

Fig. 1. RCF tribometer

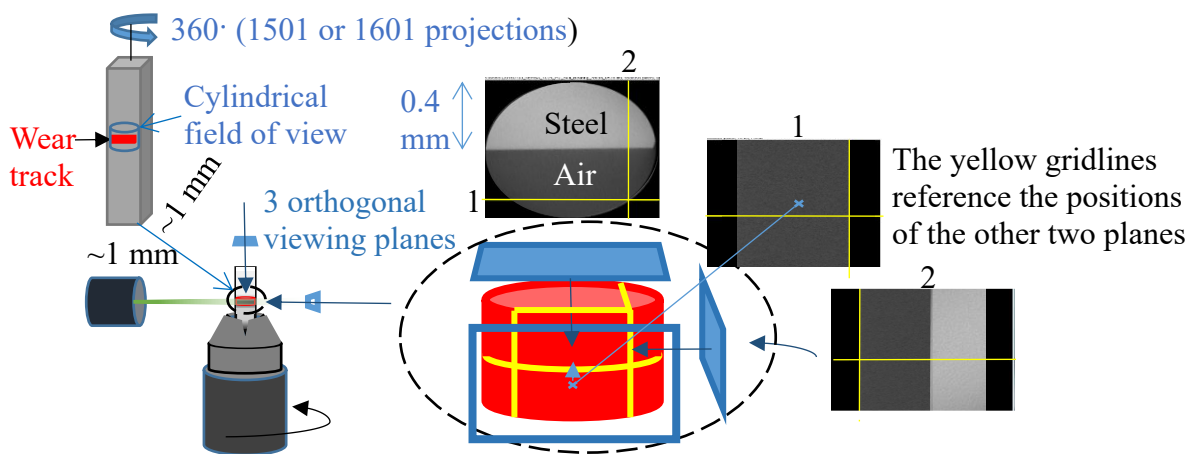


Fig. 2. Micro-CT scan set-up

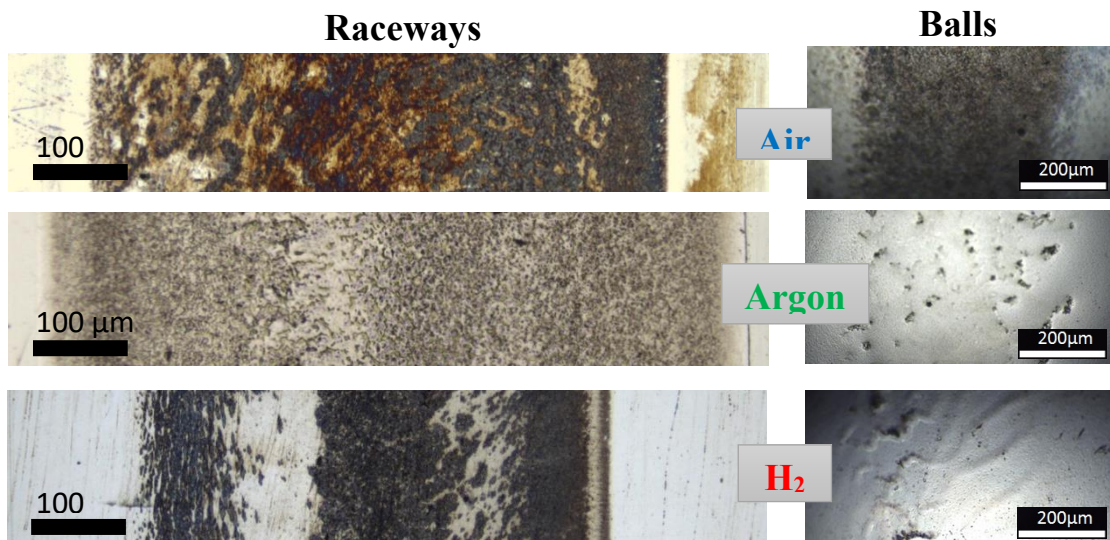


Fig. 3. Optical light micrographs of the wear tracks of raceways and balls

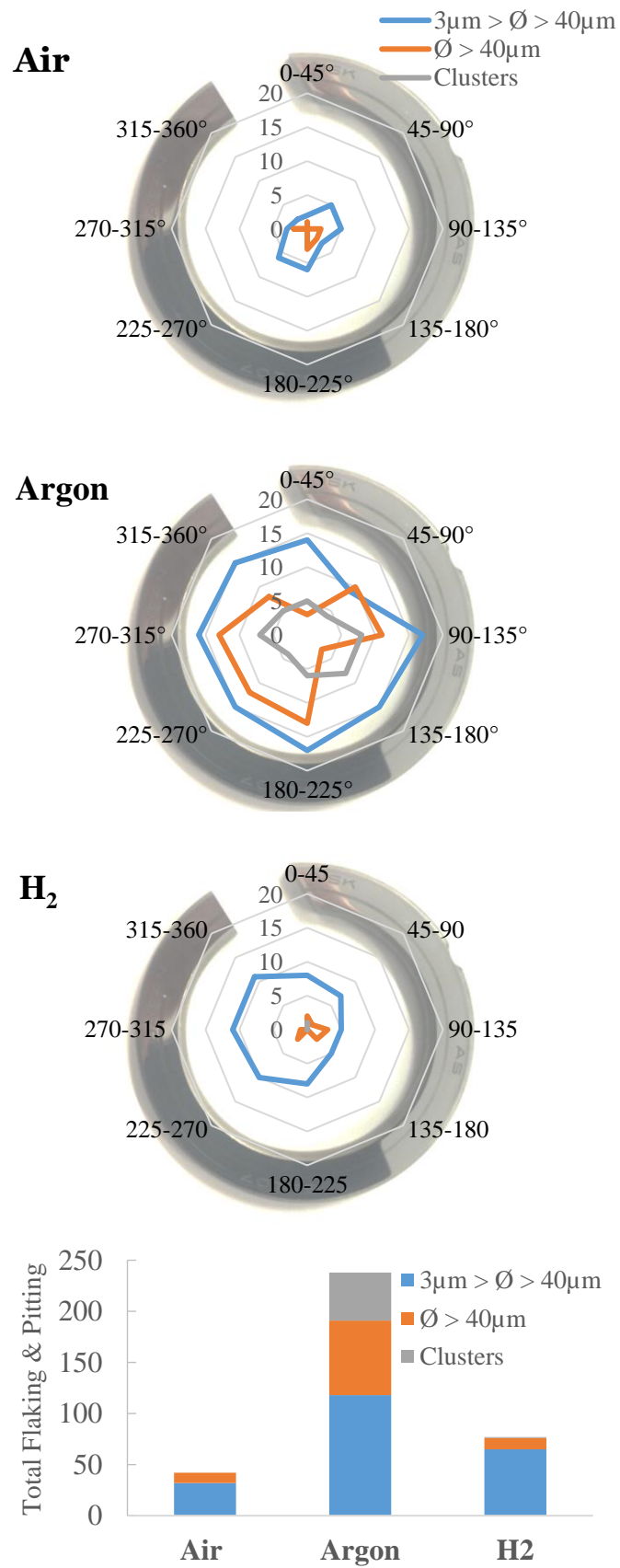


Fig. 4. Wear track damage: total flaking and pitting; a), b), c) are schematics of the wear tracks as received and locations where defects are found, d) histogram showing the direct type of damage observed under the three test conditions

