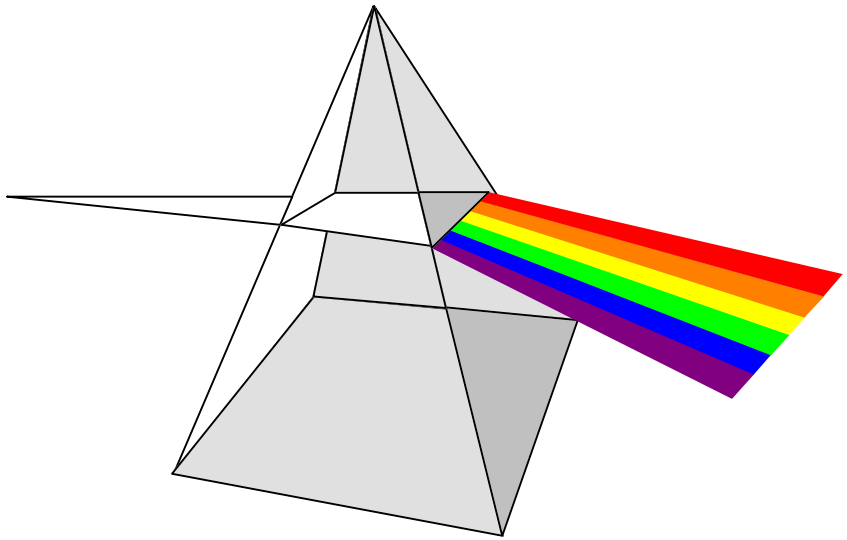
New Developments for MCS 500



Spectral Sensors

New Basic Developments recently introduced

- MCS 511 NIR Family
- OMK 500 H NIR
- Film Control - Low Cost Thickness Measurement System
- Measuring Head for Low Reflection Coating 10°/10°

Spectral Sensors

New Software Developments soon available

- MCS 500 Driver for GRAMS® Software Package
- Driver to run cascaded MCS501/551 in Double Beam Mode

Spectral Sensors

Recently finished and current Projects

- **On-Line Measurement of Low-reflection Coatings on CRT**
  Company LEYBOLD
  Installations in Wales(finished) and Japan(Nov. 98)

- **In-Line Measurement of vacuum-coated foils**
  Company LEYBOLD
  Installation in Switzerland (Nov. 98)

- **In-Line Measurement and Quality Control of coated Glass**
  Company LEYBOLD
  Installation in France (Oct. 98)

Spectral Sensors

Recently finished and current Projects

- **Colour Measurement of PE-Coating on Photo Paper**
  Company FUJI Netherlands 10/98

- **Aromatics in Water**
  Company DOW/PSL Netherlands/Germany

- **Measurement of Fat, Protein, Moisture in Meat**
  Company Reichert/Schnell GmbH 10/98

Spectral Sensors

Recently finished and current Projects

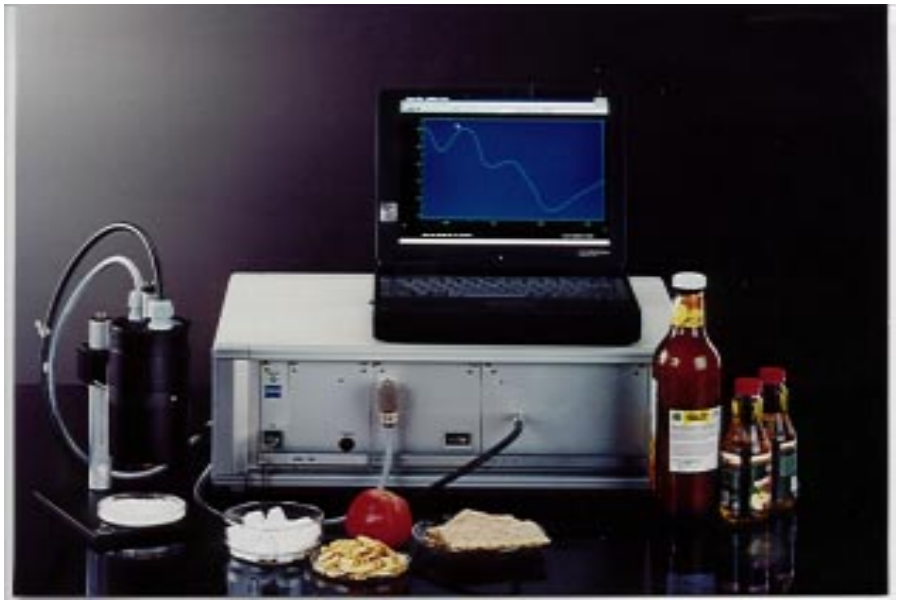
- **On-Line Control of Production of „Bio-Diesel“ / NIR**
  LUT Germany 11 / 98

