

Atomic-absorption spectroscopy (AAS)

AAS is a technique for determining the concentration of a particular metal element (e.g. Fe, Cu, Al, Pb, Ca, Zn) in a sample (water, medicine, food).

Used to:

Atomic-absorption spectroscopy(AAS) uses the absorption of light to measure the concentration of gas-phase atoms. Since samples are usually liquids or solids, the analyze atoms must be vaporized or atomized in a flame.

Steps

- The steps are involved turning a liquid sample into an atomic gas:
 - ***Desolvation**: the liquid solvent is evaporated, and the dry sample remains.
 - ***Vaporisation** : the solid sample vaporizes to a gas.
 - Volatilization**: the compounds making up the sample are broken into free atoms.

(AAS) PARTS

- 1-Hollow Cathode Lamp:

The light that is focused into the flame is produced by it. The type of hollow cathode tube depends on the metal being analyzed. For analyzing the concentration of copper, a copper cathode tube would be used.

- 2- Monochromator:

Which is set to isolate the radiation at the specified wavelength and travels into the detector.

- 3- Detector:

- Photo multiplier tube.

- Extremely sensitive

- Can detect single photons

- Measures the intensity of the beam of light.

- When some of the light is absorbed by metal, the beam's intensity is reduced. The detector records that reduction as absorption. That absorption is shown on output device by the data system

AAS



