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professional protection magazine

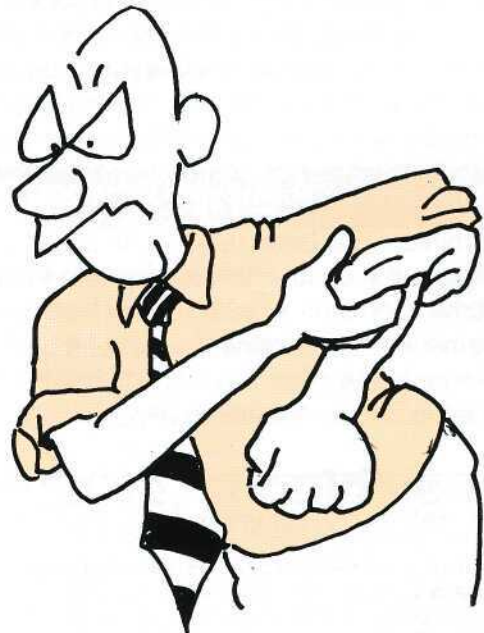
Published by Safety Equipment Australia Pty Ltd (A.C.N. 002 727 586) in the interest of industrial safety in Australia
Volume 10 Number 34, May 1995—Print Post Approved PP255003/01482—ISSN 1031-7996

OSHA rolls up its sleeves

The American Occupational Safety and Health Association proposes to get tough with industry in the near future. New changes to the OSHA respiratory protection standards will affect some 3.6 million workers in over 650,000 work places in general industry, as well as maritime and construction business.

The proposed rules will place a number of responsibilities on the employer. It will be necessary to:

- develop a written safety program
- establish equipment selection procedures
- provide medical evaluation of workers
- conduct individual fit testing
- set maintenance procedures
- provide staff training
- evaluate program effectiveness



The new rule will also set protection factors to be used in respirator selection.

OSHA warrants its new tough steps by claiming that about one in two safety programs is inadequate. In effect, this means that in many cases, employees receive less protection than respirators can give them. OSHA hopes to prevent some 550 cancer deaths and 6,900 illnesses every year by introducing the new tougher rules.

The cost of increased safety is placed squarely on employers. The estimated additional cost to employers is around the US\$107 million mark (A\$144m).

Source: Occupational Hazards, Dec 1994, p11



Question & Answer

Question:

Any update on the findings regarding the increased risk of memory disturbances in aluminium welders (PPM vol. 4 No 11, March 1989)?

D. Daley, Narangba, Qld

Answer:

Yes, a 1994 study from Sweden has found that aluminium welders suffer more from central nervous system complaints than other welders.

The study involved welders who had been working on aluminium for at least five years, along with a reference group of welders who normally worked with other materials.

Aluminium has been believed to cause damage to the central nervous system for a long time. Concentration difficulties, memory problems, motor coordination, speech defects, stammering and other brain conditions have been attributed to aluminium exposure.

This latest study showed that the aluminium welders had about seven times more aluminium in their urine than other welders. They also reported more central nervous system problems than other welders. Tests also showed that motor function, such as reaction and coordination, was poorer in the aluminium welders than in the reference group.

The research team's conclusion is that there is a need for improvements in the work environment for aluminium welders.

Source: Sjogren, B., Iregren, A., Freeh, W., Hagman, M., Johansson, L., Tesarz, M., Wennberg, A. 1994, *Påverkan på nervsystemet hos svetsare exponerade for aluminium eller mangan, Arbeta och Hälsa* 1994:27

Dangerous methods are a bigger problem than dangerous chemicals!

Do you have a question?

Queries on work safety, health, chemical hazards, and any other topic connected with occupational health and safety are welcome. Please fill in the coupon and mail or fax to us.

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Handy Hint

USE LIFTING AIDS!



