Letter to the Editors

Dear Sir,

Modern techniques of high pressure liquid chromatography may prove hazardous unless due care is given to proper handling of solvents. Some of the hazards involved are less obvious than others like their possible toxicity. The handling of pressurized liquids and sources of liquid under pressure must be carried out with especial caution. We tend to think that liquids are soft and ignore the force of a liquid jet. The following accident illustrates that kind of hazard.

Recently one of my friends was trying to unpack a silica column. After taking off the metal frit which closed it, he connected the pump and started pumping isooctane at high flow rate and waited. Nothing happened, the solvent was percolating gently through the column. Trying to scratch some silica out with a small wire, the chemist triggered the fast expulsion of all silica and received a harsh shower or a jet of silica and solvent on the thumb and the side of the hand. It was a slightly painful slap he said, but he just washed his hand and nobody else in the lab 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 walked to the hospital where he was given a pain killer and a date with the hand specialist for the following day. Then the hand was very painful, very swollen and dark. Surgery was decided upon, first to cut off the necrosed tissues, then to graft skin over the wound. After two weeks of care in the hospital my friend is back in his laboratory, happy and healthy and more cautious.

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

Chromatographers should worry about possible jets of solvents under high pressure.

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