

## **10.2 Fundamentals**

In spectrochemical analysis, a sample is submitted to a procedure in which its constituents emit or absorb radiation. Radiation is generated by *radiation sources*. The element sought or determined in a sample is the *analyte*. It is characterized by a specific absorption or emission which is related to its *quantity* or *concentration* in the sample.

*Atomic emission spectroscopy* is considered mainly in the ultraviolet and visible regions of the spectrum, i.e. the optical range, and makes use of different *sampling sources* that give rise to the different categories of *optical emission spectroscopy* (OES), including *direct current arc optical emission spectroscopy* (dc OES). Where photographic detectors are used the term *spectrography* is appropriate, but, in general, in the application of these fields of spectroscopy to spectrochemical analysis, photoelectric detectors are now used and the nomenclature employs the term *spectrometry* - thus, *inductively coupled plasma emission spectrometry*.

The nomenclature for the techniques of *X-ray emission spectroscopy* (XRES) and *X-ray fluorescence spectroscopy* (XRFS) is also considered. Other atomic spectrochemical techniques discussed include *atomic absorption spectrometry* (AAS) and *atomic fluorescence spectrometry* (AFS).

Nomenclature and usage in *molecular spectroscopy* are presented with reference to *molecular absorption spectroscopy* and *molecular luminescence spectroscopy*.