If lifting large and unwieldy objects, such as boards, window panes, buckets, drums etc., there are specially designed harnesses and other aids that distribute the weight and make it much more comfortable — and safer — to carry

ACCIDENT REPORT:

Fatal lack of communication

The accident:

A ship load of wood fibre slabs (soft-board) was on fire. One of the first measures taken by the fire fighting crew was to pump carbon dioxide into the storage hold in order to displace the oxygen and stifle the fire.

However, soft-board contains oxygen, which still provided enough air to maintain the fire. It was necessary for fire fighters to enter the hold and spray water on the boards.

Two firemen with self-contained breathing apparatus went down into the hold. One of them had an in-respirator radio, which he used to communicate with a supervisor on deck at the opening of the storage room.

However, when the job was done, the two firefighters could not find the rope they had left to show them the way out of the smoke-filled, dark space.

The fireman with the radio heard his mate scream. He summoned help from above and started to search for the man. He was found on

the floor with his face mask loose. He was lifted from the hold in an unconscious state, but died later. He had probably slipped and fallen, his mask knocked off his face in the fall. The man did not have a respirator radio.

Could've, should've...

In this case, each fire fighter should have been provided with a respirator radio. Communication is essential, not only with the supervisor on deck, but also between the fire fighters themselves. The circumstances were compounded by the fact that there was no oxygen due to the carbon dioxide. Normally, where there is fire, there is a certain amount of breathable oxygen. In this case, both supervisors and firemen should have been very aware of the special circumstances.

The risks taken must be viewed in relation to the purpose of the work: rescuing a person and saving a life is different from recovering materials and equipment. In some cases no attempts should be made to enter the area — for instance in situations where there is a risk of heavy materials falling on the rescue workers.

Source: Arbetsmiljö 1995, No 12, p 49

Poor hearing, poor reception

Isolation brought on by hearing impairment

Many hearing-impaired workers are treated poorly by their work mates. They feel like outsiders and are more likely to suffer from depression and suicidal thoughts, a new survey finds.

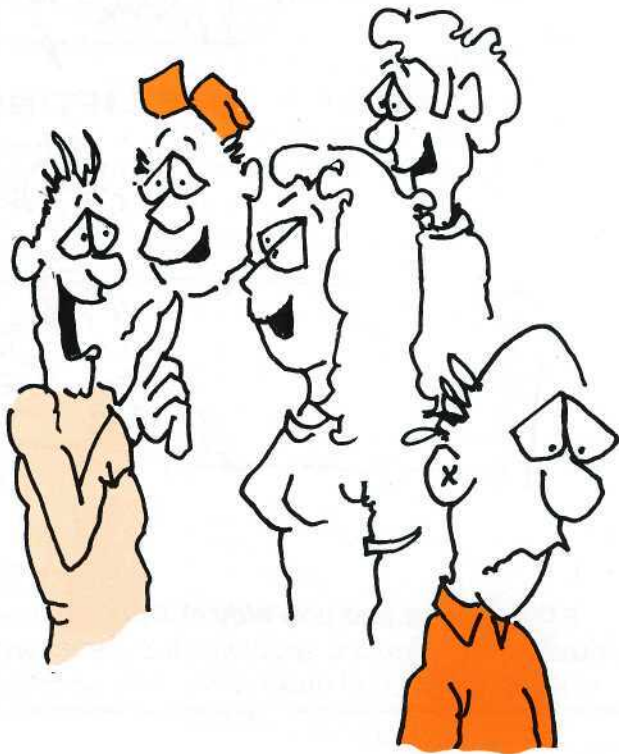
A new big survey, presented by the Swedish safety journal *Arbetsmiljö*, shows that one in five hearing-impaired workers feel down-trodden, inferior — even harassed — in their work place. The survey was conducted by the Swedish National Association for the Hearing-Impaired, and included people with different types of hearing injury (both from birth and in adulthood) and varying degree of loss of hearing.

People with hearing damage may find themselves isolated at work. Not to be able to hear clearly what others are saying may lead to misunderstandings and conflicts. Hearing-impaired workers may be shunned or kept outside the work fraternity, and could be seen as a little stupid. Sick leave and early retirement are more common among people with hearing damage.

