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IMPORTANT

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Spain's not so Olympic record

The latest available statistics show that Spain is the most hazardous country to work in Europe. On average, one worker dies every hour during a Spanish work day, and the figures are getting worse.

The International Work Organisation has released data which confirms that over 1 in every 7,000 Spanish workers die in occupational accidents every year. Compare this to Britain, where the figure is 1 in every 60,000 workers.

The Spanish trade unions claim that the already abysmal official number of reported cases is, in fact, much higher.

The most vulnerable profession is building and construction workers, comprising some 22 per cent of all fatal accidents. They are followed by miners and metal workers.

The region with the worst safety record is Catalonia, whose centre is Barcelona — a rather miserable record in the latest host to the Olympic games.

Up to 82 per cent of the accidents could be attributed to short-time employees, part-time workers who are hired for up to six months. Many of these workers are forced to perform dangerous jobs in order to renew their employment,

In addition, many Spanish employers are used to breaking the safety rules, knowing that any breaches only carry mild penalties.

Moves are underway toward much stricter legislation, a more active occupational health authority, and an opportunity for all employees to take advantage of legal assistance.

Source: Peter Lorin, Arbetsmiljö 8-9/92 p7

IN THIS ISSUE:

Glove at first site

Are *you wearing the right gloves? Are they resistant to the chemicals you handle? Are they suitable for your skin? Do you wear them correctly?*

Countless cases of occupational dermatitis are reported every year. Most of them are diagnosed as contact dermatitis. This type of eczema is mainly encountered in industries where workers come in contact with chemicals.

Gloves far down the list

There are some 2,800 allergenic substances in the world today.

The first thing that comes to mind when you think about substances that cause skin problems is gloves. However, there are many other factors that should be addressed long before donning your gloves:

Dangerous methods are a bigger problem than dangerous chemicals.

- **Identification of hazardous substances at the site**
- **Information and training for the people working with the substances**
- **Substitution of harmful substances**
- **Installation of technical means to minimise exposure**
- **Good hygiene standards (regular cleaning of the premises, tools and equipment)**
- **Good washing facilities**
- **Personal hygiene**
- **Personal protective devices (such as gloves)**
- **Prompt investigation and treatment of skin injuries**

There are numerous glove types in different materials. Gloves can be divided in four major groups:

- **Disposable gloves (thickness 0.07—0.25 mm)**
- **Household gloves (thickness 0.20—0.40 mm, sometimes velourised)**
- **Industrial gloves (thickness 0.36—0.85 mm, often with lining)**
- **Special gloves (cold, heat) with added lining or length**

Below is a summary of many of the various materials used to manufacture gloves:

- **Natural rubber**
  Natural rubber
- **Synthetic rubbers**
  Butyl

  Chloroprene (Neoprene®)

  Fluor (Viton®)

  Nitrile

  Styrene-butadiene
- **Plastic polymers**
  EMA

  EVOH (EVAL)

  Polyethylene

  Polyvinyl alcohol (PVA)

  Polyvinyl chloride (PVC)

  (some combinations are also available)

Glove problems

Skin problems can occur even if you're wearing gloves and, sometimes, *because* you're wearing gloves. These skin problems include itching, irritation, contact eczema, urticaria, and excessive perspiration, The most common reasons are:

- **Permeation of the chemicals through the glove**
- **Allergenic substances in the glove material or in the lining**
- **Irritation from glove powder used (such as corn starch)**
- **Irritation from the lining material**
- **The occlusive effect (due to tight fit)**
- **Inclination to develop eczema (susceptibility of the wearer)**

