

XRD- 3020

X-ray Diffractometer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

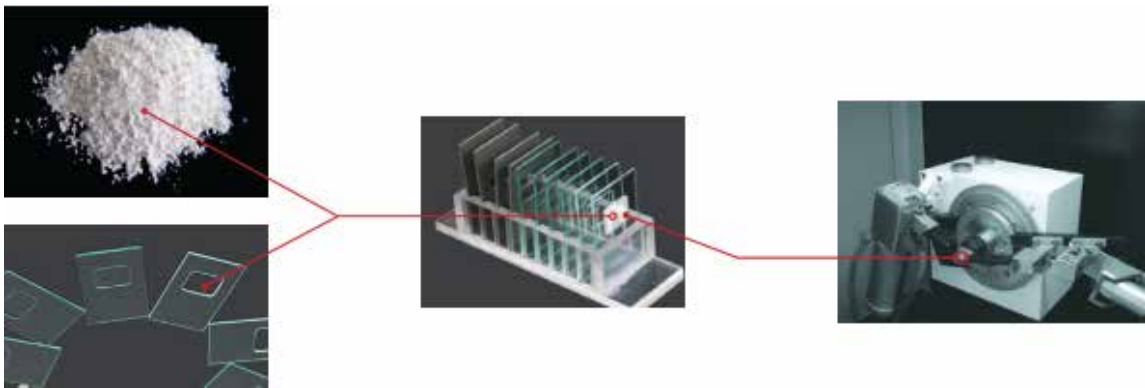
An ISO 9001 Certified Company

www.analyticalgroup.net

The composition and structure of materials could be studied and identified fundamentally by X-ray powder diffractometer, the applications are showed as follow:

1. The atom arrangement of all kinds of compounds in materials could be determined. Some particular performance of materials is related with atom arrangement.
2. Qualitative & Quantitative phase Analysis.
3. The ratio of all kinds of compounds could be determined.
4. Determine the grain size, stress, texture, orientation and crystallizability.

Analysis Process Description:



Data Acquisition



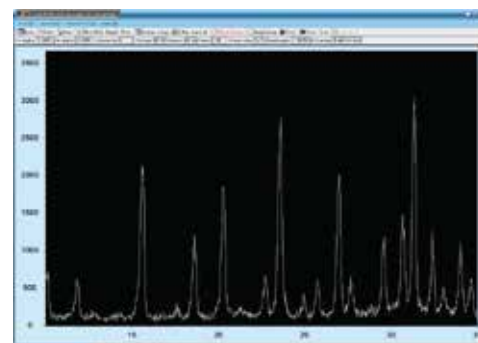
X-ray control



Scan parameters setting

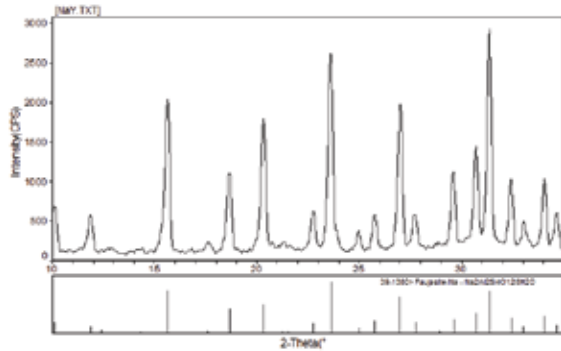


Scan parameters setting

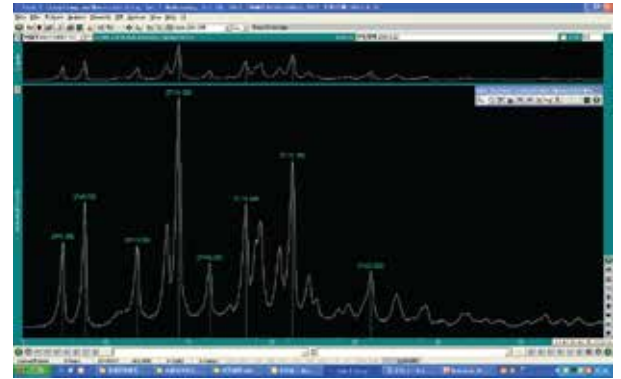


Intensity measurement

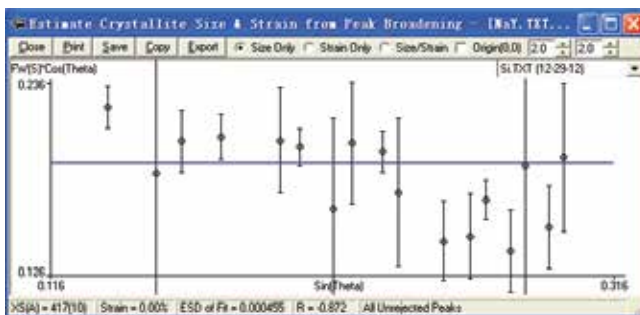
Data Analysis



Qualitative analysis



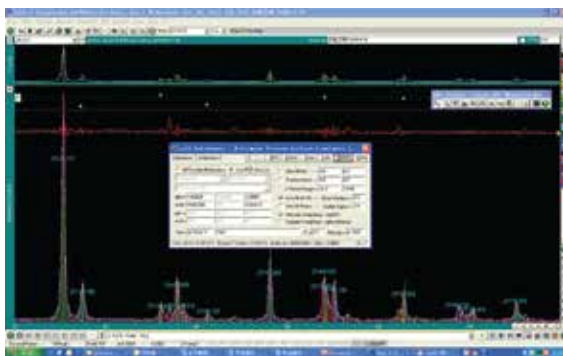
Peak search



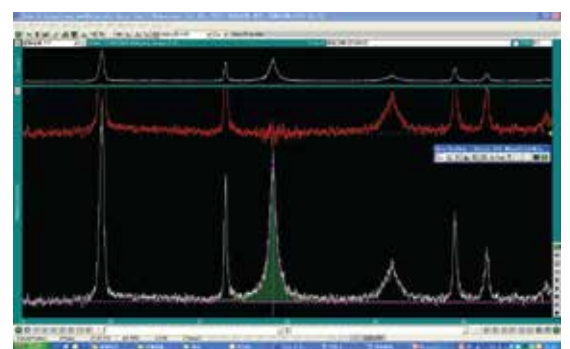
Grain size



Crystallinity



Cell parameters



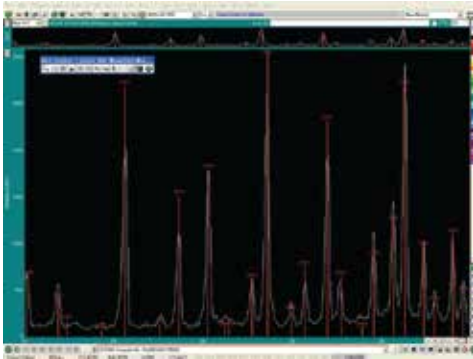
FWHM

Molecular sieves

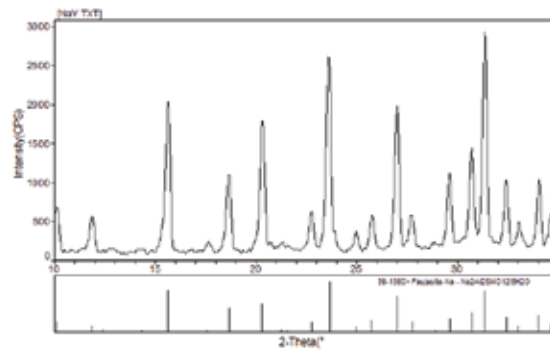
A, Y, ZSM, other types of molecular sieves.

1. Qualitative & Quantitative phase Analysis.
2. The ratio of all kinds of compounds could be determined. E.g. Si-Al ratio.
3. Determine the grain size, cell parameters, and crystallinity etc.

