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 µm 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 macrometer range.

Taperader®, 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.

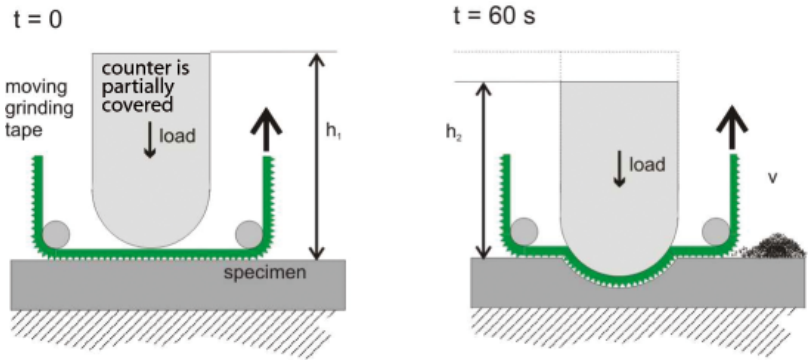
Taperader® measures:

- abrasion depth
- thin coating thickness

Taperader® consists of:

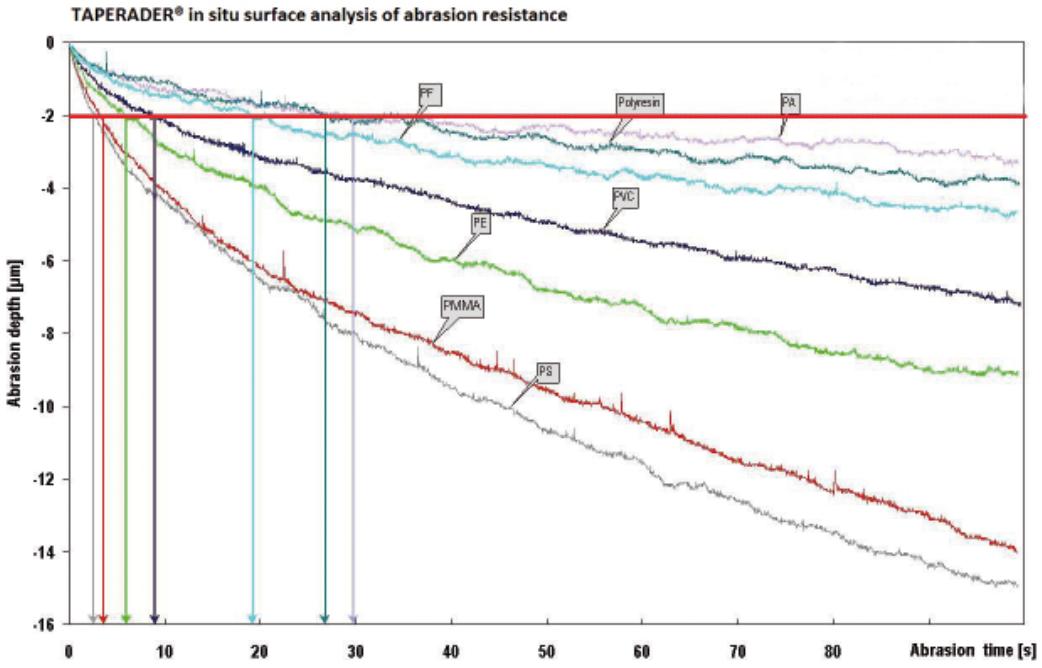
- loading system: providing a constant load
- highly defined tape: for micro-grinding
- Speed control system
- Optical height profile measurement system: real-time documentation of abrasion depth in nm resolution
- display: LCD graphical display
- data acquisition and transmission software: built-in 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 h1 and h2) 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 µm