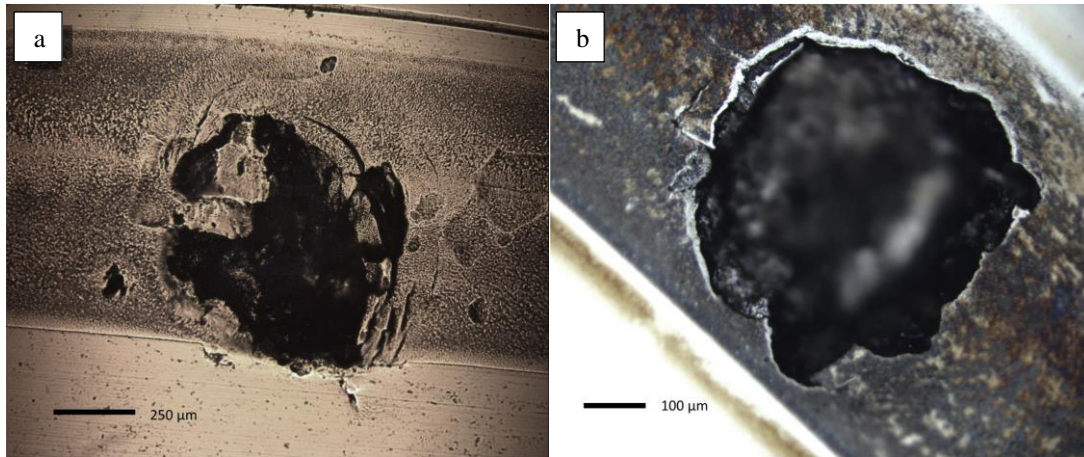


Fig. 5. Optical micrographs of raceway failure from spalling in a) Argon b) Air

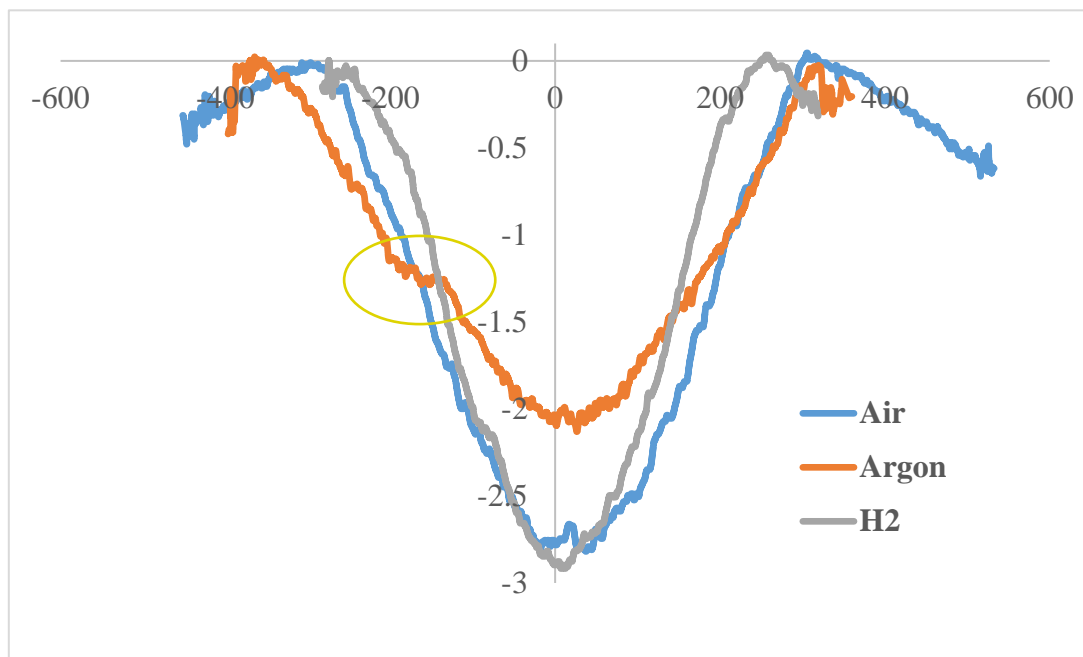


Fig. 6. Profiles of race wear tracks

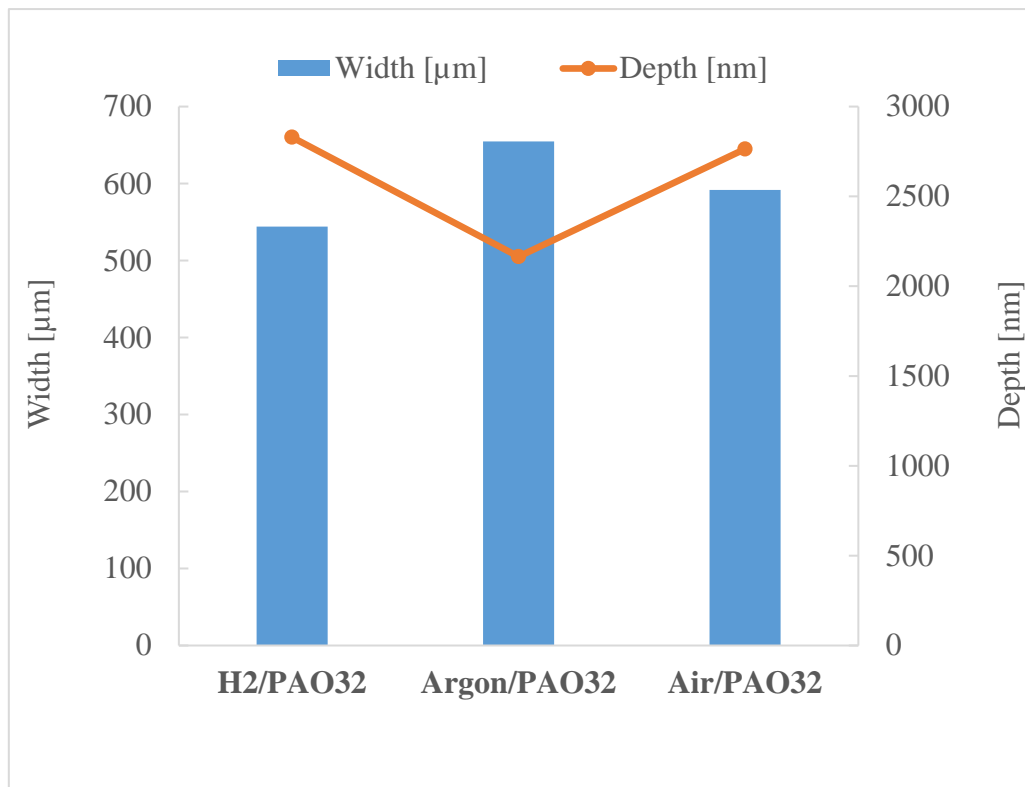


Fig. 7. Wear track mean width and depth

