

## High Frequency Oscillating Tribometer “SRV” (DIN 51834)

This linear oscillating tribometer serves to characterize friction and wear behavior of materials and coatings or/and interaction with lubricants, greases, base fluids and additives. It represents the basis for the tribology-oriented development of materials and lubricants or for quality assurance and technical service applications (Fig 1). This tribometer is capable of simulating short linear sliding (fretting) and a variety of field conditions, in particular; relative humidity and temperature control. The natures of tribo-couple contact can be point, line or surface to surface using different sample holders (Fig 2). The set-up parameters are:

|            |                                     |               |                 |
|------------|-------------------------------------|---------------|-----------------|
| Load:      | 1 to 2'000 N.                       | Stroke:       | 0.1 to 4 mm     |
| Frequency: | 1 to 511 Hz.                        | Temperature:  | RT up to 290°C  |
| Humidity:  | 10% up to 90% of relative humidity. | Testing time: | till 999 hours. |

### Typical Standard method

**DIN 51834:** Standard test method for measuring the friction and wear properties of lubricating oils using the SRV test machine.

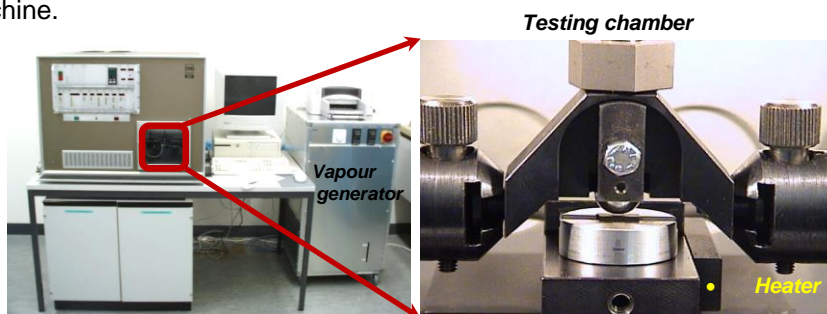


Figure 1: SRV tribometer set-up.

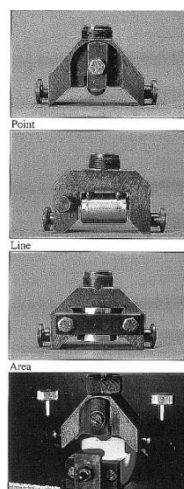
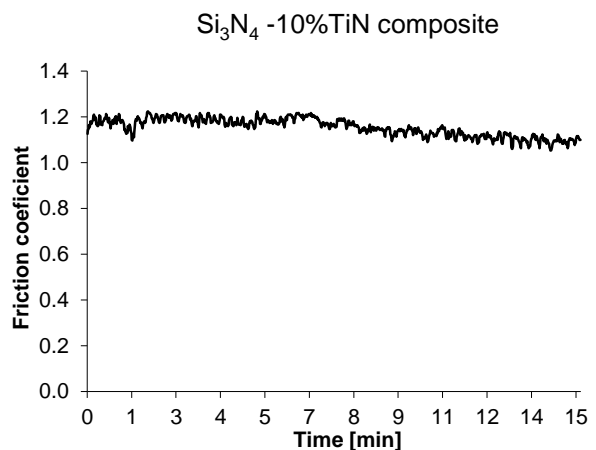
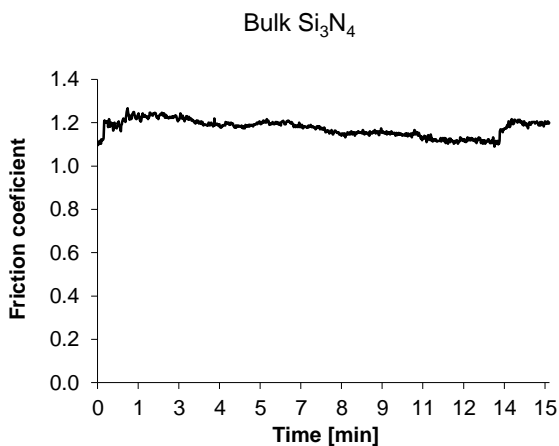
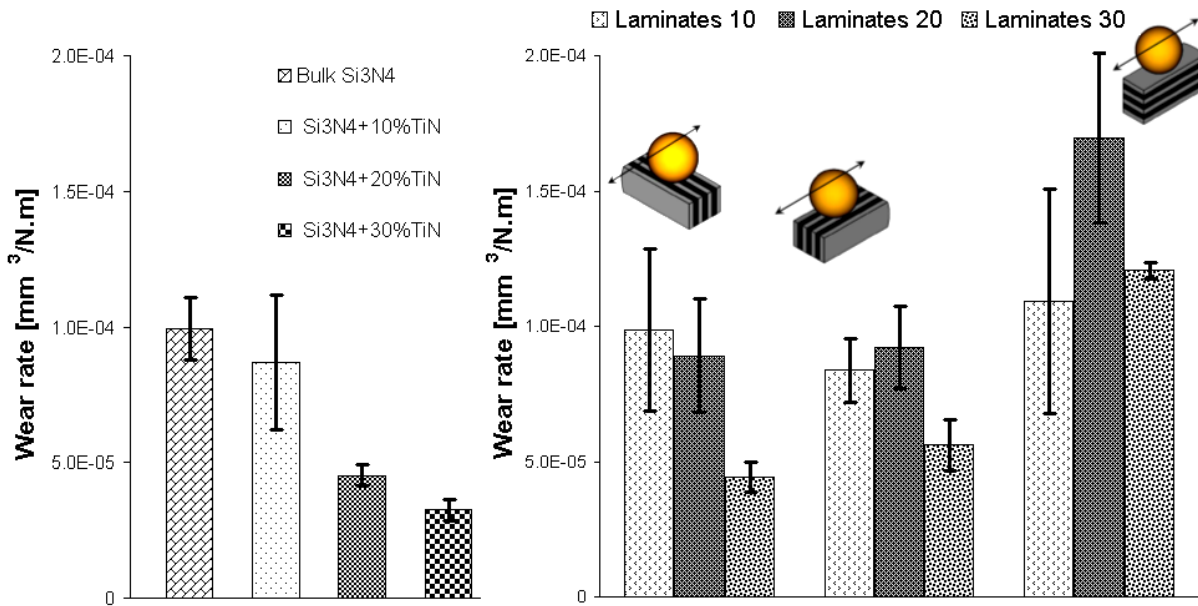


