

CONCLUSIONS

21. The combined use of X-ray or gamma-ray spectrography, ultra-sonic techniques and neutron activation analysis will enable some chemically relevant information to be obtained on the contents of containers without the need to physically remove a sample of the contents for full and unambiguous analysis. The required instruments will be transportable; depending on the detailed requirements the instruments may in some cases even be portable.
22. In total, information will be obtained on the internal structure of the containers, the physical state of the contents (solid, powder or liquid), possibly on the particle size of powders and on the viscosity and density of liquids, on the identity of the atomic nuclei present and possibly on the relative proportions of those nuclei. Such information will be of value to inspection teams carrying out on-site inspections (routine and challenge) under the provisions of the CWC.
23. Non-intrusive analytical techniques cannot give unambiguous information on the detailed chemical identity of the compounds under examination; a judgement will need to be made as to the overall value of such techniques in the light of the other verification technologies available and their applicability to the full range of chemicals of concern to the CWC.
24. The inspection regimes which verification technologies are required to support, and the related concepts of use of the relevant instrumentation, must be more clearly and precisely defined before the design and construction of demonstration/prototype instruments is commenced. Once these inspection regimes and concepts of use have been defined it is likely that construction of prototype X-ray and neutron activation analysis instruments, for field evaluation, could be undertaken relatively quickly with little further research being required; ultra sonic techniques require further research before detailed design and construction of a prototype can be contemplated.