A glove for the job

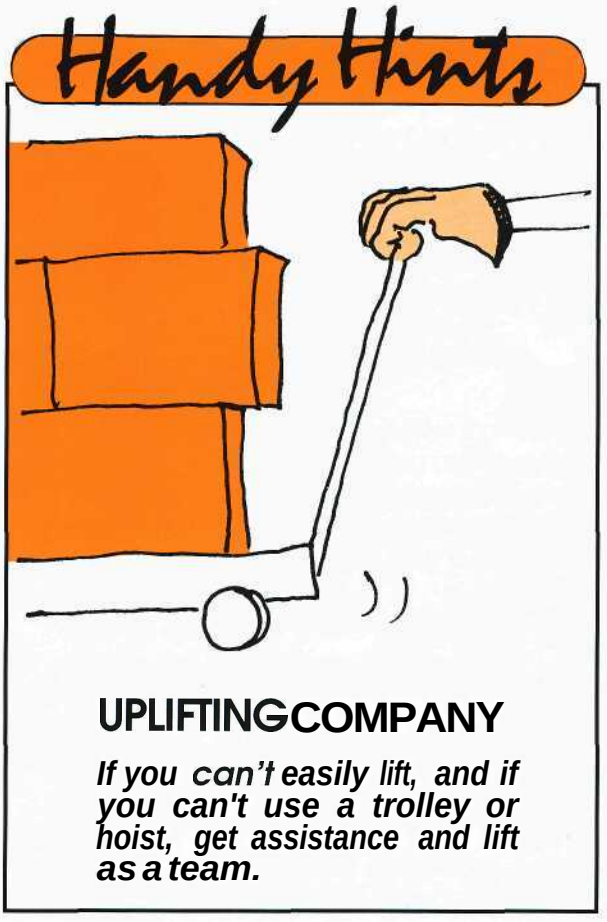
It is important to select the right glove for the right job. Some glove types provide very good protection against one chemical, but very poor for another. For instance, it has been shown that latex and plastic gloves, often used in health care, are quite susceptible to the most common disinfectants used in the field. Ethanol and isopropanol can permeate vinyl and latex gloves in less than ten minutes.

On the other hand, gloves that have greater resistance to these chemicals may have other problems associated with them. For example, polyethylene gloves have greater resistance against the disinfectants mentioned above, but have less ability to resist rips and tears, and are less flexible.

There are many lists available that show you the performance of various glove materials and brands in contact with a vast array of chemicals. It is important to wear the appropriate glove that gives you proper protection. Otherwise, the gloves can create a false sense of security.

Make sure the insides of your gloves are clean and dry before you put them on, and make sure your hands are clean and dry. Never put soiled hands into a pair of gloves. Consider using soft inner gloves. Certain pre-work skin creams are designed specifically for glove users.

Source: G. Mellstrom, Arbete & Hälsa 1991:10



A nose for wood

Aussie workers exposed

Australian wood workers are frequently exposed to wood dust in concentrations above the Australian standards.

Three researchers from the University of Adelaide and the Western Australian Department of Occupational Health have made some disturbing findings in a number of furniture factories.

The factories used both native woods and imported species. Common native types include:

- **Radiata pine**
- **Tasmanian oak**
- **Jarrah**
- **Blackwood**
- **Hoop pine**

Imported woods include:

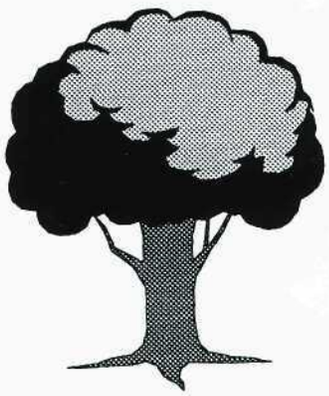
- **Teak**
- **American oak**
- **Cedar**
- **Mahogany**

Work with wood, for instance wood machining and assembly/cabinetmaking, is relatively dusty procedures. However, there may be a lack of appreciation for the health effects associated with wood, especially hardwoods.

Excessive exposure

The mean personal dust exposure to the wood workers was found to be 3.7 mg/m^3. This compares with the Australian exposure standard value of 1 mg/m^3 (for hardwoods) and 5 mg/m^3 (for softwoods).