- **Reflection of Lamp Bulbs (380 - 1700 nm)**
  Auer GmbH / Germany 9/98

- **In-Line Measurement of sugar and alcohol in filling plants**
  Diessel Germany Test

Spectral Sensors

Spectrometer System MCS 511 NIR



MCS 511 NIR with OMK500

- Polychromator MMS NIR

- 950 - 1700 nm (6nm/diode)
- 1400 - 2200 nm (in Prep.)
- 1000 - 2400 nm (in Prep.)

- Compatible with MCS500 Familiy
- Cascadeablewith all MCS500

Spectral Sensors

Spectrometer System MCS 511 NIR

Wavelength range	950 - 1700 nm (InGaAs, cooled)
	1400 - 2200 nm (ext. InGaAs, cooled)
	1000 - 2400 nm (ext. InGaAs, cooled)
Wavelength accuracy	< 0,6 nm
Wavelength Reprod.	< 0,1 nm
Resolution	6 nm/ diode (18 nm acc. Rayleigh)
Absorption Range	0 ... 3 AU
Linear Range	0 ...2 AU (With Blocking Filter RG1000)
Stray Light	< 0,1 %T measured at water band
	with blocking filter (RG850)
Noise	< 1 mAU (1sec. Measurement Time)

Spectral Sensors

Spectrometer System MCS 511 NIR

AD-Converter	15/16 bit
Interface	RS 422 (serial, 20 Mbit/sec)
Transfer distance	Appr. 80 m (Standard) Appr. 2500 m (Fiber cable)
Housing	19“ Standard incl Lamp 19“ Protective housing IP65 19“ Plug-in Rack 9,5‘‘ Housing (without lamp)

