

Letters

Banned Solvents

My attention was caught by a detail of some significance in a recent article in this *Journal* (1), and I would like to bring it to the attention of the readers. Alluding to the principles of green chemistry, the authors note that they have replaced the traditional solvent for the iodination reaction—carbon tetrachloride—with light petroleum, justified by the carcinogenicity of carbon tetrachloride.

There is another reason for the removal of carbon tetrachloride from laboratory use: it is a controlled substance under the Montreal Protocol—in the same way that chlorofluorocarbons and some other substances are banned—because their release into the atmosphere leads to depletion of the stratospheric ozone layer. It is true that there is a general exemption for the use of carbon tetrachloride in laboratories, but this is very limited and the solvent has largely been eliminated from such uses in developed countries.

Most academic chemists are unaware of the restrictions on the use of carbon tetrachloride (which also apply to methyl bromide and to 1,1,1-trichloroethane). I believe it is important that the restrictions be brought to their attention and that academic chemists impart this knowledge to students working in their laboratories. It is a “green message” that takes into account inter-governmental conventions such as the Montreal Protocol (over 190 signatory countries) as well as important local and personal considerations such as health and safety.

Details of the Montreal Protocol controls on chemical use may be found on the Web (2).

Literature Cited

1. Amiet, R. G.; Urban, S. *J. Chem. Educ.* **2008**, *85*, 962–964.
2. United Nations Environment Program: Ozone Secretariate <http://ozone.unep.org> (accessed Mar 2009).

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Response to Banned Solvents

We are pleased to have the letter by Ian Rae published. We are proud that we were able to eliminate the use of the traditional carcinogenic solvent carbon tetrachloride by replacing it with the use of petroleum spirits. This “green chemistry” approach is an important example of what can be achieved. As Rae points out in his letter, it is important to emphasize to the academic community that the restricted use of carbon tetrachloride due to its depleting effects to the stratospheric ozone layer warrants the effort to find substitutes.

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