Welcome to QualityNano Transnational Access (TA)

Fully funded access to equipment & technical expertise at 15 nano-characterization laboratories in Europe

University of Leeds

UNIVERSITY OF LEEDS

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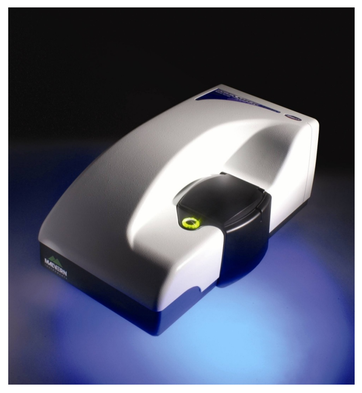
The University of Leeds is the second largest university in the UK and is internationally recognized for its pre-eminence in nanotechnology research and teaching. Over 200 academic staff are engaged in research in nanoscience and nanotechnology based in departments rated 5 and 5* in the last Research Assessment Exercise, which is the highest possible rating and denotes research of international standing. The university also collaborates widely with research groups and industry in the UK and internationally.

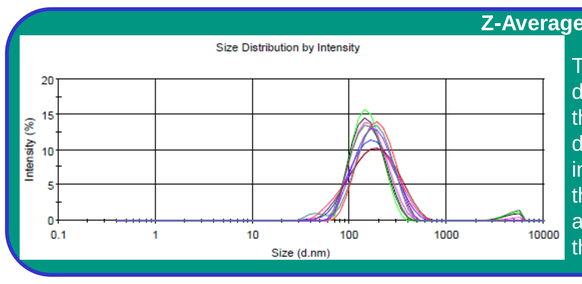
- Particles Centre for Industrial Collaboration (PCIC);
- Leeds Electron Microscopy and Spectroscopy Centre (LEMAS);
- Leeds Nano Equipment Facility (LENNF);
- NanoManufacturing Institute (NMI);

All centres provide appropriate academic and technical expertise. TA Provision (WT9): Minimum quantity of access to be provided: 378 days; Supporting facilities and services: UNIVLEEDS will be offering access to C, i.e. particle characterisation in the project as follows:

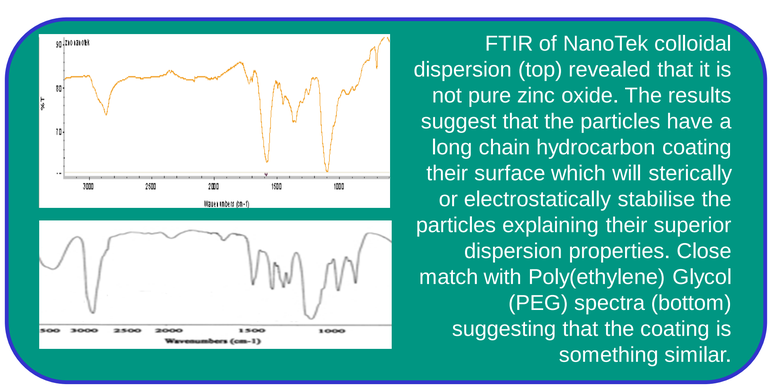
Research Infrastructure QualityNano



DLS (Malvern Zetasizer Nano ZS): Hydrodynamic size, zeta potential and molecular weight