It was found that 78% of work with hardwood exceeded the safe standard, whereas only 16% of work with softwood exceeded it.



Similarly, workers who worked with hardwoods had more health complaints than their counterparts working with softwoods.

Their complaints ranged from blocked and runny noses to frequent sneezing.

Eye and ear irritation also figured in the survey.

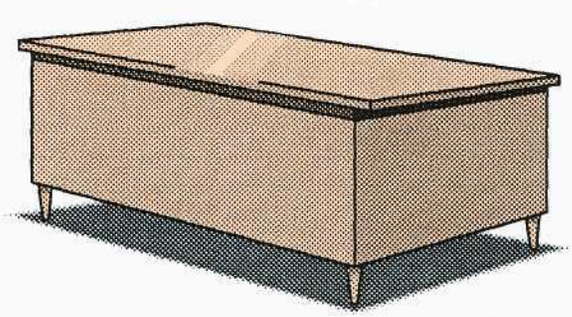
Dust reduction

Although local exhaust equipment was widely used in fixed machinery, it was generally lacking during work with hand tools.

Also, several poor work procedures were found, such as dry sweeping of the factory, and the use of compressed air for cleaning (both methods resulting in a lot of airborne dust).

Among the fifteen surveyed factories, no attempts had been done to separate particularly dusty processes from the general work environment.

Source: D. L. Pisaniello, K. E. Connell, L. Muriale, Wood Dust Exposure during Furniture Manufacture, American Industrial Hygiene Association Journal vol 52 No 11, Nov 1991



Bad news in wood industry

Wood workers are exposed to just as much formaldehyde and organic solvents now as they were in 1984, despite worker training, better formulations of surface coatings, and improved application methods.

A recent Scandinavian study (March 1992) shows that some wood workers are even worse off now than they used to be, and are exposed to more solvents than in 1984.

A number of companies were surveyed in the study. Areas of interest concerned surface treatment, such as spray painting, coating, varnishing and so on. The emphasis of the study was exposure to organic solvents and formaldehyde.

