



**Anton Paar**

::: Intelligence in Rheometry



## Advanced UV System

The advanced UV system is a combination of the well established and actively heated Peltier hood including convective geometry shaft heating and the new Peltier heated UV cell. This unique system ensures quick and accurate temperature control and a powerful as well as homogenous UV cure.

## UV Applications

During the past few years, UV light curing of materials, a photochemical polymerisation process, has experienced rapid growth and has evolved from a laboratory curiosity to a new industrial standard technology. UV light is part of the electromagnetic spectrum from 200 nm to 400 nm. Both, technological and economic benefits explain the growing interest in the technology.

## Light Source

A powerful ultraviolet (UV) light source is connected to the cell via a flexible light guide and controlled by the software. It can be switched on and off simultaneously to the rheological measurement profile. On request the light source is available with a built-in radiometer for calibration purposes.

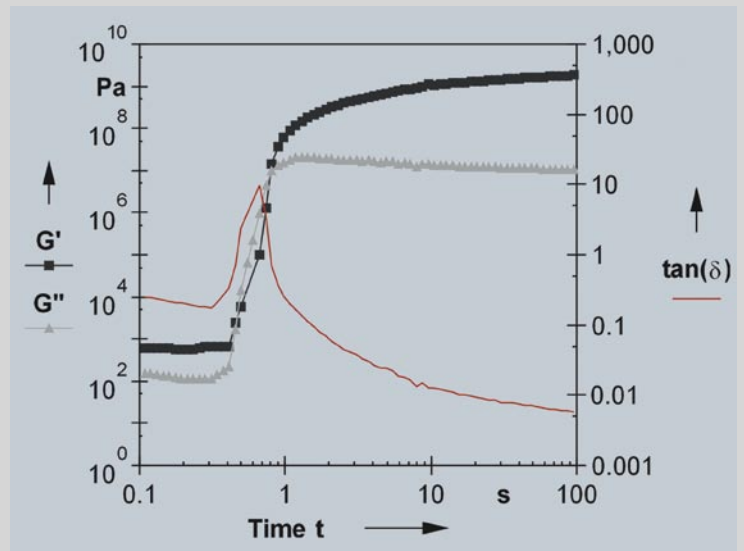


Figure: Rapid curing process within less than 10 seconds.

## Data Acquisition

Depending on the chemical material, layer thickness and UV light intensity the sample cures within a very short time. In order to track the chemical reaction a fast data acquisition is needed. The unique Direct Strain Oscillation (DSO) method enables the highest possible data rate for oscillatory tests.

## Features

- ▶ Software controlled shutter
- ▶ The sample is protected against external light sources / daylight
- ▶ Closed system (oven) that allows purging with an inert gas

- ▶ Fast data acquisition (DSO)
- ▶ Fast heating/cooling rates
- ▶ Temperature calibration routine
- ▶ A certified temperature calibration sensor can be used to calibrate the oven
- ▶ The operator can safely touch the shell at any operating temperature
- ▶ Extended temperature range for standard measurements (-40 °C to 200 °C)\*
- ▶ Sensitive normal force control (auto shrinkage compensation)
- ▶ Compliance correction
- ▶ Auto gap control (compensation for thermal expansion)

\* with optional lower plate P-PTD200

## Technical Specifications

### Rheometer

The PTD UV can be used in combination with all Physica MCR Rheometers

### UV-Cell

Peltier heated hood & basis plate  
Temperature range: 0 °C - 120 °C (-40 °C - 200 °C)

### UV Light Source

Peak Intensity:

250 nm - 450 nm: 22500 mW/cm<sup>2</sup>  
365 nm: 5600 mW/cm<sup>2</sup>  
320 nm - 390 nm: 10300 mW/cm<sup>2</sup>  
320 nm - 500 nm: 21700 mW/cm<sup>2</sup>

Lamp:

High Pressure 100 Watt Mercury Vapor Short Arc;  
2000 hours (typical life time)  
Warm-up Period: 90 seconds (typical)

## Accessories

- ▶ Measuring geometries:
  - Parallel-plate systems up to 50 mm
  - Cone-and-plate systems up to 50 mm
- ▶ UV safety eyewear



## Typical Applications

Aerospace, Automotive, Chemical, Coatings, Contact Lens, Defence, Dental, Electronics, Floor Covering, Fibreglass, Fibre Optic, Furniture and Timber, Glass/Crystal, Graphic Art, Ink Jet, Printing, Medical Device, Metal, Micro-electronic, Optical, Optical Disc, Opto-Electronic, Packaging, Plastic, Powder Coating, Semiconductor, Smart Card, Telecommunication.

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### Instruments for:

Density & concentration measurement	High-precision temperature measurement
Rheology and viscometry	X-ray structure analysis
Sample preparation	CO <sub>2</sub> measurement
Colloid science	

Specifications subject to change without notice.

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