

SHINE XRD analyzer

Product introduction

Shine portable X-ray diffraction instrument is a portable X-ray diffraction equipment independently developed by LANScientific co., LTD. combining XRD, XRF, computer software and other technologies. The samples by X-ray diffraction instrument, analysis of the diffraction pattern, material with material composition, internal information such as atomic or molecular structure or form (material ingredient, the secondary ingredients or trace elements of the crystal phase ID information), it has a simple sample preparation, no pollution, quick, high measurement precision, can get a lot of information about the integrity of the crystal and other advantages, is the study of physical objects and the crystal structure of the main methods.

The product principle

When a beam of monochromatic X ray incident to crystal, because the crystal is made up of atomic rules are arranged into a cell, the rules of the distance between the atoms and the incident X-ray wavelength with the same order of magnitude, so by the different atomic scattering X-ray mutual interference, stronger effects in some special directions X ray diffraction, the diffraction lines in the spatial distribution of location and intensity, is closely related to the crystal structure, which is the basic principle of X-ray diffraction (XRD).



Application range

Ores and minerals

Rapid analysis of iron-rich ores, such as quartz, hematite, goethite, magnetite;

The calcite (CaCO3) in coal was quantitatively analyzed.

Crystalline phase identification and semi-quantitative analysis were carried out for the identified minerals such as potassium carbonate, potassium salt, rock salt, anhydrous potassium magnesite and potassium magnesite.

Quantitative analysis of common ores mixed with limestone, such as a-quartz, asbestos, calcite, dolomite;

Used for reanalysis of tailings to determine operational performance of the plant or to evaluate past projects.

Petroleum chemical industry

Mineralogical identification and quantification of shale cuttings in the field to obtain quick feedback in geosteering and horizontal drilling, simplifying "vein tracking" for special mineral formations;

Identifying and quantifying corrosive materials in pipelines also allows simultaneous XRF measurements to quickly identify the elemental composition of the material.

Drugs, explosives/dangerous materials

Quick identification of explosives and suspected explosives at the scene;

Identifying and quantifying suspicious hazardous materials, molten materials and catalysts;

Used for drug, contraband identification, forensic evidence identification, customs inspection and other law enforcement work.

The pharmaceutical industry

Rapid identification of counterfeit drugs;

Rapid identification of drug raw materials;

Rapid and nondestructive fingerprint analysis of pharmaceutical preparations and precursor drugs;

To test the presence and content of active and inactive ingredients, foreign or substitute ingredients in medicines.

Technical parameters and specifications

XRD resolution	0.2 ° @2 θ FWHM
Scope of XRD	5-55 ° 2 θ
The detector	2000 X 256 pixels, 2-D, 3-level Peltier cooled CCD
X-ray tube target material	Cu or Co, Cr, Fe, Ni, Mo, Ag, W target (optional)
X-ray tube voltage	50kV maximum, 0-50kV adjustable
X-ray tube power	50W maximum, 0-50W adjustable
XRF energy resolution	127eV@8keV
XRF detection range	Magnesium (Mg) Uranium (U)
Sample particle size	Sample particles<150um (100 mesh sieve)
Sample weight	About 20 mg
Working temperature	- 10 ° C - 35 ° C
The heavy star	15Kg
The power supply size	Common AC power supply (no cooling system) 500*400*188mm
CrystalX analysis software language	Chinese, English, etc

Product detail

Product features

1. Portable: the instrument adopts waterproof and dustproof box integrated machine design, without any mechanical moving parts, light and small, easy to carry, can be free to carry out laboratory/field scientific research.
2. Integration: XRD and XRF technology integration, in each detection, can collect XRD and XRF X-ray photon data at the same time, to provide material composition, phase and structure information, so as to promote the detection results more accurate.
3. Convenience: One-button operation of the instrument, no correction, automatic detection, no extra attention to high pressure system and water circulation cooling system (the instrument does not have additional high pressure and water circulation cooling system).
4. simple sample preparation: a single analysis only needs about 20mg of the sample can obtain high quality test results, sample preparation without preparation, tablet pressing, scraping equality, 3 minutes to complete the sample preparation (crushing, filtering, loading).
5. Data transmission: High-speed connection between the instrument and laptop computer is realized through USB, Bluetooth and WIFI, and real-time control and phase analysis of the reflecting instrument are carried out.
6. good environmental adaptability: specially developed for geological investigation, the instrument can be anti-fog, dustproof, shockproof, can adapt to the harsh environment.
7. safety: professional multiple protection radiation treatment, measurement instrument full range without any radiation leakage.

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