



aczel[®]
... Since 1986

X-ray Fluorescence (XRF) Non-Destructive Analysis for Precious Metals



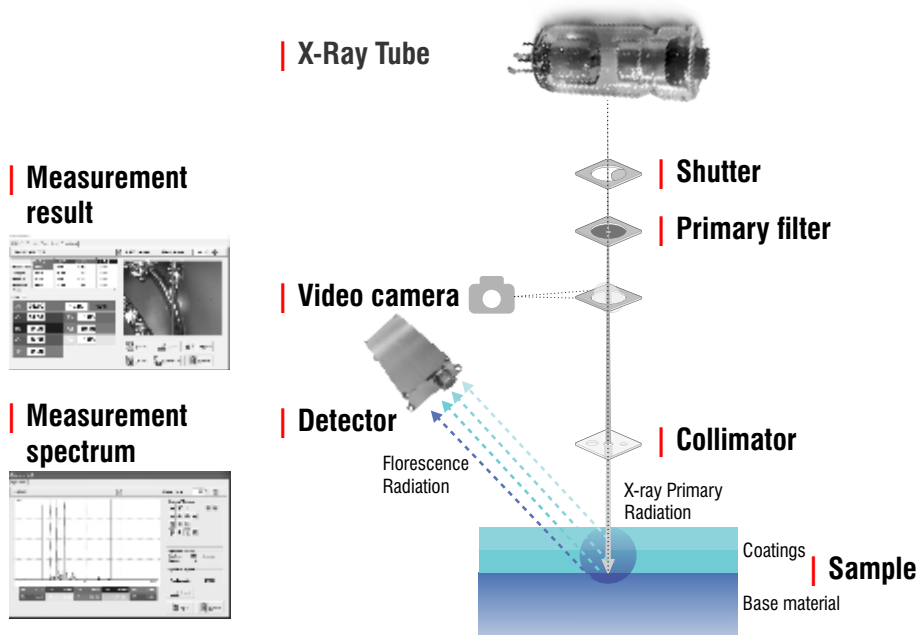
Solution Simplified

www.aczel.com

It is Fast, Non-Destructive, Accurate yet Easy

Sometime the smallest detail establishes success. Whether for material analysis or coating thickness measurement ACZET is your partner of choice for the precise and reliable measurement technology in the field of X-ray Fluorescence Analysis. With our Xray System we offer highly accurate measurement solution to make your work easier. Measuring challenge is easy if you as a customer have the right instrument. More than just instruments we offer the best quality, we rely on a detailed analysis, competent advise and commissioning as well as efficient service.

Principle of X-Ray Measurement



X-ray fluorescence analysis is a Non destructive, non-contact, clean and fast measurement method. It is based on the occurrence that atoms when excited by primary X-rays, release energy in the form of element specific fluorescence radiation. The spectrum of the emitted radiation provides information about the element present on the sample, which can be detected by detector based on gas filled prop counter or solid state silicon pin diode. This enables both analysis of the material composition and measurement of a coating's thickness.



Detector

You can choose from three different detector types for the optimal solution of your measurement task based on your application : proportional counter, silicon PIN diode and silicon drift detector.

Proportional Counter



- Suitable for simple measurement
- 25.4mm x 50.8mm very large detector active area for higher count rate, yield better accuracy and repeatability.
- Ideal for measuring complex shape samples and different measuring distance.

Silicon Pin (Si-PIN)



- Suitable for Demanding measurements
- High energy resolution
- Wide detection range
- Ideal for measuring thin layer

Silicon Drift Detector (SDD)



- Suitable for highly Demanding measurements including multilayer measurements
- Highest energy resolution and detection sensitivity can measure light elements in ppm range.
- Lower noise > Better resolution help better accuracy
- Highest count rate > 1000,000 cps

GERMAN Engineered



- Our instruments individual parts to software are developed in GERMANY. Aczet XRF is produced under GERMAN technological License from company Roentgen Analytik GmbH.

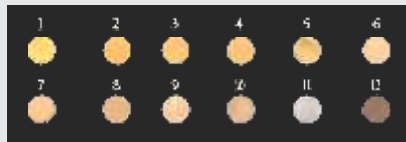


Digital Pulse Processor (DPP)



- Aczet DPP is generate very high pulse and count rates. It amplifies the signal detected by the detector. Together with the detector, the DPP is equally responsible for very high stability and energy resolution.