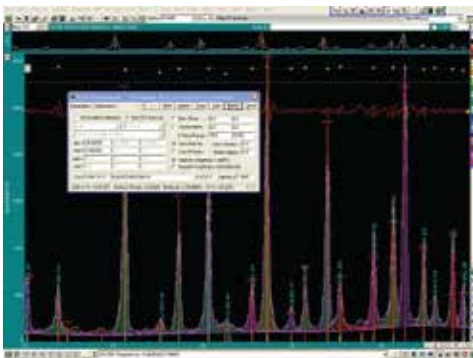
Data Analysis



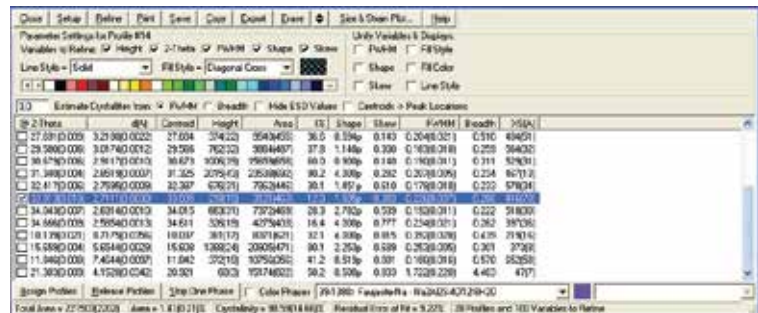
Qualitative analysis



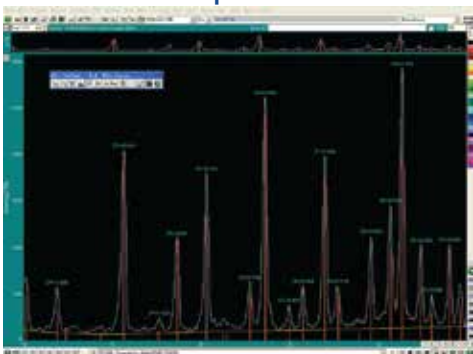
Qualitative analysis



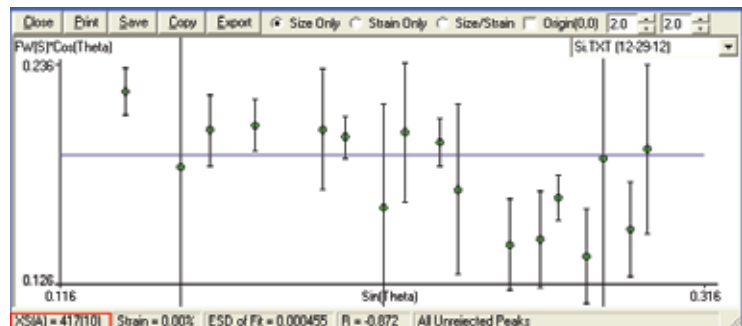
Cell parameters



Crystallinity



Peak search



Grain size

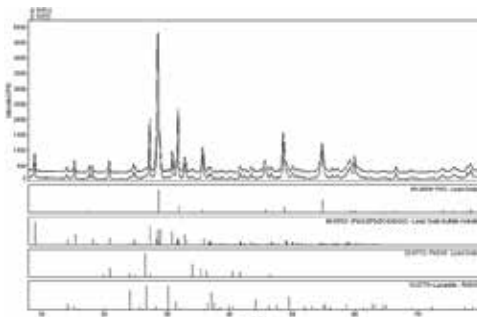
Battery

Battery: Lithium, lead, NI-MH battery, other types of battery;

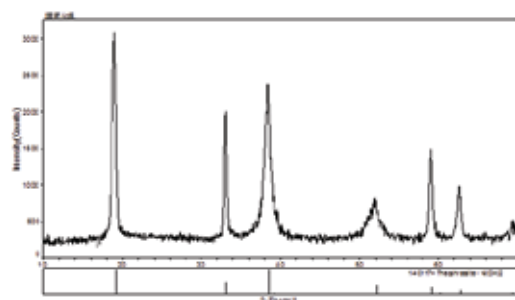
Battery material: e.g. graphite.

