



Dealing with dichloromethane before the damage is done

Dichloromethane is a carcinogenic, toxic chemical, which can still be found in many industrial products. Graham Stevens, of Stevens Industrial Services, supplier of dichloromethane free weld spatter control products, looks at the problems surrounding the use of this chemical and explains what can be done about this.

Many people in industry still unknowingly work with products that can potentially damage their health. Very often this is simply due to the ignorance of employers and consequently their failure to look for safer alternatives.

Regulations have been put into place to ensure that employers take appropriate action over the exposure of hazardous chemicals. For example, the Control of Substances Hazardous to Health Regulations 2002 (COSHH) identifies a series of steps to implement control. These steps outline procedures and precautions, which help safeguard the employee's health and safety. However, despite COSHH being an excellent management tool, it does not account for the fact that many companies are still unnecessarily using dangerous chemicals. Step three of the COSHH requirements states that 'you must prevent employees being exposed to hazardous substances', in cases that are reasonably practical. In the case of dichloromethane, this is not happening.

Dichloromethane or methylene chloride is a particularly dangerous solvent. Apart from being proven to cause damage to the blood, the nervous system, the liver, the eyes and the skin, if used long-term, dichloromethane can cause cancer.

In 2003, the Chemical Hazard Information and Packaging (CHIP) regulations, named dichloromethane a category three carcinogen risk phase 40. Under CHIP, any products containing dichloromethane must be labelled with the warning 'limited evidence of carcinogenic effect'. The labeling must also state that this is harmful by inhalation, swallowing and contact with the skin. But, despite the COSHH and CHIP regulations, usage of products containing dichloromethane continues.

In 2002, a 34-year-old man died through dichloromethane inhalation and several others had to be treated in hospital. This is no doubt a deadly chemical, which is most effective in its use as a paint stripper.

Other uses of this colorless organic solvent, which has a sweet, chloroform-like odor, include its contribution to cleaning agents in a variety of industries, a fumigant for strawberries and grains, extracting substances from foodstuffs and in weld spatter control products.

In the case of welding, anti-spatter sprays containing dichloromethane have been a popular choice because they are cheap and effective. However, in welding applications, the risks of this chemical are further increased. As a chlorinated solvent, dichloromethane treatments, if still wet at the time of the weld, thermally decompose to give off phosgene (mustard gas) and hydrogen chloride (which burns). A measure of the hazard imposed here is that the HSE gives a short term exposure limit (STEL) of 15 minutes in the presence of just 0.06 parts per million (that is 0.000006%) of phosgene and 5ppm (0.0005%) of hydrogen chloride. Yet dichloromethane based anti-spatter treatments were once commonly used when welding inside pressure vessels. Up until recently non-dichloromethane based products did not work as effectively, hence the dangerous anti-spatter treatments are still being used.

Fortunately, the market now offers effective, dichloromethane free spatter control products. Pre-Weld, the flagship product of The Works range of specialist spatter control products that have proven to be highly effective and safe to use, is now the market leading anti-spatter treatment. Pre-Weld is made from a blend of highly refined vegetable oils and most of the major car manufacturing plants and fabrication companies in the UK are now using this product.

However, recent findings from a survey carried out on behalf of Stevens Industrial Services, show that many end users remain uninformed about dichloromethane. The survey revealed that 35% of welders who use anti-spatter sprays are unaware of the fact that dichloromethane damages health. This is partly due to the supply of the products. If suppliers fail to inform distributors of the harmful side effects of these products, they, in turn will fail to inform the end users. It is these end users who, without realising, put their own health at risk.

Of the 65% of welders who do realise the health and safety implications of dichloromethane, 50% have subsequently stopped using products containing this. Perhaps most shocking, though, is that 32.5% of welders, who use anti-spatter treatments, are aware of its health and safety implications but continue to use it. This suggests that these welders do not realise that effective, safer alternatives are available.

If dichloromethane's use cannot be completely prevented, then employers must ensure staff are kitted out with protective clothing and eye protection because, as a defatting agent, its exposure causes irritation to the skin and eyes. Ventilation must be adequate and levels of dichloromethane in the air controlled to below the maximum exposure limit of 100 parts per million. Employees must also receive appropriate information, training and instructions about the hazards and necessary precautions of this chemical.

The best option employers have is to eliminate the use of dichloromethane altogether. Taking appropriate action is vital, if only for employers to safeguard themselves. Digby

Jones, director general of the CBI recently stated that, "People are more aware of their rights and more willing to take legal action." Compensation is already crippling companies in the US and Britain is following in its footsteps. Each year, the UK pays out more in compensation than any other European country. In 2002, Britain's compensation pay out bill was £10bn.

The potential for claims against employers that allow their employees to use products containing dichloromethane and similarly dangerous chemicals such as acrylonitrile and carbon disulphide is going to be huge. There is no known insurance company that will provide liability insurance against the use or sale of any product that has 'dichloromethane' or 'carcinogenic' on the label.

Conscientious employers should not need to worry about the threat of litigation. As long as they take necessary precautions or eliminate the use of dichloromethane, they will achieve a healthier and more productive workforce.

Ends — 985 words (including intro)

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