Spectral Sensors

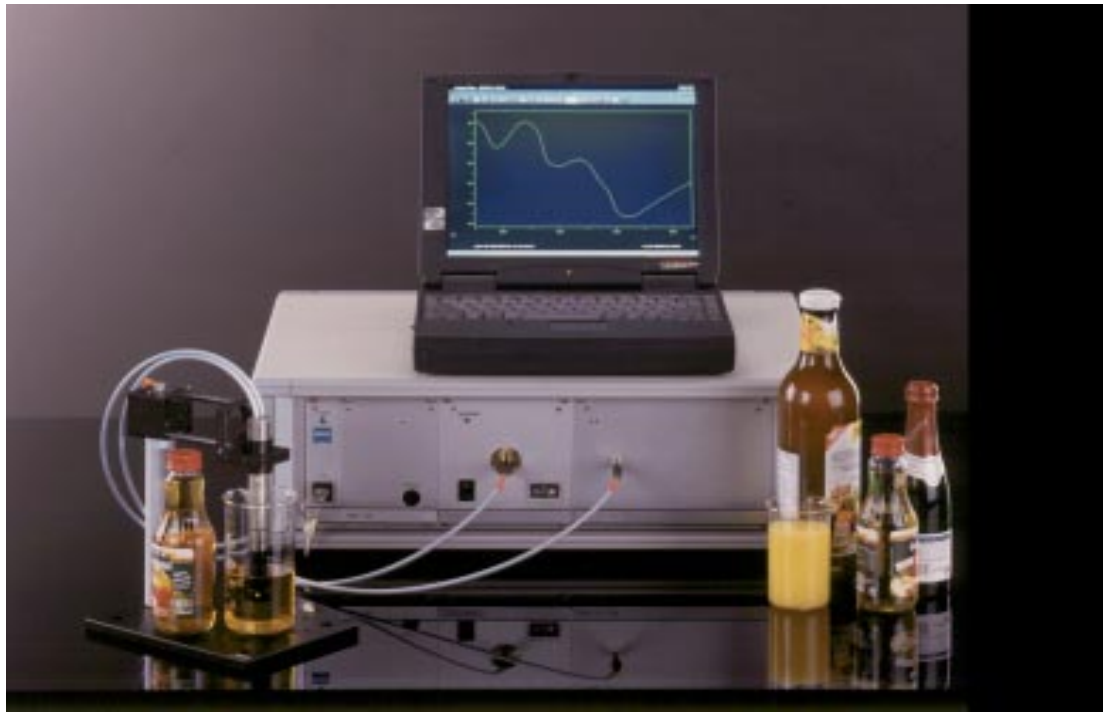
Applications of MCS 511 NIR

Food Industry

Glass Industry

Forage Research

Pharmacie



Spectral Sensors

Spectrometer System MCS 511 NIR Software

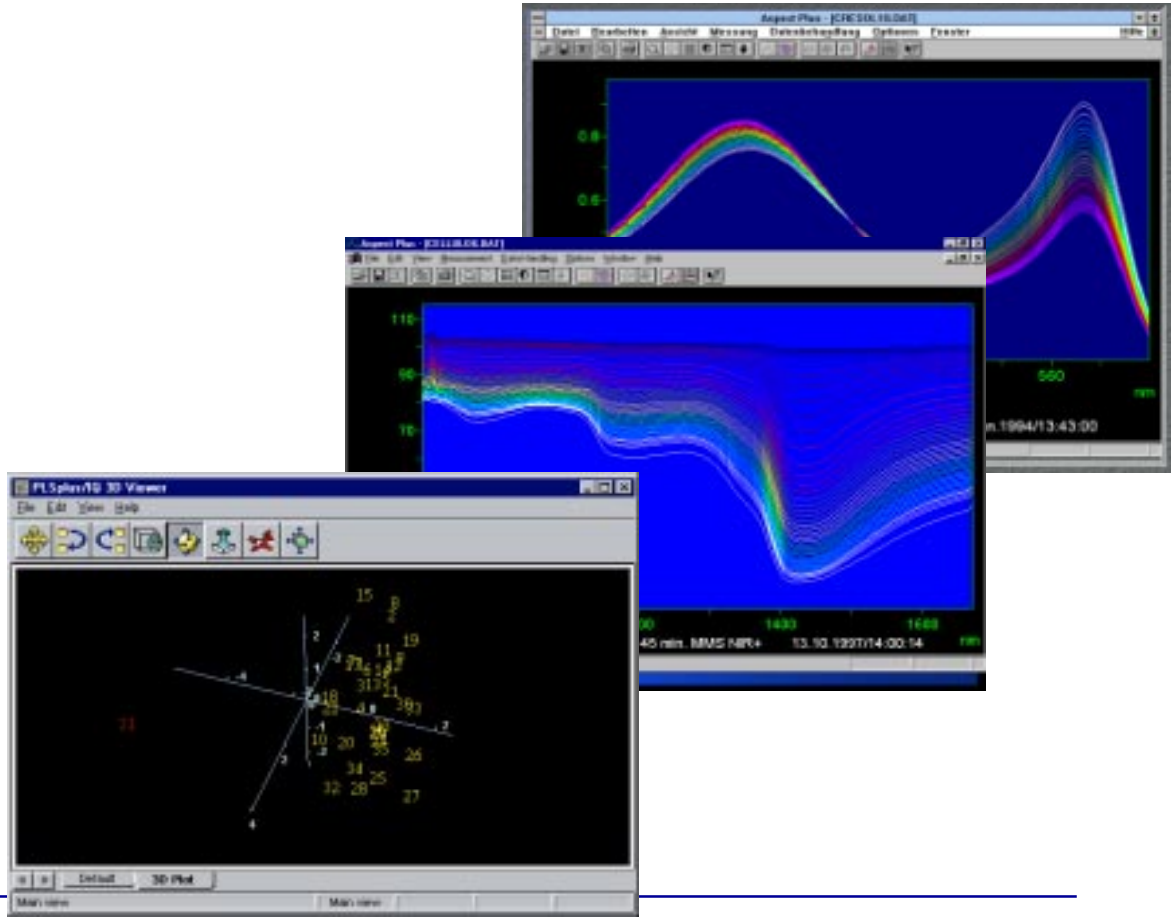
ASPECT PLUS

Customer-tailored Software

GRAMS ® 32

LabView Library

C - Library



Spectral Sensors

Spectrometer System MCS 511 NIR

Accessories

Integrating Spheres

Reflection Head OMK 500

Diffuse Reflection Probes

Optical Multiplexer (2 .. 16 channels)

Spectral Sensors

Spectrometer System MCS 511 NIR

Accessories

SMA Optics

Cell Holder

Immersion Probes

Spectral Sensors

Spectrometer System MCS 511 NIR

Reflection Head OMK 500 NIR

Wavelength Range	400 - 2400 nm
Geometrie	0°/45°(circular)
Light Source	Tungsten lamp
Life Timeof lamp	> 5000 h
Power Source	5 V/2A
Fiber Connector	ZEISS

Spectral Sensors

Measurement System for Low-Reflection Coatings

Optimized for CRT

Geometrie 10°/10°

High Attenuation of back Reflection

Automatic version with integrated Calibration Set available

Spectral Sensors

Reflection Handy Head 10°/10°

Application	Measurement of low reflecting coatings on glass surfaces
Geometrie	10° / 10°
Wavelength Range	360 - 2000 nm
Measuring Spot	2 mm
Connector	2 x ZEISS