1. Qualitative & Quantitative phase Analysis.
2. Graphitization degree.

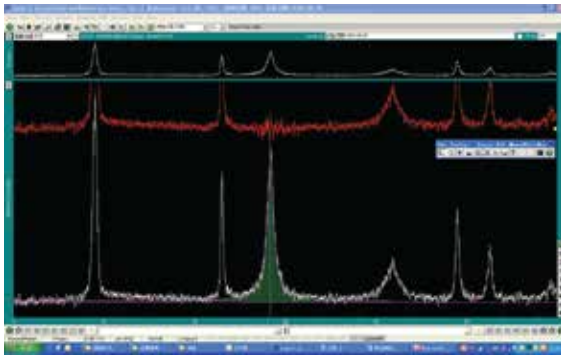
Data Analysis



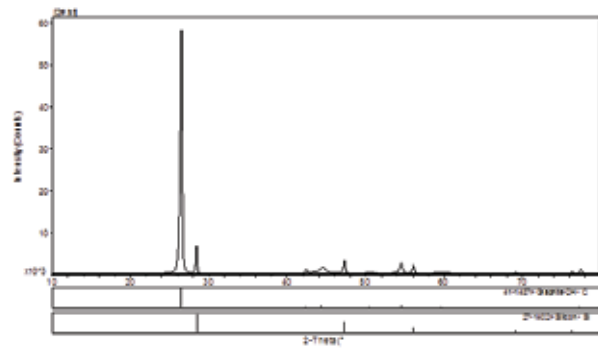
Qualitative analysis (lead battery)



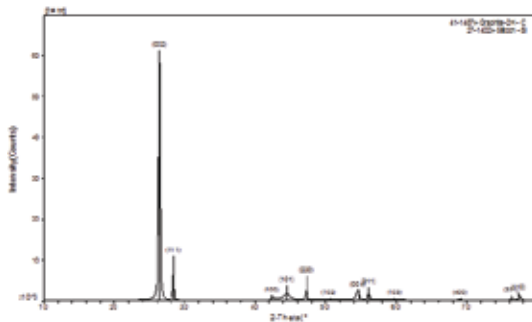
Qualitative analysis (NI-MH battery)



FWHM (lead battery)



Qualitative analysis (graphite)

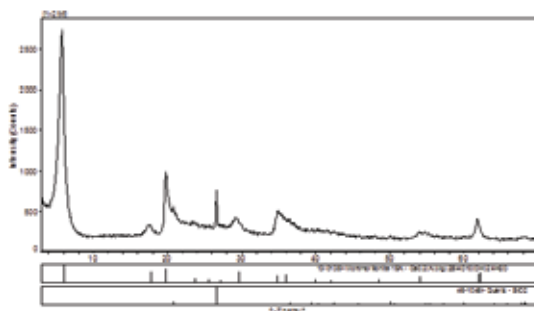


Graphitization degree

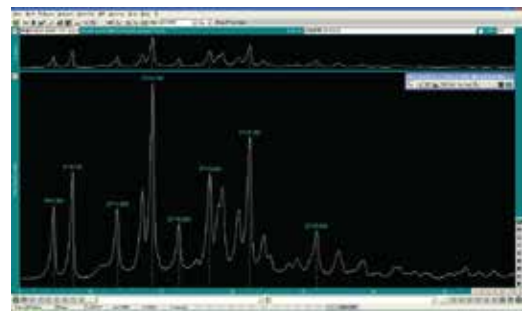
Pharmaceuticals

1. Qualitative analysis of pharmaceutical raw materials.
2. Identification of impurities.
3. Determine the grain size, crystal form, and crystallinity etc.

Data Analysis



Qualitative analysis (Montmorillonite Powder)

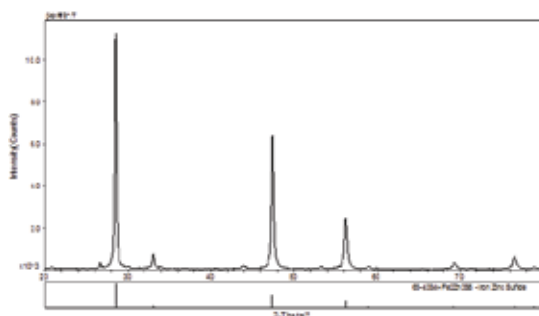


Peak search

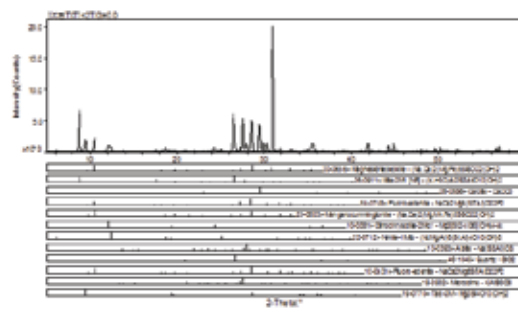
Mineral

1. Qualitative & Quantitative phase Analysis.

Data Analysis



Qualitative analysis (zinc concentrate)