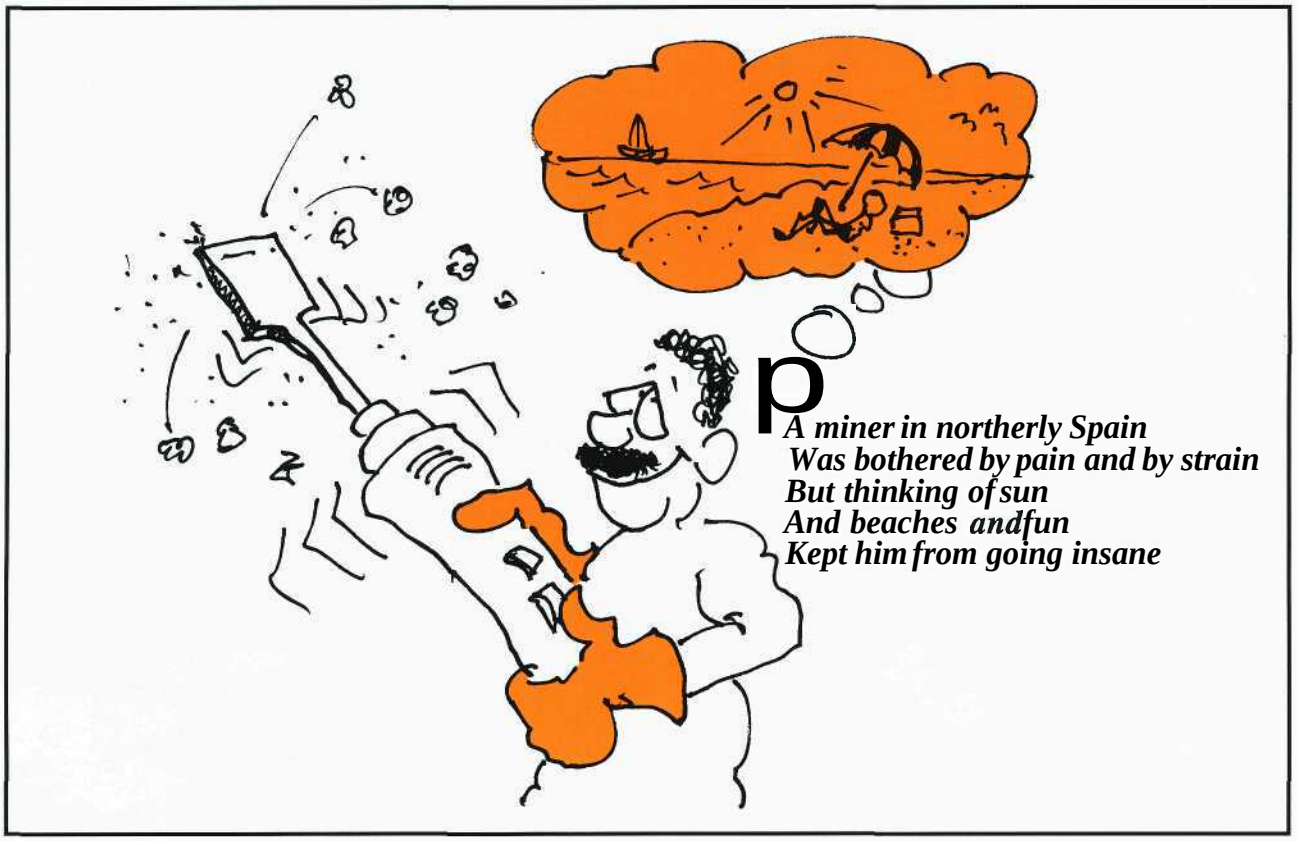
The researchers express their surprise over the results: overall, exposure to the chemicals has not diminished, despite great attempts from paint manufacturers to make their products safer.

However, the new products, which are labelled "environment friendly", have displayed better characteristics in the laboratory than in the field.

The wood working industries have also been slow to substitute new products for old ones. Whether correct or not, it is often felt that conventional products produce better results than their newly developed counterparts.

Yet another, perhaps more disturbing, reason could be lacking information from paint and varnish manufacturers: if the user believes that the product really is safer than it used to be, it is easy to think that the exposure problem can be solved simply by using the new product, and forget about other protection measures.

Source: M Hultengren, I Axelsson, S Johnsson, G Rosen, Arbete & Hälsa 1992:23



SKINNY MATTERS

Here are a fewkey questions that might be useful if you think you might have a dermatitis problem in your work place, or if you want to nip the problem in the bud:

- **Have ventilation systems been checked for efficient performance?**
- **Have any new chemical or materials been introduced to the work place?**
- **Have any new work procedures been introduced in the work place?**
- **Is it well-known that solvents should never be used to clean skin?**
- **Do employees know that machine parts and tools are never to be cleaned in solvents with bare hands?**
- **Do employees always wash skin immediately after being in contact with a dermatitis-causing agent?**
- **Is personal protective equipment (gloves, aprons, hoods) available and individually fitted to employees?**
- **Is personal protective equipment readily available to all**

- Are skin protection creams available before beginning work?
- Are industrial skin cleaning creams and wash-up facilities available after work?
- Are those employees who work with chemicals provided with a second change of clothing, or required to change work clothes daily?
- Are new employees screened for pre-existing skin disorders, and assigned work that does not aggravate the condition?
- Do employees go through training programs designed to minimise dermatitis and prevent skin problems?
- Are solvent-soaked rags kept in separate containers for special removal?
- Are supervisors aware of the prevention, causes and treatments of skin problems?
- Are employees aware of off-the-job activities that may cause dermatitis?
- Are alternative duties available for workers who might suffer from skin conditions?