One in five people felt harassed because of their poor hearing. The same proportion had retired early from work due to their affliction. Many had tried to commit suicide — three in a hundred had made repeated attempts at ending their lives.

Self-inflicted isolation

Four out of ten hearing-impaired people consciously withdrew into their own shell at work, according to the survey. They did not



want, or dare, to tell others about their problems, and did not feel that they had anyone to turn to. The most common tactic among these people was to pretend that their hearing was normal, guessing the gist of a conversation, and staying away from Smalltalk and discussions about complicated topics.

Some hearing-impaired people, about as many as those with very poor experiences, also had positive views on their work place, describing the support and understanding they had received from work mates and superiors alike. The positive points were given mainly by those who had sustained hearing damage as adults. At the time of the injury, they had already been a solid part of the team.

Medicine 1 — Psychology 0

Many subjects complained about something lacking in their rehabilitation. Few had any complaints about medical treatment and technical aids given to them, but found that the psychological and social rehabilitation was inadequate. Most of all, they felt a need for someone in their work place with a good understanding of their predicament; someone they could talk to.

Hear me out!

The following difficulties can be easily solved to assist in communicating with a hearing-impaired person:

- ~ Select a good spot to talk
- ~ The quieter the area, the better the communication — be alert to the background noise
 - ~ Limit direction of surrounding noise
 - ~ If you're in a noisy area, sit near a wall — not in the middle of a room
 - ~ Limit background noise
 - ~ Close windows and doors — a hearing aid amplifies almost ALL noise
 - ~ Face each other
 - ~ Don't talk to your shoes — face the person you're talking to
 - ~ Be patient
- ~ Don't say "oh, nothing" when asked again what you said. Repeat until you're understood
 - ~ Give yourself time
- ~ Remember that it's easier to understand a familiar voice and manner of speech. Communication will get better the more you talk

Source: Lundgren, H. 1993, *Arbetsmiljo*, No 6, pp17-19

NO THANKS TO DAD

Jennifer Connell of the Sydney Morning Herald reports that pregnant women run a three times greater risk of miscarrying if the father regularly works with oil-based paints. If the male partner is exposed to strong glues or oven cleaners, the risk is more than double.

About one in six pregnancies end with miscarriage, and half of all miscarriages are caused by such factors in the male. This conclusion comes from the genetics department at Queen Elizabeth Hospital in Adelaide, where Dr Judy Ford has conducted a study on almost 600 expecting couples. The study, entitled the Pregnancy And Lifestyle Study, details exposure to chemicals and other lifestyle factors in both parents.

Dr Ford warns that exposure to solvents can play a role in miscarriages.

"All solvents have a very toxic effect on the genetic machinery", she said.

Miscarriage is nature's way of minimising the risk of children being born with abnormalities. Nearly all pregnancies where the foetus is malformed or otherwise abnormal end with spontaneous termination.

The PALS study found that exposure to chemicals meant a marked increase in the risk of miscarriage:

- 319 per cent higher risk if the male was exposed to oil-based paints
- 236 per cent greater in the case of strong glues
- 227 per cent increased in connection with oven cleaners

The heightened risk occurred among men who were exposed to solvents for at least four hours per week during the five years preceding the conception.

If the women themselves were exposed to solvents, the risk was nearly five times greater, even among women who only visited factories with high chemical pollution, or who were involved in home renovating and other sources of solvent exposure.

X-rays were also found to have a detrimental effect. If the expecting mother had had her back or abdomen X-rayed, the risk was also higher, and even greater if the male had had x-rays taken.

