

of compounds prepared by synthesis but which, prior to NMR analysis, have a presumed and not proven structure.

NMR is one of the two instrumental techniques (the other being mass spectrometry) now universally used for the elucidation of the structures of unknown compounds. Indeed, along with mass spectrometry, it ranks well ahead of any other techniques such as IR for this application.

Although NMR can be used, as can IR, for quantitative analysis its relative lack of sensitivity compared with mass spectrometry or gas chromatography for example, limits its applications in this role and it is not a preferred general method of quantitative analysis except in special circumstances.

#### Super Critical Fluid Chromatography (SCFC)

This is a chromatographic separation technique, in many respects resembling both GC and HPLC. It is described as the last item in this Annex because, although it is a rapidly evolving technique, unlike GC and HPLC it is not yet a mature instrumental method. The working fluid is a gas which is used under a pressure sufficiently high to take it past its critical point at the working temperature. As with HPLC the technique has a high resolving power and will readily separate complex mixtures into their individual components; in some respects it is superior to HPLC for separation of some mixtures. However, as with GC, a relatively wide range of detectors can be used with SCFC, thus overcoming one of the disadvantages associated with HPLC. The technique has been integrated into a single system with mass spectrometry, and also with FTIR.

The mature technique will be capable of an identification role when used under a variety of experimental chromatographic conditions with authentic reference samples with the compounds of interest; it will also be capable of quantitative analysis with high levels of sensitivity being achievable. In fact, the mature technique will have many of the characteristics of GC and HPLC, with some specific advantages, and is likely to take its place alongside GC and HPLC as a standard instrumental technique of considerable versatility and utility.