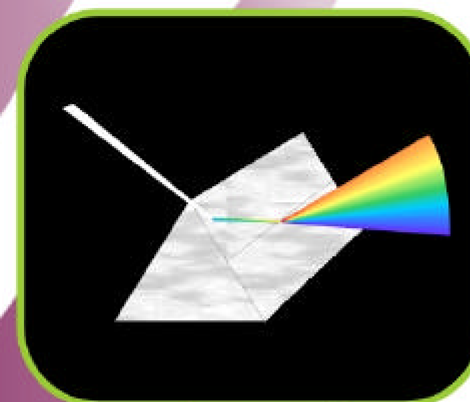
Aquila Instruments

Pro-Optix™ Control and analysis software for the nkd Series

Advanced Thin Film Characterisation



Specification

System Control	Fully automatic control of all system functions through PCI interface card Sample mapping, sample temperature control, automatic polarisation selection (option), (nkd-8000) motorised angle control (option)
Calibration	• Automatic calibration on reference sample before each measurement
Measurement	• Data acquisition wizard • Simultaneous measurement of transmittance and reflectance from same area • Scan: 1nm + steps, Interval and readings programmable • Scan range programmable in 1nm steps
Display	• Layer representation with thickness and material name • Realtime graphical representation of : transmittance & reflectance spectra, n & k also tabular format: T & R and n & k vs wavelength • Graph axis display functions
Data analysis	• Determination of n, k and d for up to 5 layers with 2 unknowns • Automatic(default) and advanced analysis modes • Dispersion Models: Cauchy, Drude-Lorentz, Aquila, NK • Regression Techniques: LM, Powell, Global • Analyse:Transmission, Reflection or both • Colour co-ordinate calculations • Solar calculations • Metal film algorithms • Coherence factor for uneven surfaces, inhomogenous layers
Printing	• Print preview function, page setup, copy to clipboard
Saving	• Data file (.opp), bitmap, jpeg
Exporting	• Essential Macleod, Microsoft Word, Microsoft Excel - graphics and data
Database	• Comprehensive materials database for automatic analysis function
Operating system	• 32-bit Microsoft Windows 2000
Sample mapping	• Programmable control for mapping of sample area 100 x 100mm
Variable angle	• Programmable control of incident beam angle from 0 to 90 degrees
Temperature scan	• Programmable temperature scan for spectral collection ambient to 150 degrees C
Offline analysis	• Optional offline capability - standalone software license
Modules	• NK View model generation program • Pro-Optix Merger - merge s- and p- polarisations for combined analysis and manipulating measured data

MILLBROOK
SCIENTIFIC INSTRUMENTS PLC

Aquila Instruments

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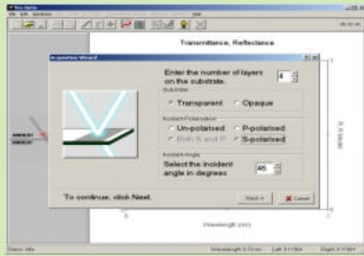
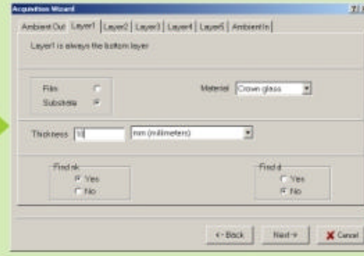
Acquisition Wizard

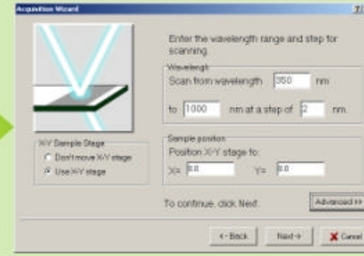
The Acquisition wizard, guides the user through the measurement.............



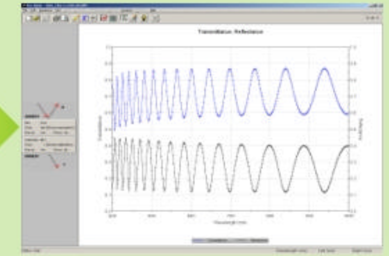
Set-up measurement conditions



Input sample data - select from material database



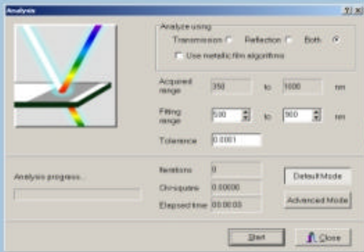
Set scan range and step



Simultaneous measurement of T and R

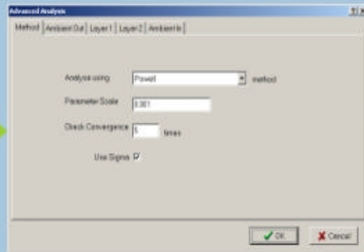
Analysis

....and analysis process.....



