

PORTABLE XRD ANALYZER - X-RAY DIFFRACTOMETER - SHINE METAL CORROSION EDITION



With Portable XRD Analyzer – X-ray Diffractometer – SHINE Metal Corrosion Edition on-site testing becomes feasible. This device swiftly analyzes metal corrosion, providing engineers with insights into the crystal structure and quantifying corrosion and scaling. It aids in understanding the formation of corrosion products, reducing time and costs associated with laboratory analysis. This information enables prompt action to mitigate or slow down corrosion processes.

The basic principle of X-ray diffraction lies in the interaction between a monochromatic X-ray beam and a crystal structure. When the X-ray beam hits the crystal, its atomic arrangement within the crystal lattice causes the X-rays to scatter in different directions. This scattering phenomenon, known as X-ray diffraction, produces diffraction lines in specific spatial distributions and intensities, closely linked to the crystal's structure.

In industrial settings, equipment encounters various operating environments and media, leading to diverse causes of corrosion. Corrosion can significantly diminish equipment lifespan and may even result in resource leakage and environmental contamination. Previously, maintenance teams had to transport corroded samples to laboratories for analysis, a process consuming time and resources.

APPLICATIONS

Portable XRD Analyzer - Scaling and corrosion analysis

Scaling and Corrosion Analysis of Piping Equipment

Oil pipeline, Gas pipeline, etc.

Portable XRD Analyzer - Silt sediment analysis

Analysis of Silt Sediment in Industrial Area

Refinery, Metal material factory, etc.

Portable XRD Analyzer - Corrosion failure analysis

Corrosion Failure Analysis of Industrial Equipment

Industrial boilers, Mechanical equipment, etc.

FEATURES

Portable Instrument

The Portable XRD Analyzer – X-ray Diffractometer – SHINE Metal Corrosion Edition features an all-in-one waterproof and dustproof design in a compact and lightweight package, making it easy to carry. This portability enables comprehensive in-situ inspections at locations affected by metal corrosion, providing great convenience and efficiency.

Easy-Operation

The integration of XRD with XRF technology allows for simultaneous collection of X-ray photon data from both methods during each test. This enables the acquisition of comprehensive material composition, phase, and structure information, thereby enhancing the accuracy of test results.

Easy-Operation

The Portable XRD Analyzer – X-ray Diffractometer – SHINE Metal Corrosion Edition is easy to operate, requiring no calibration and offering automatic detection. It provides real-time display of full spectrum diffraction and automatic phase analysis. With just one key, quantitative results can be generated effortlessly.

Simple Sample preparation

For a single analysis, only about 20 mg of sample is required to achieve high-quality test results. Sample preparation, including crushing, filtering, and sampling, can be completed in just 3 minutes, without the need for molding, pressing, or scraping for uniformity.

Data transmission

The Portable XRD Analyzer – X-ray Diffractometer – SHINE Metal Corrosion Edition enables high-speed connections with a laptop computer via USB, Bluetooth, and WIFI, allowing for real-time control and phase analysis of SHINE.

Two Dimensional X-Ray Diffractometer

The Portable XRD Analyzer – X-ray Diffractometer – SHINE Metal Corrosion Edition features a charge-coupled device (CCD) detector, capable of capturing slices of the diffraction ring. This function aids users in assessing whether the sample has been prepared correctly, including particle statistics and preferred grain orientation. It serves to further validate the accuracy and representativeness of the obtained qualitative and quantitative data.

TECHNICAL SPECIFICATIONS

XRD resolution	0.2°@2θ FWHM
Scope of XRD	5-55°2θ
The detector	2000 X 256 pixel, 2d, level 3 Pelter refrigeration CCD
X-ray tube target	Cluster microfocal spot X-ray tube, Cu or Co, Cr, Fe, Ni, Mo, Ag, W target (optional according to test sample)
X-ray tube voltage	Maximum 50kV, 0-50kV adjustable
X ray tube power	Maximum 40W, 0-40W adjustable
XRF energy resolution	127eV@8keV
XRF detection range	Mg—U
Sample particle size	Sample particle <150um (100 mesh sieve)
Cooling Method	Water Cooling
Sample weight	about 20mg
Working temperature	-10°C-35°C
Weight	15KG
The power supply	Lithium ion battery or power adapter
Size	50×40×18.8cm□ L×W×H□
CrystalX analysis software language	English and other languages



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