Diverse Calibration Sample



- More than 3 decade of field experience help us widening calibration library made it possible to perform diverse calibration for each unit leave our works.

Micro Focus X-ray Tube



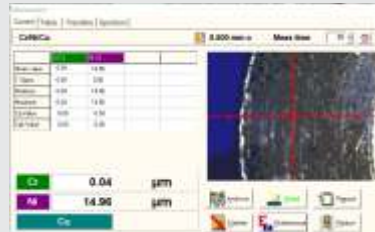
- The X-ray tube generates the primary X-ray radiation. Advanced micro focus tube are engaged to focus large part of the primary radiation onto a very small measuring spot

Material Analysis



- Versatile Material Analysis software x-Master based on both Empirical and Fundamental method help yield accurate Measurement as well as identify and measure any metal standard free.

Coating Thickness



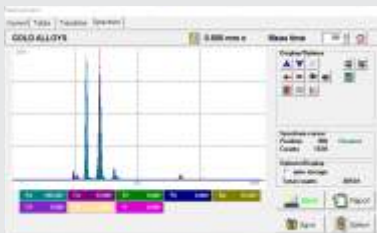
- From simple coating thickness measurements in the electroplating industry, such as zinc on iron, multi-coating applications, sophisticated precious metal coating.

Bath Analysis



- Bath analysis in the electroplating industry Measurement of e.g. thin gold, palladium in jewellery industry.

Spectrum



- Typical gold spectrum with qualitative analysis information.
- Y axis is theoretical intensity. X axis is measured intensity.
- After fitting a linear regression, the R2 value demonstrate the excellent linear of the calibration curve. In return, The excellent linear calibration curve ensures the wide range test accuracy from low to high karat of gold.

User Friendly Software

| | | | |
|----------------|---------------------|---|--------------|
| | | Aczet Pvt. Ltd. Nalgaon 401208 Maharashtra INDIA | |
| Date: | 01/12/2024 13:17:27 | Customer Name: | Jatin Mathur |
| Application: | GOLD ANALYSIS | Karat: | 21.99 |
| Operator Name: | Mukul | Weight: | 10.36 g |
| Sample Name: | GSD Sample | Prec: | 0.00 |
| RESULTS | | PICTURE VIEW | |
| Element Name | Scientific Name | Value | Unit |
| Gold | Au | 01.63 | % |
| Nickel | Ni | 0.00 | % |
| Copper | Cu | 0.00 | % |
| Zinc | Zn | 0.00 | % |
| Palladium | Pd | 0.00 | % |
| Silver | Ag | 0.13 | % |
| Antimony | Sb | 0.00 | % |

Remarks:

- Most comprehensive software for material analysis including Coating thickness measurement as well as bath analysis.
- Convenient calibration function
- Fully customizable reports and creation of individual measurements print formats.
- Statistical data processing with mean value, standard deviation, high/low reading, trend line etc.
- High resolution CCD camera with optical zoom help positioning the spot for measurement.

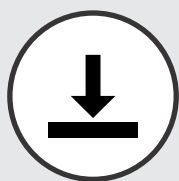
Safe



- Full-protection instruments in accordance with current radiation protection regulation.
- The shutter is a safety device. It prevents primary radiation from entering the measuring chamber when measurement is in progress thus safeguard operator from risk of x-Ray exposures.

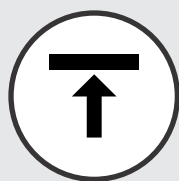
Measuring Directions

Benefits of the Different Measuring Directions



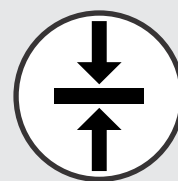
Top down

- Precise positioning in fact you can position any point what you can see, Inner Surface & Outer surface testing possible, which is best suited for uneven surface jewellery and rings.
- Large measuring area



Bottom up

- Time saving since focusing is often not required
- Easy do not need any special skill for focusing
- Compact foot print for the instrument



Flexible

- Portable instrument
- Mobile measurement is possible
- Measurement on very large components is possible
- Battery operation

Diversity

Large Sample Chamber



- Even with large Samples, measuring points are possible on the entire sample surface due to larger sample chamber.

Compact



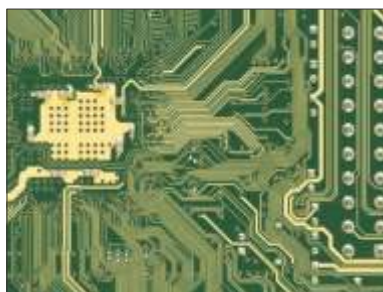
- New Generation Space saving Built-in Touch screen PC.