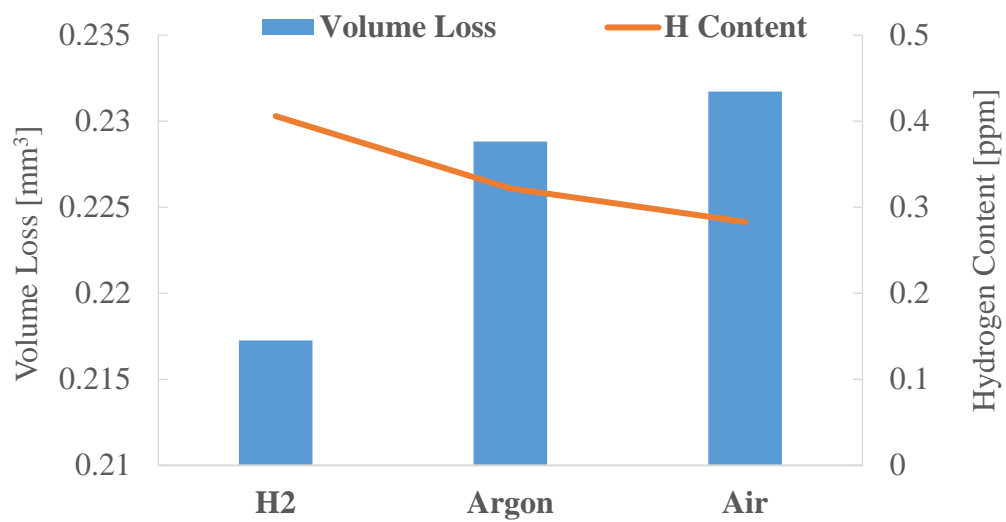


Fig. 8. Wear volume loss of the race wear track and the Hydrogen content

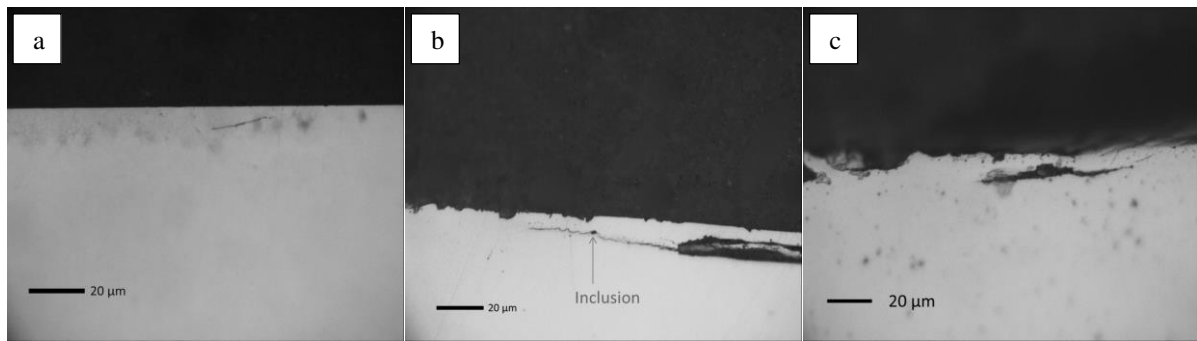


Fig. 9. Serial sectioning of the race specimens revealing subsurface cracks in a) Air, b) Argon, c) H₂

