

Infra-red spectrometers are already available for in-line process monitoring. Their potential and reliability for verification purposes will have to be tested carefully. Whether it is possible to establish sets of common spectrometric properties for various groups of chemicals in Schedule [1] remains to be determined, for example.

For the time being, on-line instruments such as process chromatographs and mass spectrometers requiring sample transfer lines from the process stream to the instrument are too prone to malfunctions without frequent servicing.

A prototype of a sampling device has been demonstrated for sampling at programmed intervals of microgram quantities that can be analysed later by a mobile mass spectrometer during on-site inspections. Further development of the sampling device is necessary.

Monitoring of a particular facility for the non-presence of chemicals listed in Schedule [1] could be restricted to those corresponding to chemicals listed in Schedule [2] being produced by the facility.

(ii) Monitoring production quantities

The least intrusive way of verifying the quantities of declared chemicals that are produced would be to measure production volumes and to make a qualitative test of the chemical produced. Indirect methods for production control by recording temperature/pressure and time/temperature profiles were considered more intrusive.

Sometimes it may be sufficient to monitor "simple" physical parameters not directly related to the chemical structure of the compounds (e.g. energy consumption). Instruments required for measuring physical parameters are available. The most advantageous way of measuring the volume of production should be considered individually for each facility.

(iii) Monitoring non-diversion

Diversion of chemicals in Schedule [2] by further processing on-site to chemicals in Schedule [1] could be detected with composition-indicating instruments by monitoring what goes in and out of product storage tanks.

Confidentiality problems connected with instrumental monitoring

It was pointed out that successful, non-intrusive instrumental monitoring might in some cases necessitate modifications of the facility. On the other hand, it was noted that "sensitive" parameters such as temperature and pressure might not need to be monitored. On-site analyses in the presence of facility personnel of the samples collected by the automatic sampling devices and destruction of the analytical samples after the analysis would facilitate keeping the confidential information within the facility. The samples could be analysed either for the non-presence of chemicals in Schedule [1] or for the presence of declared chemicals while not going into the details of the production process.

It was also suggested that data generated by instruments could be stored on-site and retrieved by inspectors during on-site visits so that no direct