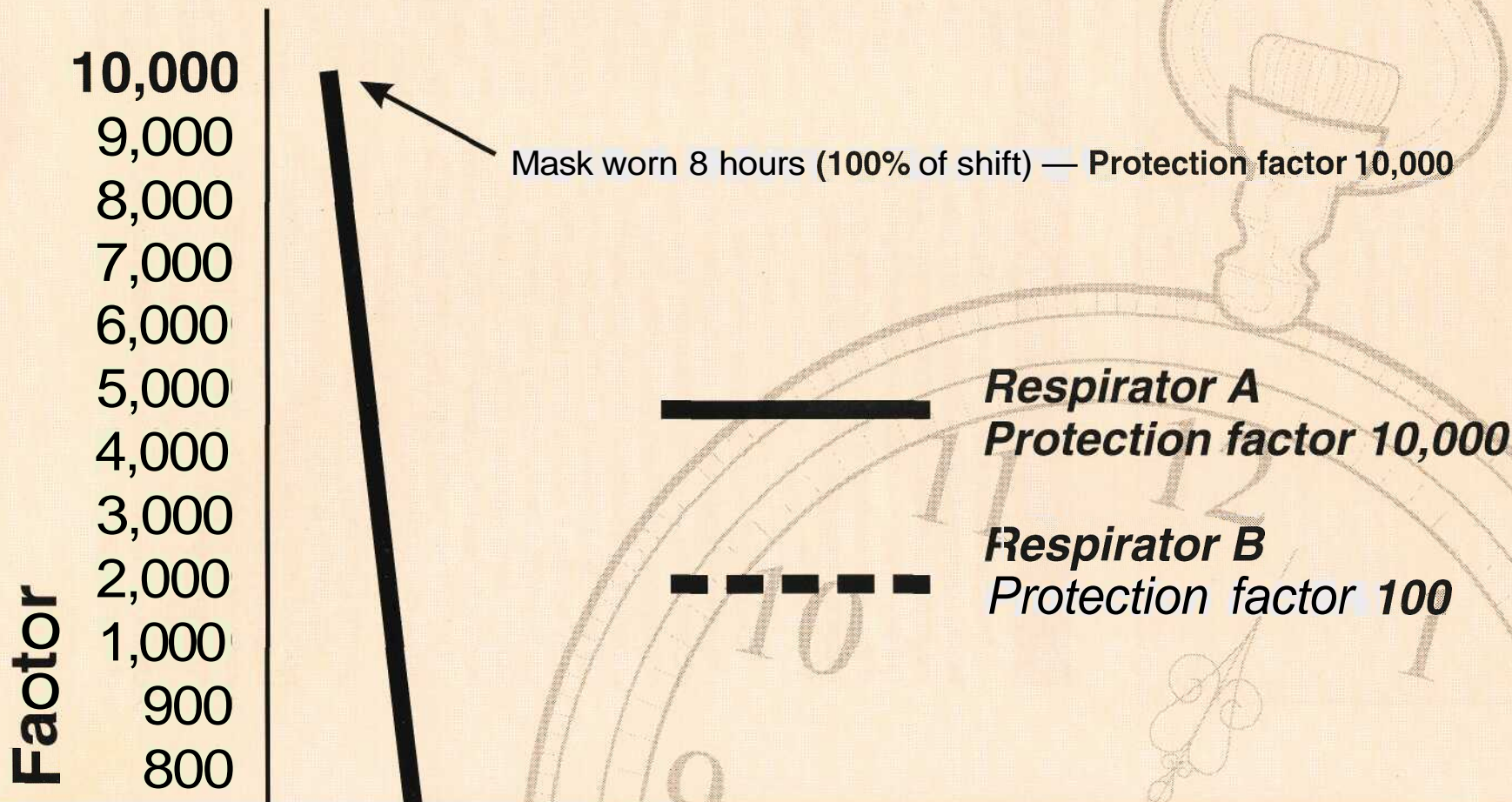
Dr Meredith Wilson, a medical geneticist at the Camperdown Children's Hospital in Sydney, said that the results were not conclusive. Despite the study, she said, most miscarriages remained unexplained.