Source: Neville C Tompkins, Occupational Hazards magazine, Cleveland, Ohio, June 1991

EYE INJURIES ARE BORING

- except for the victim

Professor Paul Vinger at Harvard Medical School thinks that occupational eye injuries are not only boring, but 'repetitive, reproducible, predictable, and totally preventable'.

Professor Vinger believes that occupational eye injuries are 100 per cent avoidable.

The great majority of eye damage occurs in smaller industries, such as logging, carpentry, automotive repair, and plumbing, Traditionally, workers in these industries tend not to wear eye protection, leaving them very vulnerable to flying debris and other eye hazards.

Automotive most common

The highest injury rate is among auto repair people, according to Professor Vinger. Car mechanics are routinely banging metal against metal, resulting in flying metal chips.

Smash repair shops and other small businesses have low budgets for personal protection and — indeed — safety education. There is also a resistance among workers to wear eye protection, especially if the spectacles don't fit properly, if they are obstructive, or unattractive.

Even if an operation has assigned safety personnel, eye protection is often low on the priority list, nonetheless because it is a protection device that requires one-to-one fitting and education.

Unlike shoes and hard hats, safety glasses are experienced as an intrusion. The restricted field of vision, the constant load on your nose and ears, and the possible visual aberrations can become very uncomfortable. The result is refusal to wear the equipment, or wearing it only when the safety supervisor is around.

Put'em on!

Eye protection isn't something that can be achieved just by saying "Wear safety glasses!". An ideal eye safety program takes in a number of factors, almost all being addressed in a one-to-one situation:

- **Regular eye screenings**
- **Correction lenses for people who normally wear optical glasses**
- **Correct choice of protection (glasses, side shields, face shields, visors, gas goggles, welding goggles, yellow tinted lenses for low-light use, smoke tinted lenses for bright-light conditions etc.)**
- **Inspection and repair of glasses**

9:1 failure to wear

American research reports that nine out of ten eye injuries could have been avoided if proper eye protection had been worn. A third of all people suffering eye damage claimed that no eye protection was available at the work place. Two thirds of severe eye injury victims said the same thing: safety glasses were simply not available.

Crucial factors

The first consideration is that the worker should have good vision from the very start. Between 20 and 50 per cent of workers probably have poor vision or the wrong prescription glasses in the first place, and need to either start wearing glasses or upgrade their existing ones.

Besides, poor vision can lead to a number of accidents due to slips and falls and failure to be aware of moving objects.

Safety protection should be selected to suit the particular job. For example, workers who perform work that produces flakes, chips, dust or other flying materials should wear

glasses with side shields, or even enclosed goggles.

Whether the worker needs optical correction or not, an optometrist can be consulted to ensure correct fit. This is determined by the distance between the eyes, the height of the nose bridge and so on. If the glasses are not fitted correctly, they will not provide optimal vision, and won't be worn.

Everyone should wear

An important part of an eye safety program is a strict policy of wearing the equipment. Everyone from top management down should wear eye protection in all areas where workers are required to use it. This is important for morale, goodwill and incentive. No-one is immune, and that includes the managing director.

The compliance should not only be requested of the person who performs a hazardous job, such as chipping metal. Everyone around should wear protection — many eyes have been lost by sharp metal chips flying several metres through the air.

Excuses, excuses...

Even if the company provides eye protection, emergency personnel are used to a wide range of excuses why the accident happened.

'I only took them off for a second' is by far the most common excuse. 'I have done this job without glasses for years' is another,

Others might simply forget to wear glasses, particularly workers who work sometimes in the office, sometimes in the factory. Signage, wall charts and posters may serve the purpose of jogging the mind.

It only takes one small sliver to blind an eye in an instant. If Professor Vinger is right in saying that 100 per cent of all injuries are preventable, then it makes sense to wear safety glasses both on and off the job, and for every worker to understand why he or she should wear them.

Source: S. L. Smith, Occupational Hazards magazine, Cleveland, Ohio, June 1991 pp 27-29.

