Correspondence

Correspondence is accepted on all matters of interest to analytical chemists. Letters should be addressed to the Editor, *Proceedings of the Analytical Division,* The Chemical Society. Burlington House, London, W1V OBN.

Which Techniques are Insufficiently Taught?

Sir,

At a joint meeting of the Education and Training and Specialised Techniques Groups, held on 8 November 1978, one of the papers, entitled "Analytical Techniques Currently Used in Industry—Which Techniques are Insufficiently Taught?", was presented by G. A. Newman. A summary of this paper was recently published (*Proc. Analyt. Div. Chem. Soc.*, 1979, **16**, 228) and whilst I agree with the majority of Dr. Newman's comments, I must take issue on one point, namely his statement that "thermal methods of analysis have never been appreciated by academics."

Historically, the first publication by British workers on thermogravimetry came from the Washington Singer Laboratories, University College of the South West (now Exeter University).[1] The authors constructed a thermobalance and demonstrated its usefulness in igniting or drying analytical precipitates to constant mass. These simple experiments were incorporated into the undergraduates' curriculum. Subsequently, many schools of thermal analysis were established, in both universities and polytechnics, *e.g.*, Salford University (Dr. D. Dollimore), UMIST (Dr. R. H. Still), Huddersfield Polytechnic (Dr. G. M. Clark), Portsmouth Polytechnic (Dr. M. I. Pope) and Hatfield Polytechnic (Dr. D. V. Nowell), to mention but a few.

I hope, therefore, that Dr. Newman will agree that thermal methods are appreciated by academics, although there is clearly scope for even more widespread use of these techniques in Akademia.

Reference

1. Gregg, S. J., and Winsor, G. W., *Analyst*, 1945, **70**, 336.

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Hazards of High-pressure Jets of Solvents

Sir,

Modern techniques of high-performance liquid chromatography may prove hazardous unless due care is given to the proper handling of solvents. Some of the hazards involved are less obvious than those such as possible toxicity. When handling pressurised liquids and sources of liquid under pressure one should be especially cautious. We tend to think that liquids are soft and ignore the strength of a liquid jet. The following accident illustrates that kind of hazard.

Recently one of my colleagues was trying to unpack a silica column. After taking off the metal frit that closed the column, he connected the pump, started pumping isooctane at a high flow-rate and waited. Nothing happened, the solvent percolating gently through the column. In trying to scratch some silica out with a small wire, the chemist triggered off the rapid expulsion of all of the silica and received a powerful jet of silica and solvent on the thumb and the side of the hand. It was a slightly painful slap, but he just washed his hand and nobody else in the laboratory noticed anything.

In the evening the hand was painful and the chemist could not sleep. In the morning his thumb and hand were swollen, so he went to hospital where he was given a pain killer and an appointment with a specialist for the following day. By now the hand was very painful, very swollen and discoloured. Surgery was decided on, firstly to cut off the necrosed tissues, and then to graft skin over the wound. After two weeks of care in the hospital my colleague is back in his laboratory, healthy but more cautious.

It seems that the penetration of a significant amount of isooctane, a non-toxic solvent, under the effect of the shock and not the shock itself, is responsible for the necrosis of skin tissues. Consider what could happen with a toxic solvent such as chloroform, acetonitrile or methanol or with the benzene - carbon tetrachloride mixtures used for column packing! To the local troubles of skin necrosis could be added general poisoning.

Chromatographers should be concerned about possible jets of solvents under high pressure.

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