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### Safety Hazard

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SAFETY HAZARD

The following note was received from Professor G. Guiochon (Ecole Polytechnique, Palaiseau, France):

Sir:

Modern techniques of high pressure liquid chromatography may prove hazardous unless proper care is given to handling of solvents. Although we are often aware of toxic properties of the solvents used in LC, there are sometimes less obvious hazards involved in their use. We must be especially cautious when handling pressurized liquids. Often, we tend to think that liquids are "soft" and ignore the strength of a liquid jet. The following accident illustrates this kind of hazard.

Recently, one of my friends was trying to remove the packing from a silica column. After removing the metal frit, he started pumping iso-octane at a high flow rate and waited. Nothing unusual happened; the solvent was percolating gently through the column. Trying to scratch some of the silica out with a small wire, the chemist triggered the rapid expulsion of all of the silica and received a powerful shower or jet of silica and solvent on his thumb and the side of his hand. It was somewhat painful, but he simply washed his hand and no one 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 an appointment with a specialist for the following day. The hand was very painful, very swollen and darkened. Surgery was performed to remove the necrosed tissues, and to graft skin over the wound. After two

weeks in the hospital, he is back in his laboratory, happy, and healthy, and more cautious.

It seems that penetration of a significant amount of iso-octane, a relatively low toxicity solvent, under the effect of the shock, and not the shock itself, was responsible for the necrosis of the skin tissues. Think what could happen with highly toxic LC solvents such as chloroform, acetonitrile, methanol, or with the benzene/carbon tetrachloride mixtures often used for packing columns. To the problem of localized skin necrosis, we would add the prospect of general poisoning.

Chromatographers should concern themselves with the hazards of dealing with possible jets of solvents under high pressure.

Sincerely,

G. Guiochon