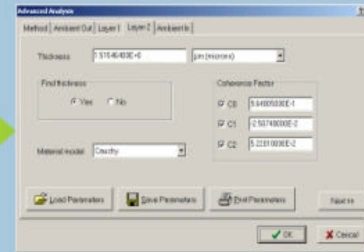
One click automatic analysis with default mode

Or manual analysis with advanced mode



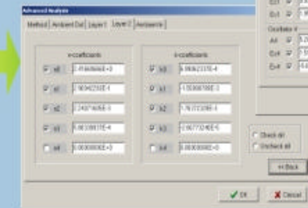
Choice of curve fitting techniques with advanced mode

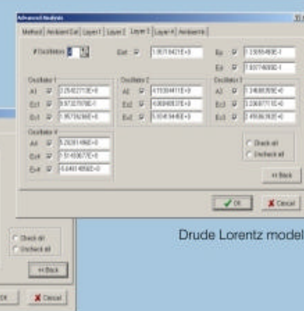
Coherence factor for uneven surfaces



Dispersion model set-up

Cauchy model

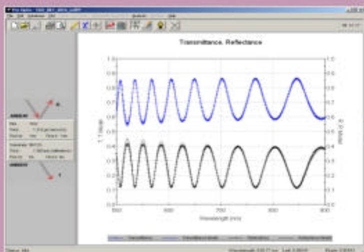




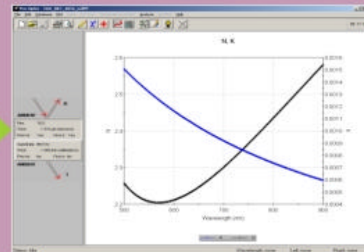
Drude Lorentz model

Presentation

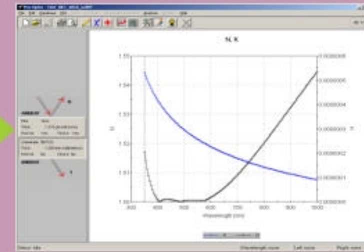
....to calculate n, k and d in under 10 minutes......



Fitted T and R curves for complete layer system



Dispersion & thickness for individual layers



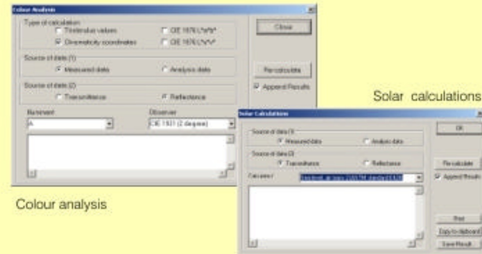
Dispersion for substrate

...then save, print or export your data.

View table or graphical formats - copy & paste

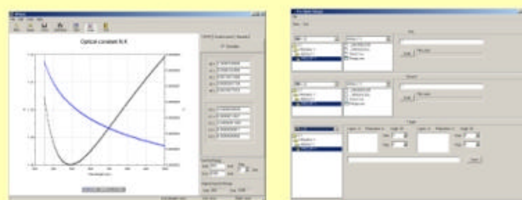
Special Features

Pro-Optix has a host of features to suit many applications and provide the user with the ultimate tool for analysis of the nkd T and R spectra.



Colour analysis

Solar calculations



NK View material model generator

Spectral merger tool

Pro-Optix™ Is the powerful data analysis and acquisition package, which provides full control of the nkd spectrophotometer through an intuitive windows interface and is suitable for novice and experienced users alike .

Automatic features such as the acquisition wizard, guide the user through the spectral collection process with ease. A few simple steps are all that is required to produce transmittance and reflectance spectra, for films, coatings and substrates, which can be analysed automatically with one click to extract the layer thickness, refractive index and absorption values.

Pro-Optix™ uses a variety of dispersion models to represent the complex refractive indices of each material under analysis. A range of dispersion models are available, for defining new materials, which can be added to the database for use in future analysis. Uneven layers and inhomogenous films are catered for with a coherence factor, providing valuable qualitative information about the film uniformity.

Measured and calculated data are presented in tabular and graphical format and can be viewed alternately with the click of a button on the main toolbar. Spectra can be saved in a variety of useful formats and printed or exported to the Essential Macleod. S- and p- spectra can also be combined with the merger tool for accurate profile matching.

- Simultaneous measurement of T & R from same area
- Full system control - easy to use
- Precise unambiguous determination of refractive index (n), absorption coefficient (k) and layer thickness (d)
- Sample mapping with X Y platform - option
- Fast automatic analysis of known materials
- Coherence factors for uneven surfaces, inhomogenous films
- Measurement of transparent substrates and no sample preparation
- Inbuilt materials database
- Intuitive use for experienced and experienced operators alike
- Selection of Dispersion models
- Online & offline analysis capability