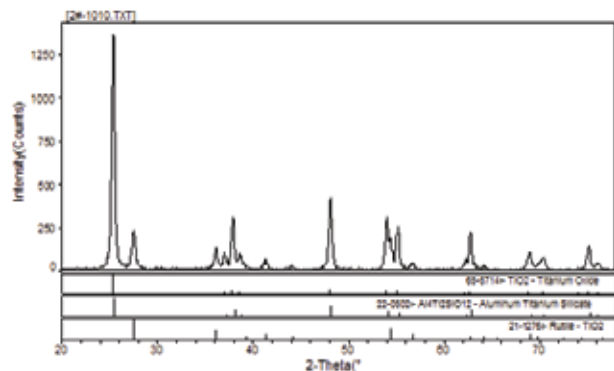


Qualitative analysis (amphibole)

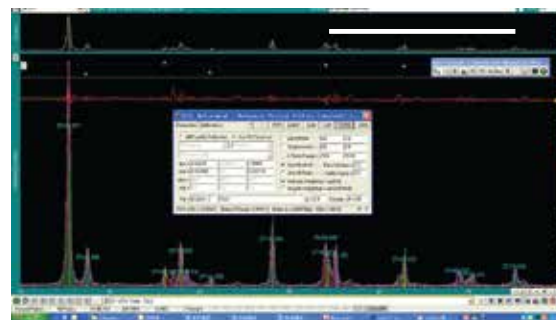
Titanium dioxide

1. Qualitative & Quantitative phase Analysis.
2. The ratio of all kinds of compounds could be determined.
3. Determine the grain size, crystal form, and cell parameters etc.

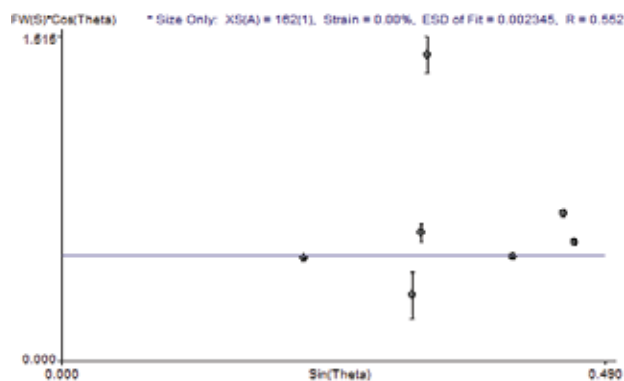
Data Analysis



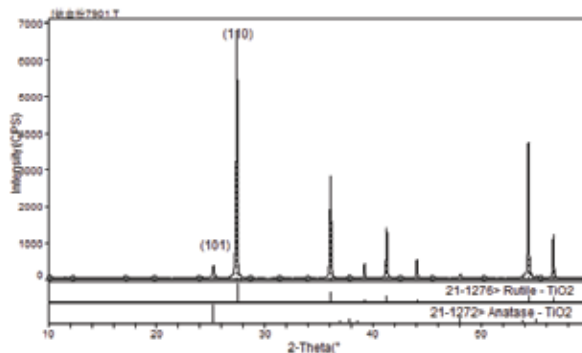
Qualitative analysis



Cell parameters



Grain size



Qualitative analysis

Specifications:

X-ray Tube	
Type	Cu Target,NF Model
Focus Dimensions	1.0×10mm ²
Maximum Power	2 KW
X-ray Generator	
Maximum Power	3 KW
X-ray Tube Voltage	15kV ~ 60kV
Tube Voltage Step Width	1kV
X-ray Tube Current	6mA ~ 50mA
Tube Current Step Width	1mA
Tube Voltage,Tube Current Stability	≤0.01% (Supply Voltage Fluctuations 10%)
Alarm Device	Water Discharge, Temperature
Goniometer	
Goniometer Type	Vertical(θ-2θ)

