrom have developed active carbon with a staggering absorption surface — over 1,200 m² in a single gram of carbon granules. These filters provide a powerful, impenetrable barrier for the solvent. Yet, the breathing resistance is hardly noticeable. Fresh, clean, safe air passes easily through the filter even after hours of use.

However, you must never cut corners when it comes to safety: in heavily contaminated areas, Sundstrom recommend the use of external air supply.

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