EDITORIAL

The problem with material safety data sheets

At the time I was appointed to be the Honorary Editor of *Occupational Medicine*, one of the anticipated pleasures was the opportunity to express my own views, albeit they might not always be on the most topical issues of the day. It is in this spirit that I recall the frustration some recent experiences caused and mount my symbolic 'soap box'.

A few months ago, in a Friday afternoon clinic, a patient came to see me complaining of wheeze and breathlessness. This was often at its worst during the evening rather than during the small hours of the night. He was better when away from work—both markers of possible work relatedness. My ears pricked. He had no previous history of asthma or other respiratory problems. His job was spraying furniture with a stainproofing material. During a typical working day, he would spend 4–6 h spraying fabric with a pre-prepared spray in a small industrial unit without a great deal of ventilation other than an open door during good weather. He had been doing this job for only a few months. I arranged to collect some serial peak flow readings and, with his permission, contacted his employer. Although he worked for only a small company, they seemed quite open and helpful. They quickly moved him to alternative work, where he has been much improved. In addition, they were happy to give me details of the stainproofing spray used and the supplier. I contacted the supplier and asked for details, including the material safety data sheets (MSDSs) of the spray. They too appeared to be a small company and were also helpful. A consultant provided their health and safety advice, and I promptly received a list of the ingredients of the stainproofing spray along with Chemical Abstract Service (CAS) numbers. The spray included an organic carrier, a biocide and a resin substance. Unfortunately, no MSDS had been included. When I then tried to find further information about these chemicals, I ran into further problems. One of the CAS numbers I had been given did not exist. One, for the biocide, identified a substance with a different name to that which I had been given. The number given for the organic carrier identified a broad group of alkanes with a range of chain lengths. I wrote back to the supplier and requested further information. This helped clarify things, but still did not completely answer my questions. The biocide was sold under two proprietary names and was a quaternary ammonium compound, but I have not been able to ascertain its precise chemical formulation. I have still not identified any more precisely the organic carrier, it appears that the resin material does not have a CAS number and the suppliers are unable to tell me more on the basis of the commercial confidentiality of their own supplier. I am told that it is non-hazardous and that it comprises only a small proportion of the product as sold, and so does not need to be mentioned on the MSDS. After several hours’ work for myself, my Specialist Registrar, and the health and safety consultant of the supplier, we are still unable to categorically state the precise contents of this spray.

My second experience also relates to identifying and quantifying chemical hazards. I currently work for a National Health Service Trust that has continued to use glutaraldehyde for cold sterilization in the belief that it is at least a known and reasonably understood hazard. There is, however, increasing pressure to change to an alternative cold sterilization method. I recently met with a representative of a company marketing such a system. I was reassured that the system was ‘safe’, as no active biocidal agent was produced until the system was activated, and that even then there should be no potential for significant exposure of staff. I asked about additional ingredients and an MSDS. The MSDS was available on the company’s website, and although I received a reply to my query confirming that there were other ingredients, such as corrosion inhibitors, the reply stated that these were present only in tiny amounts and were not considered to present any hazard. The manufacturer could not, or would not, disclose these ingredients to me.

The requirement of suppliers to provide an MSDS is set out in the Chemical (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2) [1]. The Approved Code of Practice giving guidance on regulation 6 of CHIP 2, which specifies requirements for MSDSs [2], states:

> For preparations it is not necessary to give the full composition, nature of the ingredients and their concentrations. Indicate, however, the following substances, together with their concentration or concentration range, if they are present in concentrations greater than or equal to those in paragraph 18 in Part 1 of Schedule 3 of CHIP 2 (unless a lower limit is considered more appropriate):
> a) Substances classified as dangerous on the basis of health effects under CHIP 2; and
> b) Other substances not so classified but subject to recognised exposure limits.

It goes on:

> Where, exceptionally, the full identity of certain substances in a preparation has been kept confidential . . .

Sadly, I have yet to read an MSDS that contains infor-
information on all constituents of a mixture or preparation, although admittedly this represents a non-random sample. I believe that despite the requirement for an MSDS to ‘Give sufficient information to enable the recipient to identify readily the risks associated with the substance or preparation’, constituents that are in low concentrations are often omitted from the list of ingredients on the MSDS for a mixture or preparation. For some ingredients where there is a reasonably predictable dose–response relationship this may be a low-risk approach, but this is not so for components for which there are wide variations in inter-individual susceptibility, such as sensitizers. In addition, the requirements for including an ingredient are complex. Different suppliers may apparently supply the same chemical with different risk phrases attached. Inevitably, this compromises the ability of the user to carry out a proper risk assessment. They must rely partly on their supplier to do this for them through their inclusion or not of ingredients on the MSDS, although the supplier may have little idea of the details of the process for which their product may be used.

An example of the difficulty this may cause comes from my previous work. A site manufacturing automotive components had two cases of occupational asthma in a short period of time, both due to rosin exposure. Both affected individuals were temporarily relocated while the problem was addressed. As part of its response to this problem, the site looked to change to a rosin-free solder flux. A suitable flux that could be used for hand soldering was identified with a reassurance from the supplier that it was non-hazardous. The MSDS too appeared to show no hazardous ingredients, and specifically no sensitizers. However, further investigation identified that the new flux contained glutaraldehyde at a low concentration as a biocide, leaving the site with the difficult choice about substituting one sensitizer for another. While the supplier’s MSDS for the flux may have been technically correct, I believe, rather, that there was simply insufficient information, and the omission of this ingredient from the MSDS precluded the site from carrying out its own valid risk assessment.

All these experiences point in one direction. If the purpose of an MSDS is to provide information ‘to enable the recipient to identify readily the risks’ associated with a substance or preparation, the requirements for which ingredients should be included on an MSDS should be simplified. The best solution, at least for me as an occupational health practitioner, is that the MSDS should list all ingredients of any mixture or preparation, regardless of their concentration in the product or whether they are considered hazardous or not. This is simple, but will inevitably raise concerns about commercial confidentiality. Which of these two competing interests, ‘health and safety’ or ‘commercial confidentiality’, is the more important is a question for society as a whole and its political representatives. I have to declare an interest.

Jerry Beach
Honorary Editor

References