Figure 2: Different sample holders of standard tribological contact.

**Example of linear oscillating wear test**

Wear tests have been performed to study the tribological performance of different ceramic composites and different laminated ceramic structures. Moreover, the anisotropy of laminated materials was investigated. Wear rate and friction coefficients of those materials were compared as shown in Fig 3. The worn surfaces were also investigated by different analytical tools, e.g. EDX, SEM and profilometry to understand the wear mechanism (Fig 4).



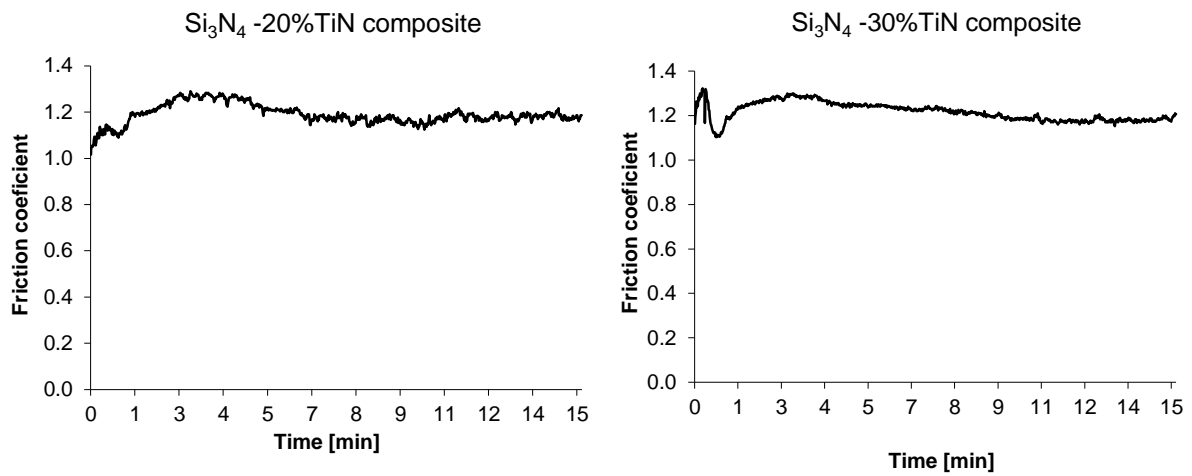


Figure 3: Wear rates and friction coefficient evaluation of different ceramic materials and different laminated structure regarding the sliding direction (Ref: Hadad M, Wear 2006;260:634.)

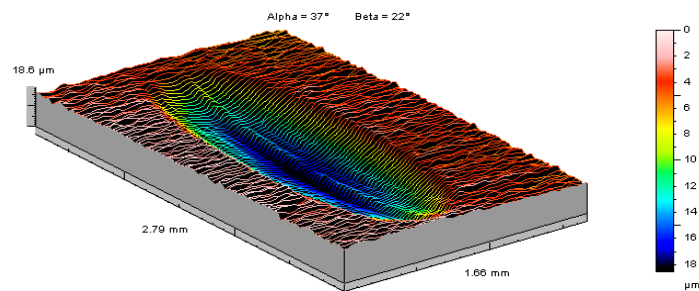


Figure 4: Worn surface morphology subjected to ball sliding scanned by White-Light profilometer (Altisurf 500-Cotec).