Source: Connell, J. 1995, *Sydney Morning Herald*, 04 January.

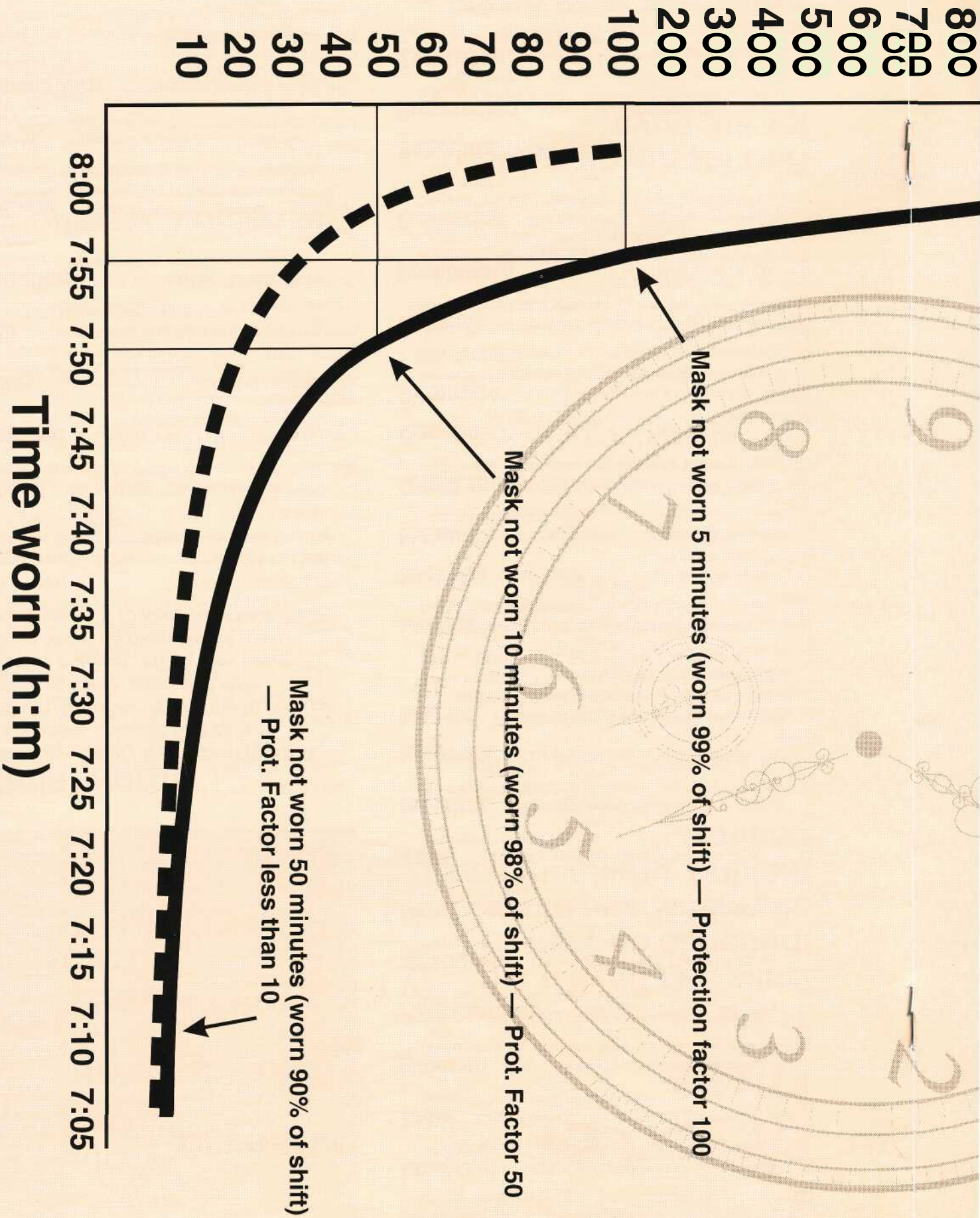
Every minute counts

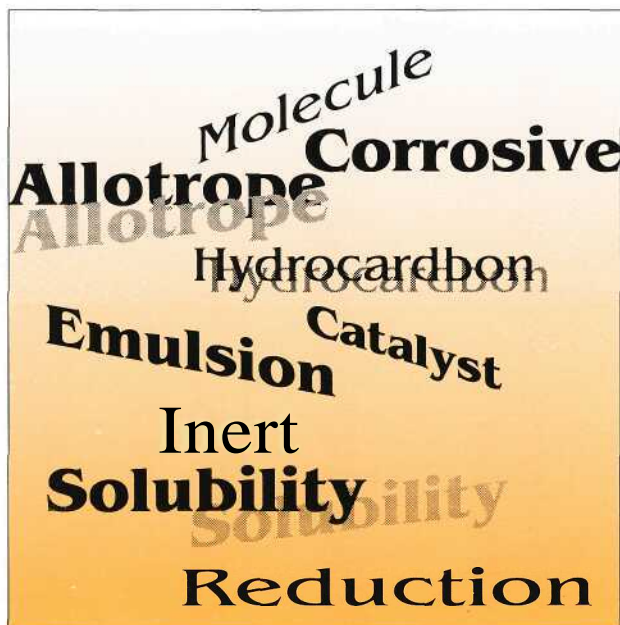
Taking off your respirator for only a minute or two has disastrous effects on your overall protection. By failing to wear your mask for just five minutes, your protection factor could be as little as a thousandth of the original.

ALWAYS wear your respirator where it is required



Protection F





Material words

A Materials Safety Data Sheet (MSDS) should be clear, concise and easy to understand. However, from time to time you may come across a specialist term, chemical or medical, which may seem confusing. What do these terms mean? Here's a handy list to keep near your MSDS files.

Allotrope Any of the different physical forms that an element can take. For instance, carbon may be in the form of graphite or diamond

Azeotropic mixture Mixture of liquids that cannot be separated by distillation

Carcinogen Substance which can cause or trigger cancer

Catalyst Substance which promotes or speeds up a chemical reaction without changing itself

Colloid Suspension of very fine particles within a fluid, such as pigment particles in paint

Combustible Able to catch fire. *Spontaneously combustible*— able to ignite without any external source

Compound A substance which consists of atoms of various kinds, and which has properties that are different from the individual parts (opposite of element)

Corrosive Ability to eat away at a surface (for instance at a metal, or skin)

Decomposition A substance breaking up into its constituents or elemental parts; disintegration

Element A substance which consists entirely of atoms of the same kind (opposite of compound)

Emission (off toxic fumes) Discharge of poisonous gas, for instance by heating

Emulsion A colloidal suspension of one liquid in another (i.e. not dissolved), such as oil in vinegar

