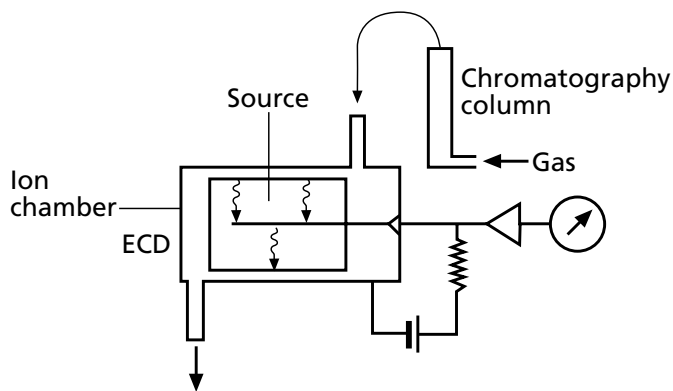


Electron capture detection

Technique

A cylindrical ion chamber containing a low energy beta source maintains a standing current with a stream of pure argon. When material with a high electron affinity enters the chamber, the ion current falls and this is displayed. Some instruments also have a gas chromatography column attached which enables specific compounds to be measured when the atmosphere is already heavily contaminated by other pollutants.

Geometry



Applications

- Nuclear industry
 - Sulphur hexafluoride in accelerators
 - Hydrogen in air
- Chemical industry
 - Carbon tetrachloride in air
 - Sulphur hexafluoride manufacture
- General industry
 - Solvent fumes from processing or degreasing
 - Gas leaks
- Security
 - Explosive detection

Sensitivities

Sulphur hexafluoride 1 part in 10^{11} parts of air
 Nitro compounds 1 part in 10^9 parts of air

Sources

Nuclide	Typical activity		See page
Nickel-63	10mCi	370MBq	B29
Iron-55	5mCi	185MBq	B24