

Theme: Analysis of tribochemically formed reaction layers on Diamond-like Carbon (DLC) coatings

PVD-Technology

Topic:

Increasing demands on the energy efficiency of tribological systems and machines require continuous improvement of various components and tools. A technology for successfully increasing efficiency, e.g. in the automotive industry, is applying coatings on power train components by using Physical Vapour Deposition (PVD). This coating technology, enables the production of amorphous carbon coatings a-C(:H) (:Me/:X). These so-called Diamond-like carbon (DLC) coatings have friction and wear reducing effects in tribological systems, e.g. engine components such as tappets, piston rings and gear wheels.

Aim of the study:

The aim of this work is to analyze the interactions between lubricants/additives and DLC coatings using different analytical methods. Pin-on-Disk (PoD) tribometers, dual disk test-rig and gear efficiency test-rig are used for testing. The purpose is to detect the formation of tribochemical formed reaction layers and to analyze the influence on friction and wear behavior.

Conditions:

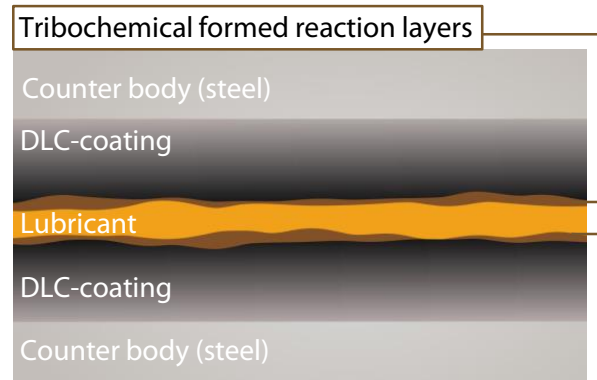
You study mechanical engineering, materials engineering, materials science or a comparable course of study. Are you interested in working independently and practically and in developing innovative coating systems? Then contact us by email or phone.



Porsche 911 R [www.Porsche.com]



DLC-coated gears [IOT]



Schematic illustration of tribochemical formed reaction layers in the DLC/DLC contact

If you are interested, we can make an appointment to discuss further details.
Just contact me by email or phone.

Contact:

M. Sc. Matthias Thiex
Tel: +49 (0)241 80-93692
Email: thiex@iot.rwth-aachen.de

Surface Engineering Institute
RWTH Aachen University
Kackertstraße 15
52072 Aachen
www.iot.rwth-aachen.de