Scanning Radius	180mm
Scanning Mode	θ -2 θ Linkage Or θ ,2 θ Single Move
Measurement Range (via software)	0° ~ 140°(θ)
Maximum Speed	120°/min
Operation Mode	Continuous Scanning ,Timing Step Scanning, Constant Step Scanning
Continuous Scanning Speed	0.125°/min ~ 16°/min
Angle Repeatability	$\leq 0.0006^\circ$
Measurement Accuracy	0.001°
Minimum sampling step width	0.01°
Divergence Slit(DS)	1/6°, 0.5°, 1°, 2°
Anti-scattering Slit(SS)	0.5°, 1°, 2°
Receiving Slit(RS)	0.1mm, 0.15mm, 0.3mm, 0.45mm, 0.6mm, 1mm, 2 mm
Zero Dedicated Slit	0.02mm
Detector·Counter	
The Type Of Detector	Scintillator Counter
Crystal Type	Nal
Pulse-height Analyzer(PHA)	Output High Voltage 0V ~ 1000V Stability $\leq 0.01\%$ (8h)
Machine Cabinet	
Cabinet Size(mm)	1200(L)×800(W)×1850(H)
Machine Weight(kg)	500
Observation Window	600(L)×400(W)×10(T) Lead Glass
X-ray Leakage	$\leq 0.1\mu$ Sv/h (Non Deduction Natural Background)
Safety Precautions	Door Interlock Protection(The door to a designated location, light gates open only to produce X-ray)
Filter	
Ni Filter	Corresponding Cu Target
Integrated Whole Stability	$\leq 0.3\%$

Automatic temperature control of circulating water cooling device (indoor unit +outdoor unit) (OPTional)

Cooling Power(W)	4000
Power Supply	220V,50Hz
Input Power(W)	1800
The Largest Dimensions(mm) Indoor Unit / Outdoor Unit	600(L)×400(W)×960(H)
Weight(kg) Indoor Unit / Outdoor Unit	50
Noise(dB) Indoor Unit / Outdoor Unit	≤ 55 / ≤ 65
Cooling Water Pressure(Mpa)	0 ~ 0.7
Coolling Water Flow(L/min)	≥ 3.5
Ambient Temperature	5 °C ~ 40 °C
Temperature Control Range	-49 °C ~ 50 °C
Temperature Control Accuracy	$\pm 1^\circ\text{C}$
Warning Device	Temperature, Water Shortage



Excellent Design of Mechanical Security



High Performance X-ray Tube Supplied



Vertical High Precision Goniometer

X-ray emission source is fixed

Sample platform is fixed



θ - 2θ



θ_s - θ_d

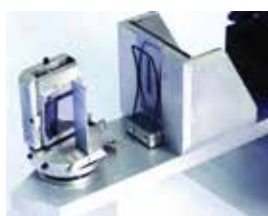


Scintillator Counter

Optional Accessories



Sample tablets



Curved graphite crystal monochromator



Punch machine



Rotary sample platform
(1 or 6 sample positions are optional)



Auto sample platform



High temperature annex



Φ Scanning Annex



Parallel Beam Membrane



Multi-function test accessory



Water circulator (two parts model or integrated model are selectable)

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

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Our Products & Technologies



LCMS



Automated Prep-Flash
Chromatography system



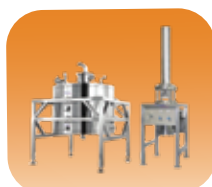
Maldi TOF



Optima Gas
Chromatograph



Flash
Chromatograph



DAC
Column



GCMS
3068



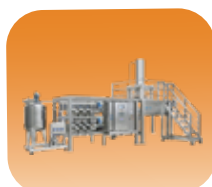
UHPLC



HPTLC



Ion Chromatograph



Production
HPLC



HPLC



Column



DLS



Water purification
system

▶▶▶ Regulatory compliances



▶▶▶ Corporate Social Responsibility

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