Ester Organic compound formed in the reaction of an acid with an alcohol, such as fat

Halogen Any one of five non-metallic elements, namely fluorine, chlorine, bromine, iodine and astatine

Hydrocarbon Organic compound of hydrogen and carbon, for instance benzene

Hydrolysis Decomposition of a chemical by reaction with water

Hygroscopic Readily absorbing moisture, as from the atmosphere

Inert Chemically inactive; not reactive with other chemical substances

Inhibitor Substance which slows down or stops a chemical reaction

Inorganic Compounds which do not contain carbon

Isomer Material which contains the same elements and number of atoms as another (i.e. which has the same formula), but with a different configuration of the atoms, and therefore has different properties

Lachrymator Substance which causes tear production in the eyes

Miscible Capable of being mixed in all proportions

Molecule Group of atoms of one or different kinds as a stable entity

Odour threshold The exposure level at which most people can detect a chemical by smell

Organic Compound which contains carbon

Oxidation Adding of oxygen to a compound; removal of hydrogen from a compound (opposite to reduction)

Polymer Compound made up of long chains or strings of repeated molecule groups

Precipitate To cause (a solid substance) to be separated from a solution

Reduction The opposite of oxidation: removal of oxygen from a compound; addition of hydrogen to a compound

Solubility Ability to dissolve in a liquid

Suspension Mixture of undissolved particles within a liquid

Teratogen A substance which may cause abnormalities in the unborn child

Source: various occupational health encyclopaedias

A question of red or blue

The colours of your walls can have a big influence on your alertness, decision making, creativity and comfort.