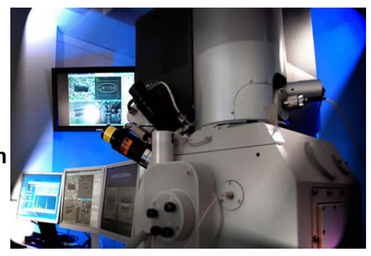


Perkin Elmer 580B double beam dispersive IR spectrometer



QNANO	UNIVLEEDS - Beneficiary#9	Transnational Access - WP15 - Analytical Facilities
Category	**Technique**	**Make / Model**
	Optical microscopy	Nikon Eclipse E600
		Nikon
	Total internal reflection fluorescence microscopy	Olympus/BX51 Fluorescence Microscope
	Infrared spectroscopy	Thermo Scientific iS10 FTIR spectrometer & Bruker, IFS 66v/S
	X-ray diffraction, scanning system	Phillips and Bruker
	Conventional scanning electron microscopy	ZEISS, FEI, Camscan
	Electron probe microanalysis (WDX & EDX)	Cameca SX-50 EPMA
	Variable pressure scanning electron microscopy	Philips XL30 ESEM-Environmental SEM
	Field emission scanning electron microscopy	LEO 1530 FEGSEM-High Resolution Field Emission Gun SEM
	Dual beam focused Ion beam/SEM	FEI Nova 200
	Nanoprober (Field emission SEM plus 4- in situ) Scanning Tunnelling Microscopes	Omicron Nanoprober
	Variable temperature STM/AFM	Omicron
	Transmission electron microscopy (TEM/STEM plus EDX plus EELS Imaging Filter)	Phillips CM200 FEGTEM - high resolution field emission gun TEM and EELS FEI Tecnai TF20 FEGTEM - high resolution field emission gun TEM
	Aberration corrected scanning TEM (STEM)	Nion Mark I and Nion MkII UltraSTEM
	Combined TEM-STM	Nanofactory
	Atomic Force Microscopy (AFM)	Veeco Nanoscope IV Multimode plus many others
		Veeco Bioscope II AFM plus many others
	BET surface area	Micromeritics Tristar 3000 (two identical instruments)
	X-ray photoelectron spectroscopy	Thermo EscaLab 250
	Auger Electron Spectroscopy	Thermo EscaLab 250
C – Particle characterization in situ & ex situ	Dynamic Light Scattering	Brookhaven B1-200SM
		Horiba LB500
	Zeta potential	Malvern Zetasizer Nano ZS (3 instruments)
		Anton Paar EKA - with titrator
		Colloidal dynamics ZetaProbe - with titrator
	Particle tracking analysis	Nanosight Halo LM10 NTA System
	Analytical centrifugation (Spinning Disc Centrifugation)	New Instrument on order
	Infrared spectroscopy	Perkin Elmer 580B double beam dispersive IR spectrometer
	Raman spectroscopy	Renishaw 2000 Raman Microscope
	Nuclear Magnetic Spectroscopy (NMR)	Bruker MSL300 Spectrometer

Carl Zeiss EVO MA15 variable pressure W SEM with **Oxford Instruments AZtecEnergy EDX system** with **80mm X-Max SDD detector-** secondary and backscattered imaging, EDX elemental mapping and linescans plus CZ **STEM** detector.



FEI Nova 200 NanoLab **high resolution Field Emission Gun Scanning Electron Microscope(FEGSEM)** with precise **Focused Ion Beam(FIB)** - etch and deposition capabilities

Characterization Protocol

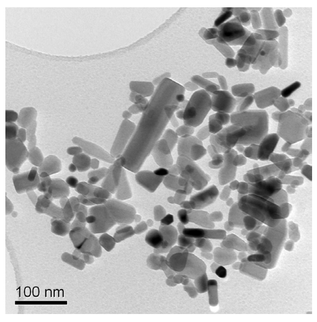
Technique/ Characteristic	Transmission electron microscopy (TEM)	Selected Area Electron Diffraction	Energy Dispersive X-ray Spectroscopy	Scanning electron microscopy	X-ray diffraction	Dynamic light Scattering (DLS)	X-ray Photoelectron Spectroscopy (XPS)	Fourier Transform Infrared Spectroscopy (FTIR)	Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	Differential Pulse Voltammetry (DPV)	Potentiometric titration	Zeta potential	X-ray Fluorescence Spectroscopy
Size / Shape	√			√	√	√							
Agglomeration State	√			√		√							
Composition /Purity			√		√		√	√	√				√
Crystallinity		√			√								
Surface charge											√	√	
Solubility									√	√	√		

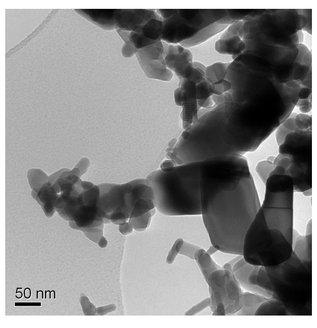
ICP-MS SEM AAS

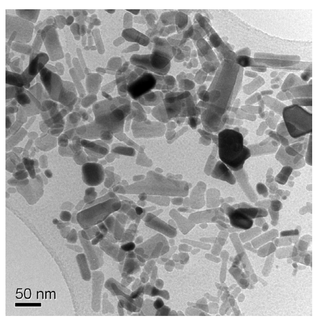
FEI Tecnai TF20 FEGTEM Field emission gun TEM/STEM fitted with HAADF detector, **Oxford Instruments INCA 350 EDX system/80mm X-Max SDD** detector and **Gatan Orius** SC600A CCD camera

ZnO 40 % colloidal dispersion (Alfa Aesar)

Average particle size = 55 ± 30 nm







About QNano

QNano is an analytical research infrastructure whose purpose is to drive high quality research and testing practices for assessment of the potential risks posed by nanomaterials.

QNano will provide Users with access to 15 major European facilities for nanomaterials processing, characterisation and exposure assessment to support their ongoing research in these areas.

Access is via a single application and evaluation process.
QNano is able to meet the Users' costs for:

- Research (bench fees and consumables)
- International travel
- Local accommodation while based at the TAF
- A per diem to contribute towards living costs.

Note: TA results must be made publically available via publication / patent / PhD thesis etc.

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Proposal submission:
Access is granted via a unified application process via 6-monthly TA call, available on-line under: www.qualitynano.eu

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