CHEMICAL FACTS

Phenol

Other names:	Hydroxybenzene, Monohydroxybenzene, Carbolic acid
Characteristics:	Colourless to pink crystals or thick liquid
Odour:	Sweet, tarry smell
Smell level:	0.3 ppm approx.
Aust. TWA:	5 ppm — 9 mg/m^3
Solubility:	8% in water
Fire:	Releases combustible vapours when heated. May form explosive mix with air, Keep away from fire, sparks, welding,
Inhalation:	Sore nose and throat, headache, dizziness, nausea. High concentrations may cause lung oedema, loss of consciousness.
Skin contact:	Severe damage with wounds that are hard to heal. Initial pain followed by whitening of the skin and loss of sense of touch. May be absorbed through the skin, causing shock, cramps, impaired breathing, liver and kidney damage, and loss of consciousness.
Eye splashes:	Severe pain, swollen eye lids. Serious corrosive damage and possibility of permanent eye damage. Vapours cause eye irritation.
Ingestion:	Severe corrosive damage. Burning in mouth and throat. Stomach pain, vomiting, shock, lung paralysis and loss of consciousness.
Prevention:	Enclosed systems are preferable. Mechanical ventilation and local exhust required. Keep containers closed. Work place and work procedures should be designed to avoid contact with phenol. Emergency shower and eye wash stations should be available. Keep supply of 30% polyethylene glycol 400 for eye rinse. Respiratory protection, chemical gloves and protective clothing must be used.

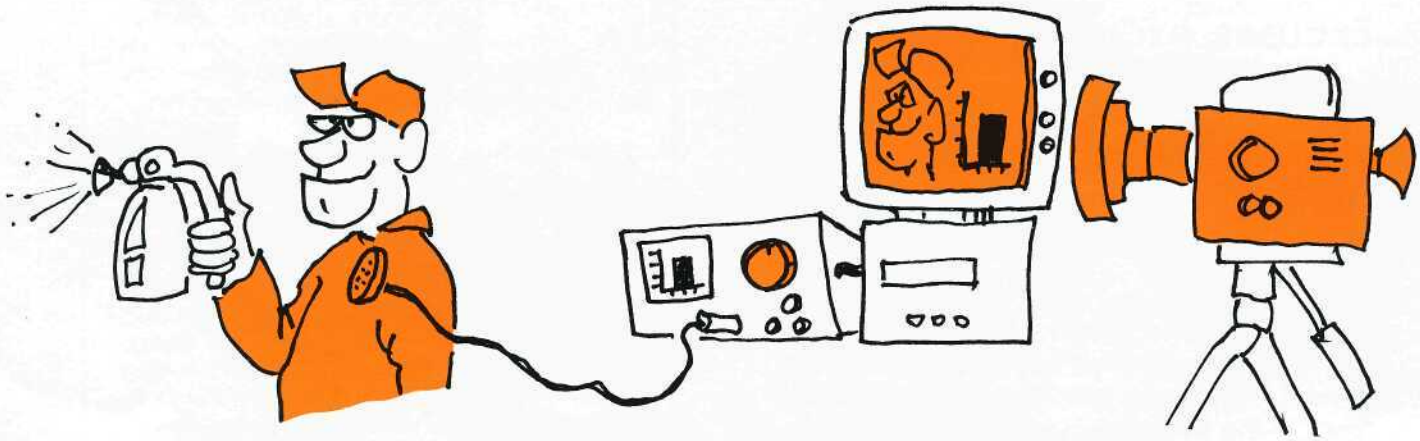
Sources: Skyddsblad #38; NIOSH guide to chemical hazards

SMILE, YOU'RE ON CANDID...

PIMEX?

The PIMEX method of monitoring workers' exposure to various hazards is making great advances around the world. But still, any occupational health experts raise their eyebrows when they hear the word. What is PIMEX?