Are you working alone in a control room, silently supervising work processes? Red is for you.

Are you working creatively in an open-landscape office? Blue is your colour.

Part of the science of environmental psychology is to find out how your working environment affects the way you work and how you think. One of the most interesting features of environmental factors is the influence colour has on the individual.

It may seem far-fetched, but environmental psychologists have found that colour affects the central nervous system. Warm colours, such as red, yellow and orange are stimulating to the brain, whereas cold colours in the blue and green spectrum have a calming and relaxing effect.

It is hard to give conclusive advice, since other factors also contribute to the way you feel, such as work routines, social climate and sheer personality. However, it seems that most people with creative tasks work better in cold colours, and people with monotonous jobs or those who work alone may perform and feel better in warm coloured surroundings.

Red for the girls, blue for the boys

The old adage holds true in the work place too. Red coloured light sources tend to make women work faster and more energetically, while blue light does the same for men. This is a finding of researcher Igor Knez of the Gavle

Technical High School in Sweden. He has found that the colour of the light affects the mood. Consequently, the correct colour promotes intellectual performance in humans.

Fritz Fuchs, a German colour specialist, proposes that conference rooms should be divided into two sections: the meeting should start under cool light and colours to create a calm atmosphere and to make people pay more attention to the ideas and opinions of others. When it is time for decision-making, the meeting should move to a room of warm, red colours and light, which, according to Fuchs, promote resoluteness and positive decision-making.

Mr Fuchs claims that colours have as much influence on people's well-being as ergonomically designed furniture and equipment. He would like to see less use of blank, white walls, and more use of subtle colour. Fuchs uses semi-transparent wall paints instead of opaque coverings, which may be too overpowering.

The painted warehouse

Warehouses are usually drab, uninspiring work places. In Sweden, painter Jan Linderoth has begun a new career: occupationally stimulating mural painting. He has decorated several warehouses, and the results have both surprised and delighted management and warehouse staff alike — so much so that he has received several commissions from various industries.

In one warehouse he painted white seagulls on huge sky-blue walls. In another store room the workers look at massive trees in autumn, summer, spring and winter hues. His latest work in another warehouse comprises 70 m² picturesque vistas of the town, instead of blank, grey walls.

The positive response from workers and visitors has meant that management is now considering painting each driver's truck with individual motifs in order to achieve a personal, positive attitude towards transportation work.



Yellow ambulances

What colour is an ambulance? White, of course, with large red crosses. This fixed idea is the source of a hotly debated matter in Sweden, where ambulance drivers have gathered forces to abandon the old white-and-red thinking and start painting emergency vehicles in bright yellow colours.

The drivers claim that they feel much safer in a yellow vehicle — especially when parked on the road side, at dawn and dusk, and on snow-covered roads in winter.

Several counties have already selected yellow ambulances in preference to white ones. Since no scientific data can prove that yellow is a better emergency colour, some municipalities are strongly against the move, claiming that white and red are so ingrained in the public eye that a yellow ambulance may not be recognised as an emergency vehicle. "Yellow is for road building and construction vehicles, white is for ambulances" is the motto. While the discussion continues, ambulance drivers with a yellow bent are trying to find conclusive proof that they're in the right.

