

MSE method

Measurement steps and type of evaluations

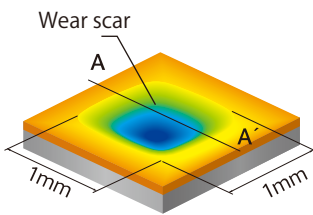
A Measurement steps

Through constant velocity and amount of solid particle impacted on material surface, the wear progression (wear rates) is related with surface strength. It is a new type of solid particle impact test (slurry jet) to swiftly evaluate wear properties of various material especially hard coated thin films.

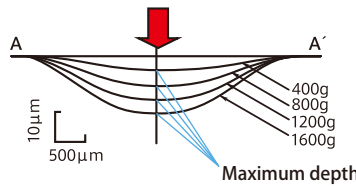
- 1 Slurry projection on predefine specimen surface
- 2 Profile measurement of wear scar
- 3 Data processing (Thin film case) [TiN]

(Slurry projection amount is selected base on the pass data)

Continuous operation comply with the need

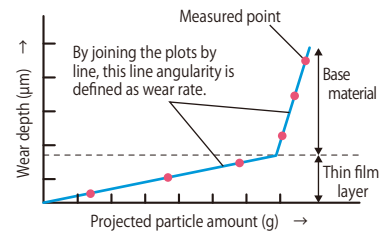


Superimposed figure from various test profile



Shape measurement was conducted along the centre of wear scar of A-A' line shown in left figure.
(The basis surface is the maiden surface of wear scar)

Projected particle amount and wear depth figure

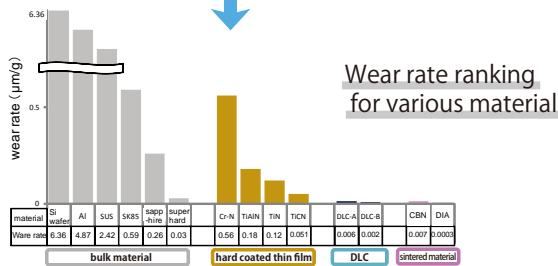
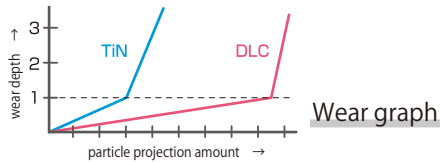


Wear rate of thin film layer	0.05 µm/g
Wear rate of base material	0.99 µm/g

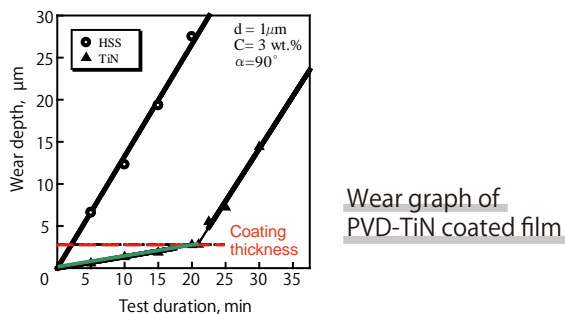
B Type of evaluation

- 1 Wear rate measurement

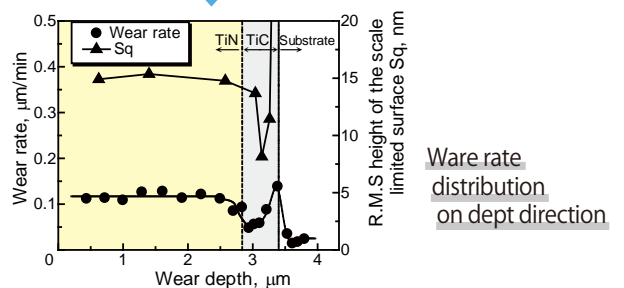
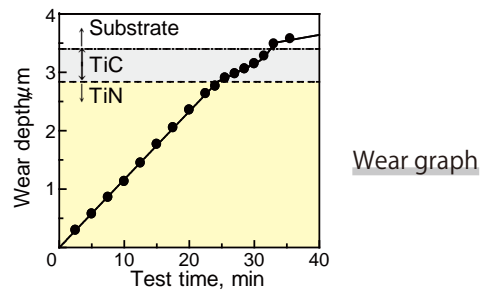
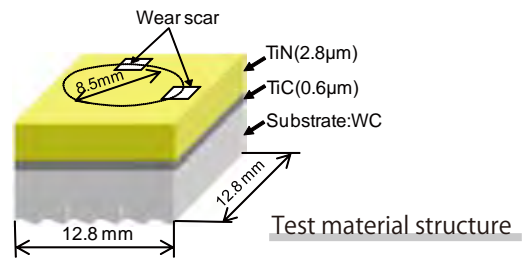
$$\text{Wear rate} = \frac{\text{Wear depth } (\mu\text{m})}{\text{Projected particle amount } (\text{g})}$$



- 3 Specific thickness evaluation of thin film (Especially for hard coating materials)



- 2 Continuous measurement of wear rate on depth direction from surface to base material



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