Spectral Sensors

Film Control - Thickness Measurement System

Single Layer Coatings

Range 1 - 30 um

FFT Algorithm

Integrated PC

Tungsten Light Source

Spectral Sensors

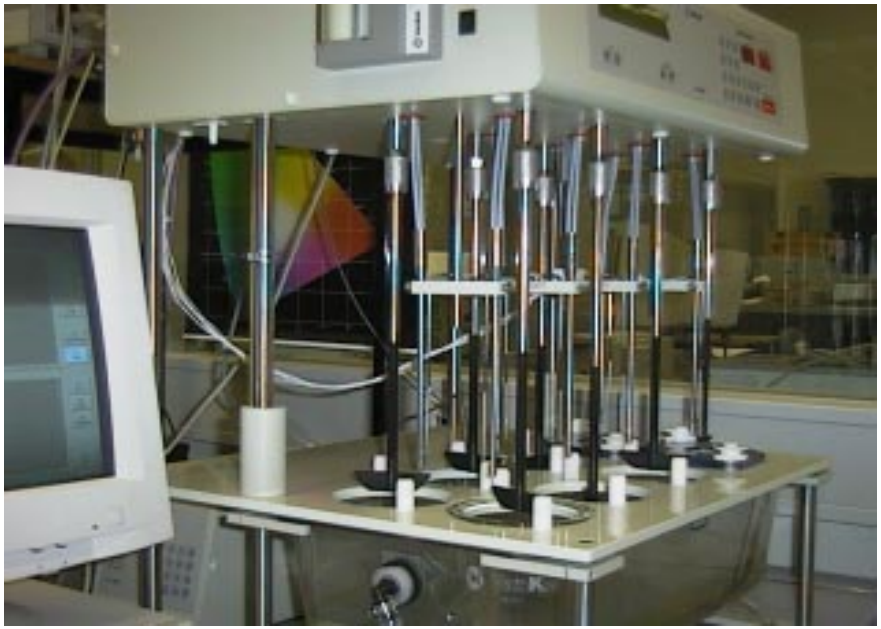
Film Control - Thickness Measurement

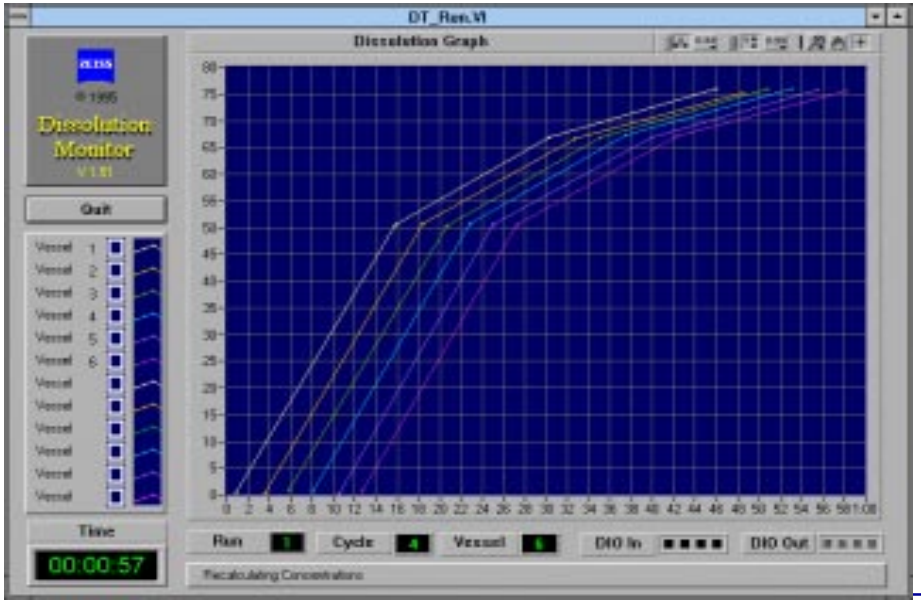
Thickness Range	1 - 30 um (optical thickness**)**
	Single Layer
Principle	White light interference
Polychromator	MMS1
Light Source	Tungsten, 5V/8W
Electronic unit	Integrated PC
	14-bit electronic unit
Accessories	Y - Light guide
	SMA Optic

Spectral Sensors

MultiChannel Dissolution System ZDIS-MUX

MCS 551UV / CLD500
8-Channel MUX
Immersion Probes





LabView® based Software