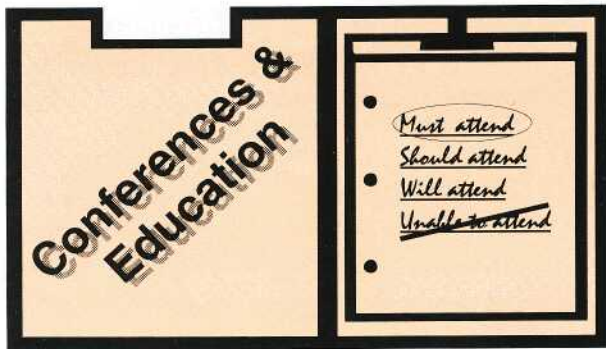
Source: *Cajsa Jondelius, Arbetsmi/fo 1995, No 3/95, p 18-20*

CHEMICAL FACTS

Vinyl chloride

Charac- teristics:	Colourless gas (could be compressed to colourless liquid)
Odour:	Sweet odour
Aust TWA:	5 ppm (10 mg/m ³)
Fire:	Very flammable. Can produce explosive mix with air even at room temperature. Use dry powder, foam or CO ₂ .
Health hazards:	Extremely toxic. Suspected carcinogen. May cause damage to skin and bones, liver, heart. Liquid splashes may cause severe permanent eye damage or blindness.
Inhalation:	Fresh air and rest. Artificial respiration may be required. Seek medical help immediately.
Skin contact:	Remove soiled clothing and shoes — DO NOT TOUCH! Rinse with large amounts of water. Seek medical assistance.
Eye splashes	Seek specialist medical help immediately.
Message to doctor:	Do not administer adrenalin, noradrenalin, ephedrin and similar — risk of heart arrhythmia.
Prevention:	Use closed systems. Mechanical ventilation or point exhaust may be appropriate. Gas gathers on floor and in low-lying areas. Keep containers tightly closed. Design all work routines and processes to avoid all contact with the substance. No smoking, open flame. No welding. Use non-spark tools. Electrical appliances should be insulated and explosion-proof.

Source: *Skyddsblad*



Fibreglass — Clayton's Carcinogen?

Fibreglass was listed as a suspected carcinogen in the United States in mid-1994. It has been mandatory since 1987 in the US to label all packets of glass fibre and other glass wool insulation with cancer warnings. Yet in Australia, no move has been made to link the material to lung cancer.

The American Journal of Industrial Medicine last year published a report which stated that glass fibres were "as potent or even more potent than asbestos". The data suggested that glass fibres may require even lower doses than asbestos to cause the same increased risk of lung cancer. One study found that glass wool caused 12 per cent rise in the risk of lung cancer, while the risk increased to 36 per cent in the case of exposure to mineral wool.

American researchers claim that the main risk group are professional tradespeople who work with fibreglass materials. The risk to home handypeople who insulate their own houses was negligible. Still, instructions should be followed in all cases.

Source: Larriera, A. 1995, Sydney Morning Herald, 09 January

What:

International Society for Respiratory Protection
Seventh Conference

Where:

Hyatt Regency, Vancouver, Canada

When:

17—22 September 1995

Topics:

All aspects of respiratory protection, including hazardous waste, training, fire, asbestos, ISO 9000, protection factors, new concepts, physiology, Government regulations

Details:

James S Johnson, L-379, Lawrence Livermore National Laboratory, ISRP Conference, PO Box 808, Livermore CA 94550, USA

What:

Broadening the Limits of Occupational Hygiene, 14th annual conference of the Australian Institute of Occupational Hygienists

Where:

Ramada Grand Hotel, Adelaide, South Australia

When:

9—13 December 1995

Topics:

2 days continuing education and 3-day conference, back-to-back with Ergonomics Society of Australia 31st Annual Conference. International and local speakers.

Details:

Dr D Pisaniello, AIOH-95 Secretary, Dept of Community Medicine, University of Adelaide SA 5005. Fax: 08-372 7244 e-mail: dpisanel @ ache.mad.adelaide.edu.au

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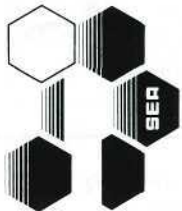
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