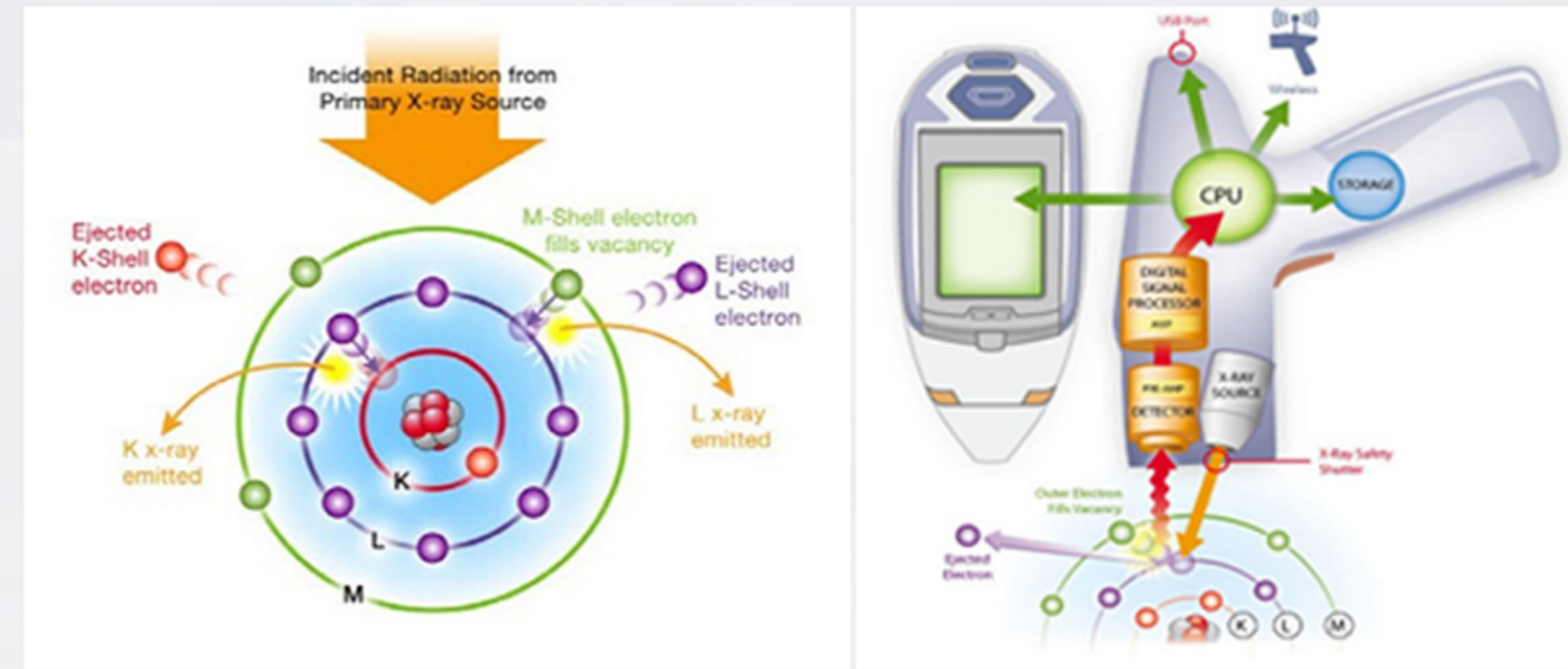




XRF



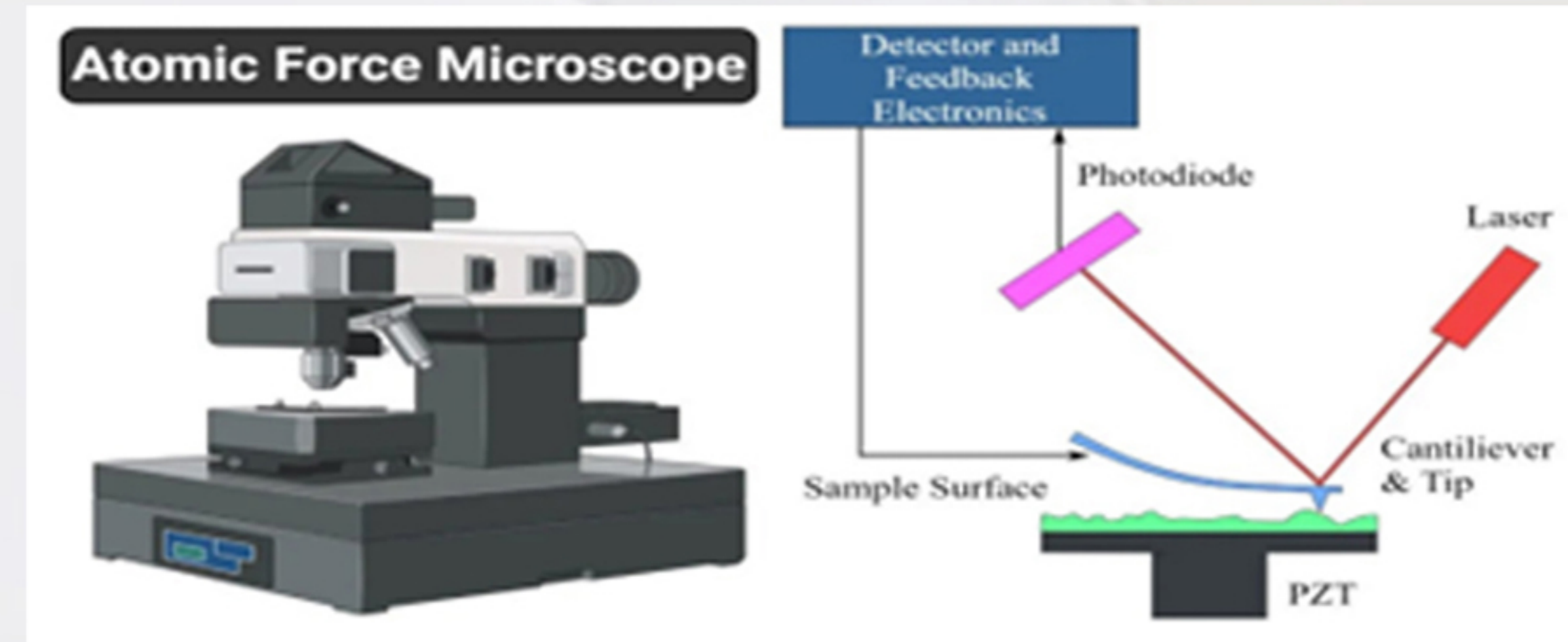
XRF (X-ray fluorescence) is a non-destructive analytical technique used to determine the elemental composition of materials. XRF analyzers determine the chemistry of a sample by measuring the fluorescent (or secondary) X-ray emitted from a sample when it is excited by a primary X-ray source. Each of the elements present in a sample produces a set of characteristic fluorescent X-rays (“a fingerprint”) that is unique for that specific element, which is why XRF spectroscopy is an excellent technology for qualitative and quantitative analysis of material composition.

Oil and gas—for positive material identification (PMI) of piping material, which is critical where flow accelerated corrosion, or sulfidic corrosion, is a concern.

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AFM



The Atomic Force Microscope (AFM) is a device used in nanotechnology, biology, and physics to visualize objects at the atomic and molecular level. This device creates high-resolution three-dimensional images of objects on their surfaces.

