

# Taperader®

Micro Grinding

Micro Calotest

Micro Tribology

Thin Coating Thickness

## Highlights

- Mobile design
- Fast and easy measurement
- Real-time in-situ measurement
- Analysis of surface/coatings abrasion resistance with nm resolution
- No visible damage on the surface



## Basic Functions

Thin films and coatings with a few nm to  $\mu\text{m}$  thickness are often applied on many products for the optimization of their mechanical properties and tribological performance. Therefore, an accurate measurement with high resolution is essential for R&D, quality assurance and process optimization for many industrial applications. Thickness measurement is typically done with a combination of indentation and scratch tests, and they are mostly for thicker coatings in micrometer range.

**Taperader**<sup>®</sup>, is by far the only measurement instrument that provides a mobile, fast, in-situ solution for real-time analysis of surface coatings, e.g. soft coatings. Its unique design allows for a wide range of applications on either a lab sample or finished products.

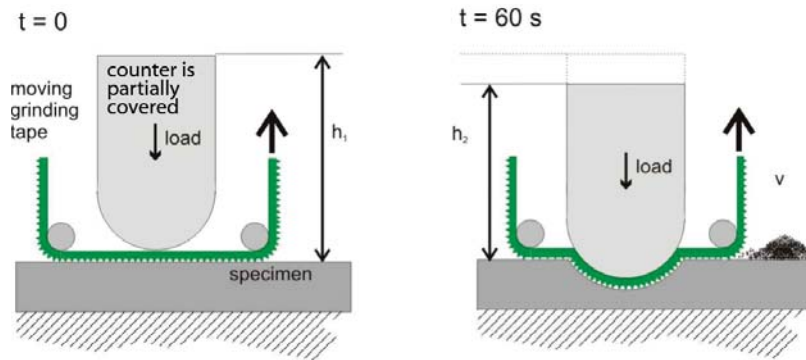
**Taperader**<sup>®</sup> measures:

- abrasion depth
- thin coating thickness

**Taperader**<sup>®</sup> consists of:

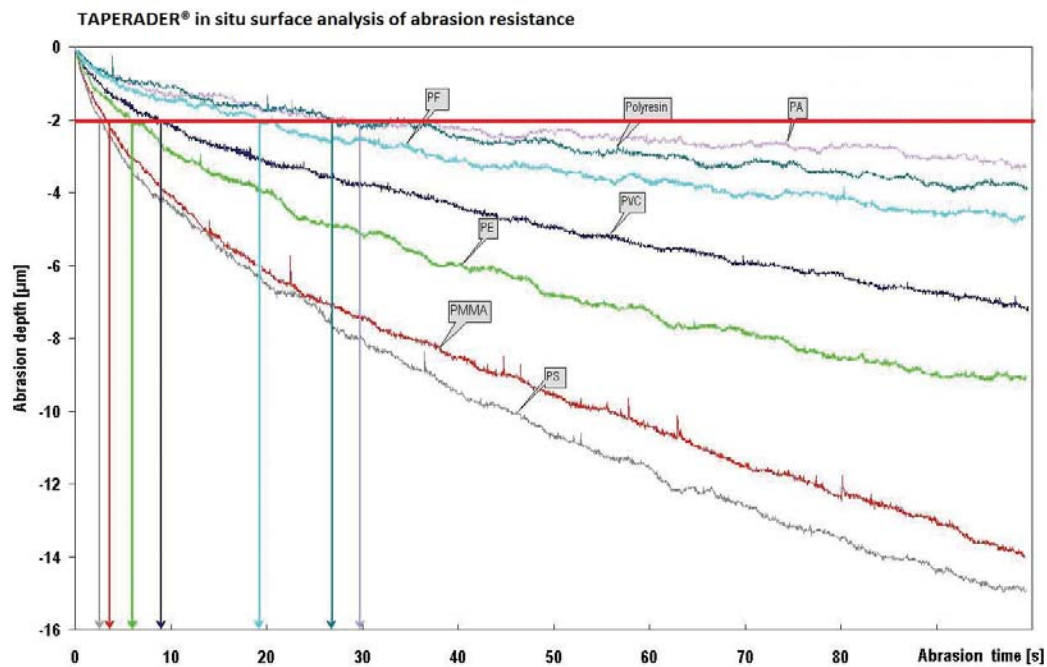
- loading system: providing a constant load
- highly defined tape: for micro-grinding
- Speed control system
- Optical height profile measurement system: real-time documentation of abrasion depth in nm resolution
- display: LCD graphical display
- data acquisition and transmission software: built-in software with USB, bluetooth functions

## Test Principle



A constant load is applied on the sample surface while a running tape grinds the surface for a duration between 60 to 240 seconds. The generated abrasion depth (difference between  $h_1$  and  $h_2$ ) is measured by a built-in optical sensor and is displayed on a LCD touchscreen.

## Test Results



Comparison of abrasion resistance behavior of different polymers

Along the abrasion time (s), coatings with higher abrasion resistance show a smaller abrasion depth

## Technical Specification

Measurement range:	ca. 0,50 mm
Resolution:	ca. 75 nm
Downforce:	ca. 150 mN
Loading and measurement tip:	Sapphire
Dimensions h/w/d:	109/107/82 mm
Weight:	1120 gr
Data entry:	Touchscreen
Data output:	LCD graphical display, USB, Bluetooth (optional)
Voltage:	Accumulator 7,5V 220mA
Wattage:	100mA (without Bluetooth)
Automatic switch to accumulator saving mode:	after 10 min.
Measurement modes:	Mode 1: time preselection (60 / 120 / 180 / 240 sec.) Mode 2: depth preselection in $\mu\text{m}$