

(i) Sampling and analysis

Schedule 2 chemicals will be declared and the declared facilities will be monitored for the absence of those chemicals which can be produced from the Schedule 2 chemicals produced in the facility.

Identification data of Schedule 2 compounds will be added to the analytical data base which will also include data from the corresponding Schedule 1 compounds.

The analytical task will be to monitor known compounds. This can be performed with two-channel gas chromatography equipped with retention index monitoring capability. Gas chromatography with selective detectors may detect also compounds which are not in the database but whose presence might need clarification from the facility representatives. Enzymatic detection could be used in combination to detect the presence of enzyme inhibitors, also of unknown structure. A mobile mass spectrometer could also be used whose database would contain the spectra of only those compounds under the Convention. These methods are used to find out these samples which require further analysis in accredited laboratories. On-site analysis is the principal choice. Only when necessary the samples are transferred off-site. Those samples are analyzed in a designated laboratory with at least two different sophisticated techniques which will be chosen on the basis of the concentration of the samples.

There may be a role for the detection equipment to be used in the verification of non-production. Further development is, however, needed.

(ii) Process monitoring

Combination of process monitoring instruments and in-line analytical instruments such as fibre-optic near infrared or on-line sampling instruments might be applicable in an automatic process monitoring system. Further studies are needed to show the feasibility of using automated process monitoring systems for verification purposes.