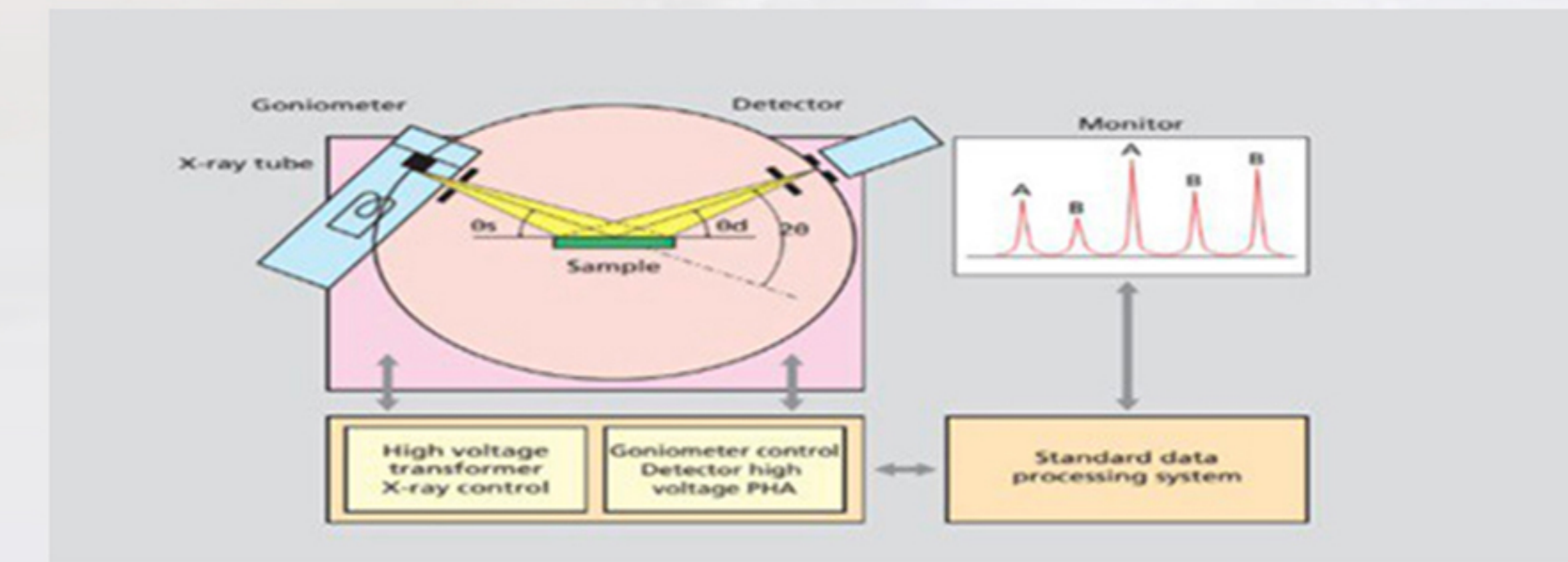
Some of these applications include:

- Identifying atoms from samples
- Evaluating force interactions between atoms.
- Studying the physical changing properties of atoms.
- used to differentiate cancer cells and normal cells.