Flexibility



- Element Analysis up to 24 elements simultaneously.

JEWELRY | GOLD LOAN | ELECTRONICS - PCB, COMPONENTS & CONNECTORS | METAL FINISHING | TOOLS | RoHs | SANITARY



Cube



Dimension 350 x 450 x 310 mm
Weight 27 kg

Compact Eco



Dimension 630 x 430 x 420 mm
Weight 45 kg

Stark



Dimension 350 x 450 x 310 mm
Weight 32 kg

Stark In-built



Dimension 350 x 450 x 310 mm
Weight 32 kg

Stark SDD Pro



Dimension 400 x 405 x 455 mm
Weight 40 kg

Nanoris



Dimension 79 x 254 x 280 mm
Weight 1.5 kg

| Model | Cube / Compact Eco | | |
|---------------------|--|----------------------|-----------------------------------|
| Detector | Proportional Counter | Silicon Pin (Si-PIN) | Silicon Drift Detector (SDD) |
| Measuring Direction | Top Down | | |
| X-Ray Source | W-Target Tungsten X-Ray Tube with oil cooled | | |
| High Voltage | 50kV / 1.2MA, Software Control Optimized | | |
| Collimator Ø mm | 0.3 | 0.5 | 0.5 |
| Elements Range | All elements between Manganese Mn(25) to U(92) | | Aluminium Al(13) to Uranium U(92) |
| Measurement Time | 10 Sec ~ 60 sec. (User Selectable) | | |
| Sample Positioning | Manual Stage Z axis | | |
| Video Microscope | High resolution CCD Color Video camera with cross hair | | |
| PC Interface | External | | |
| Sample Chamber | Cube 335 x 225 x 180 mm (W x D x H) Compact Eco 390 x 430 x 270 mm (W x D x H) | | |
| Power Supply | 230VAC, 50/60Hz, 120W / 100W (110v available on request) | | |

| Model | StaRk / StaRk In-built / StaRk Pro | | |
|---------------------|--|----------------------|-----------------------------------|
| Detector | Proportional Counter | Silicon Pin (Si-PIN) | Silicon Drift Detector (SDD) |
| Measuring Direction | Bottom Up | | |
| X-Ray Source | W-Target Tungsten X-Ray Tube with oil cooled | | |
| High Voltage | 50kV / 1.2MA, Software Control Optimized | | |
| Collimator Ø mm | 0.3 | 0.5 | 0.5 |
| Elements Range | All elements between Manganese Mn(25) to U(92) | | Aluminium Al(13) to Uranium U(92) |
| Measurement Time | 10 Sec ~ 60 sec. (User Selectable) | | |
| Sample Positioning | Auto focussing | | |
| Video Microscope | High resolution CCD Color Video camera with cross hair | | |
| PC Interface | StaRk / StaRk Pro - External, StaRk-Inbuilt - Touch Screen industrial Grade PC | | |
| Sample Chamber | 300 x 290 x 100 mm (W x D x H) | | |
| Power Supply | 230VAC, 50/60Hz, 120W / 100W (110v available on request) | | |

| Model | Nanoris | |
|---------------------|---|------------------------------|
| Detector | Silicon Pin (Si-PIN) | Silicon Drift Detector (SDD) |
| Measuring Direction | Flexible (Top Down & Bottom Up both possible) | |
| Excitation Source | 50KV/200mA upper limit, tube pressure tube flow can be adjusted freely, W target | |
| Analysis Elements | All elements between Mg and U | |
| Display | 4.3 "industrial grade resistance touch screen Automatically adjust display brightness according to external environment brightness | |
| Data Processing | Built-in 32GB storage USB, can connect the device to the Internet, remote setting and maintenance of the instrument | |
| Heat dissipation | Equipped with a dedicated T-shaped radiator to dissipate the heat ; no need to wait for cooling of detector time again. | |
| Safety | It automatically senses samples ahead for enhanced radiation safety and protection. Waterproof, dustproof and shockproof carrying case. ACZET special safety rope. | |
| Power Supply | Intelligent battery management through MSBUS, real-time monitoring of the remaining capacity of battery. The battery complies with air transport regulations of dangerous goods. A single battery can last 8 hours (2 standard battery supply) | |

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