The acronym for the method stands for a rather mystifying Picture, Mix, Exposure. It is a mixture of exposure measurement and video recording, combined to form a real-time result which can be used to monitor the actual exposure at every moment.



A typical PIMEX setup comprises the following parts:

- **A measuring tool, such as a dust sampler, a noise meter, or other measuring device, fastened to the worker's body or clothing.**
- **A computer or other device that interprets the input from the measuring tool**
- **A video camera that continuously records the worker's every movement**
- **A video mixer which combines the picture from the video camera with the signal from the measuring instrument, and displays the video with a dynamic, constantly changing bar chart, much like the volume display on a modern stereo unit**
- **A TV screen**
- **A video recorder to tape the footage for future analysis**

Of course, the measuring device can be just about any tool that can provide real- time monitoring. For instance, a dust or chemical sampler, a noise meter, a thermometer, a vibration meter, a muscle tension meter, a pulse/blood pressure reader, and so on.

The most important requirement is that the measuring instrument must not create a delay in its response: if there are several seconds' delay, you will not be able to tie any exposure peaks to actual work movements.

The PIMEX method has proved to be extremely useful in a wide variety of applications, such as health, instruction, and research.

For instance, the method was used to give welders a very visual demonstration of the correct way of using local point exhaust fans in their work, The welders could immediately watch how placement of the exhaust and variation in work practices affected the exposure to fumes.

Whether used for education, research or hazard control, the PIMEX method is becoming an important tool in industrial safety. Who knows, next time you find yourself on the small screen, it may well be for the sake of your own health and well-being. Smile — you're on candid PIMEX!

Source: G Rosen, I-MAndersson, L Juringe, L Rask: Arbete & Hälsa 1992:25

Xmas competition

Welcome to another Christmas Competition! Last year's Find-The-Faults competition created a great response among our readers. This year we can offer you some FABULOUS PRIZES, including:

- **Peltor ear muffs with FM radio (worth over $250.00)**
- **Sundstrom SR 90 half mask kit with filters and storage box (worth over $ 100.00)**
- **Set of safety posters from Smartworx Studios**

Simply fill in the blanks in our Christmas story, complete your name and address details, and send your entry (or a photocopy) to:

PPM Magazine

Private Bag 1001

Mona Vale NSW 2103

Please note: If you want to be a smart-alec, go ahead! Prizes will be awarded not only to the most correct entries, but also to the most amusing ones!

Name: . . . . . .

Position: . . . . . .

Company: . . . . . .

Street: . . . . . .

. . . . . .

City: . . . . . .

Postcode: . . . . . .

Telephone: . . . . . .

That morning, the 25th of December, he knew it was going to be a long day. He stopped at the bundy-clock and inserted his card, marked "Claus, S.".

Inside the factory, he got into his _____ clothing, in the familiar red [redacted]mpany colours. His first task for the day would be to glue some rocking horses together, so he put on his half____, after fitting it with a_____filter for the solvent vapour. (He had already checked with the Materials Safety_____Sheet to make sure he had the correct gas_____.)

But then he had second thoughts. His beard! Bearded users don't get proper protection from_____that require proper face seal. Then he remembered his beard was a false one, and took it off.

Of course, before starting work, he made sure his hands were_____and _____, and put on his chemical_____.

He then had to polish the horses, a very dusty procedure with a lot of splinters flying around, so he put on a _____mask and a pair of safety_____to protect his eyes.

Then S. Claus proceeded to test the bon-bons. This was a very noisy procedure, measuring over 100_____, so he knew he needed either_____ or_____to protect his hearing.

Now all that remained was to do some painting. Last year, the company had replaced all its_____-based paint with a_____-based type, which was much less hazardous. Still, it was important to have the factory well _____, so he opened all the windows.

When loading all the toys on his sled, he made sure he used the correct _____method to avoid damage to his poor back.

Now all that remained was to make sure that everyone had a really M_____C_____!

To all our readers:

Have a Safe, Happy and Very Merry Christmas!

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