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XRD



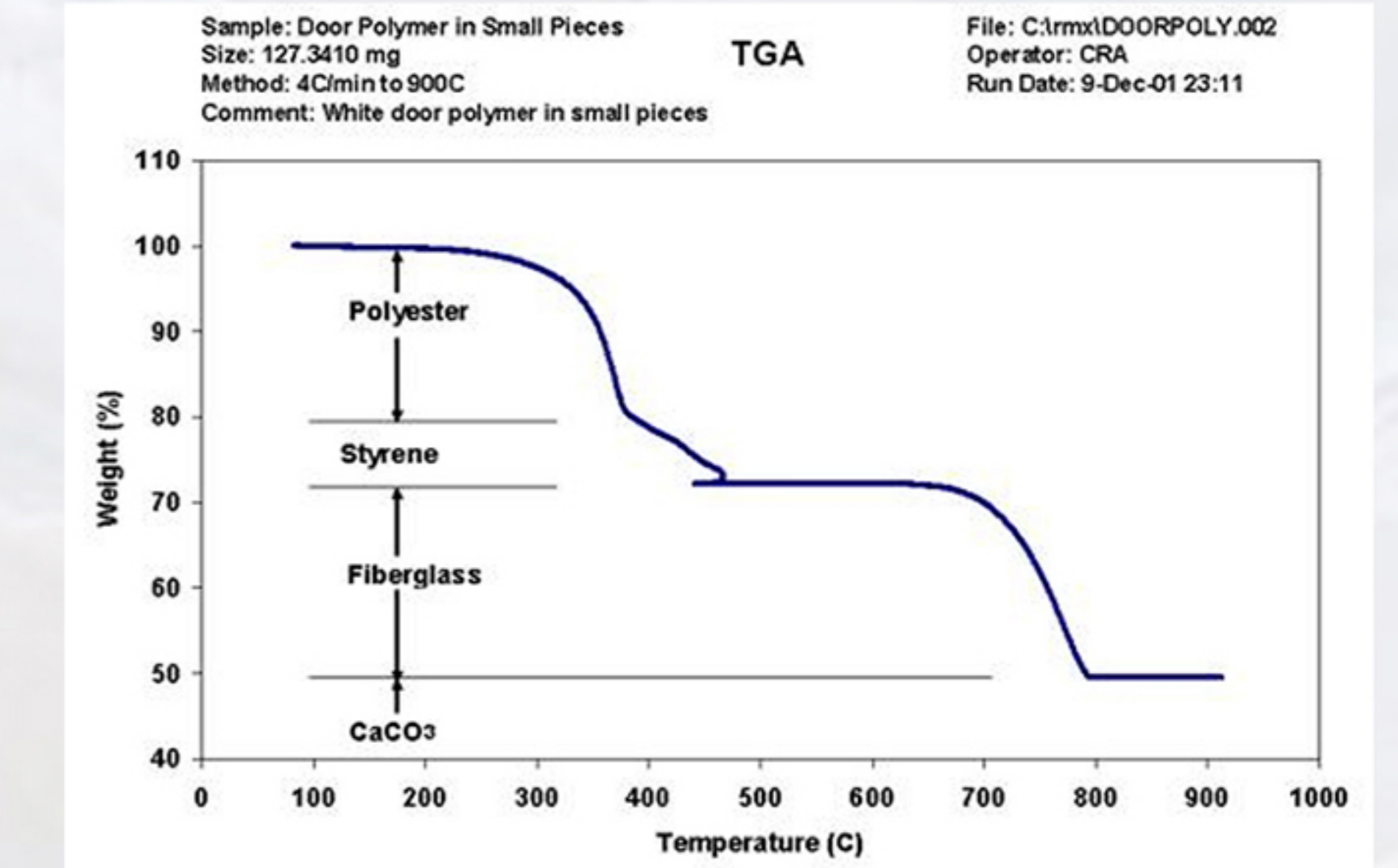
The XRD (X-ray Diffraction) device is used to study the structure of crystals and determine their atomic arrangements. The operation of the XRD device is based on the principle of X-rays interacting with the crystalline lattice structure of materials.

1-Analysis of Crystal Structures: XRD is used to determine crystal structures and atomic arrangements within crystals. This helps in understanding the chemical and physical nature of materials, verifying the purity, and atomic arrangement of compounds.

2-Determining Crystal Arrangement and Structure: XRD can provide information about the crystal arrangement of materials and detect changes in crystal structure due to chemical reactions or environmental conditions.

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TGA



Thermogravimetric analysis (TGA) measures weight changes in a material as a function of temperature (or time) under a controlled atmosphere. Its principle uses include measurement of a material’s thermal stability, filler content in polymers, moisture and solvent content, and the percent composition of components in a compound.

Applications:

- .Filler content of polymer resins
- .Carbon black content
- .Moisture content of organic and inorganic materials
- .Oxidative stability
- .Low molecular weight monomers in polymers

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