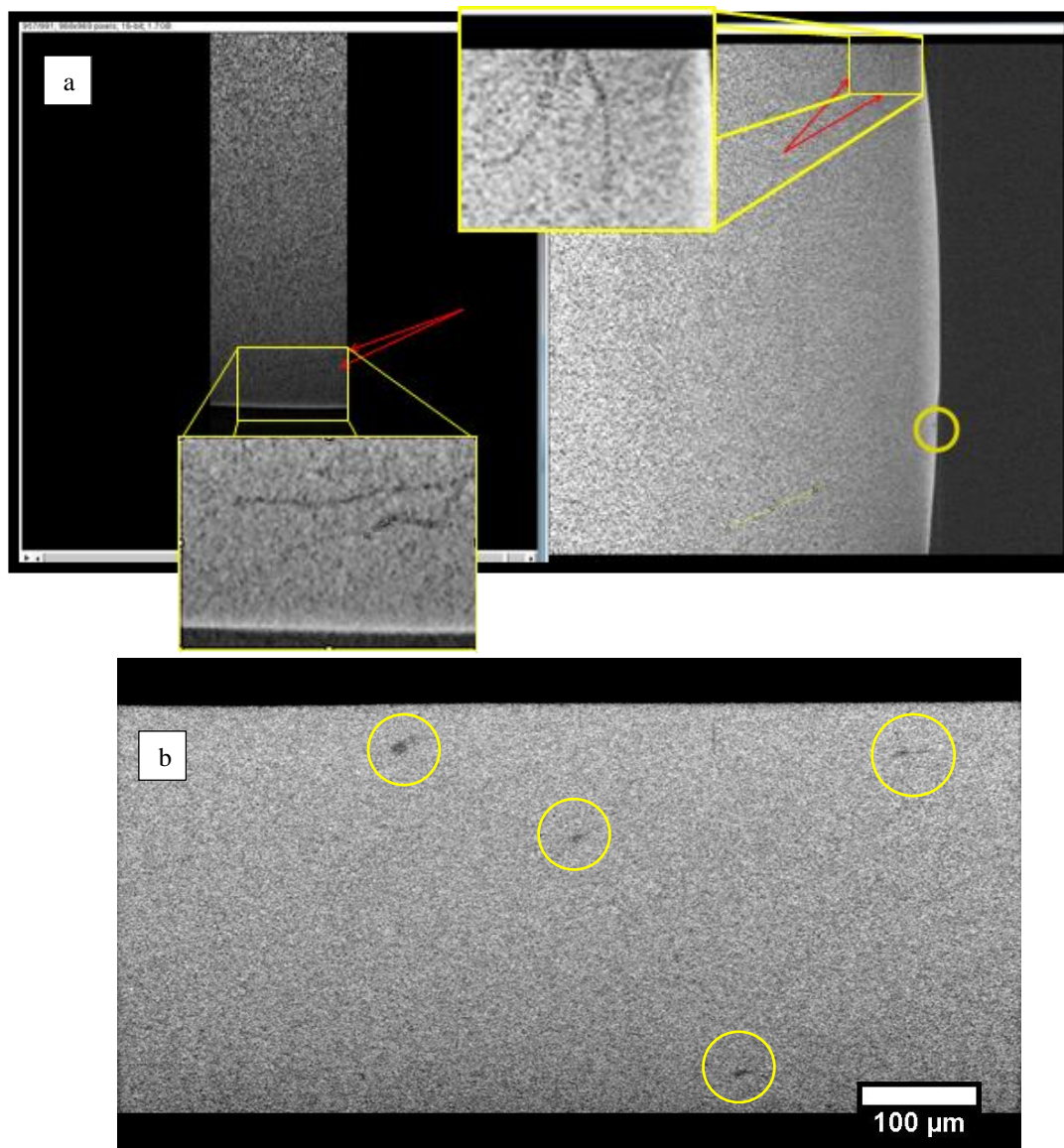


Fig. 10. μ -CT showing a). Base view (left) and Right view (right) exhibiting a multiple pathed crack propagating parallel to the surface of the H₂ ball, b). Pores in the H₂ race wear track subsurface

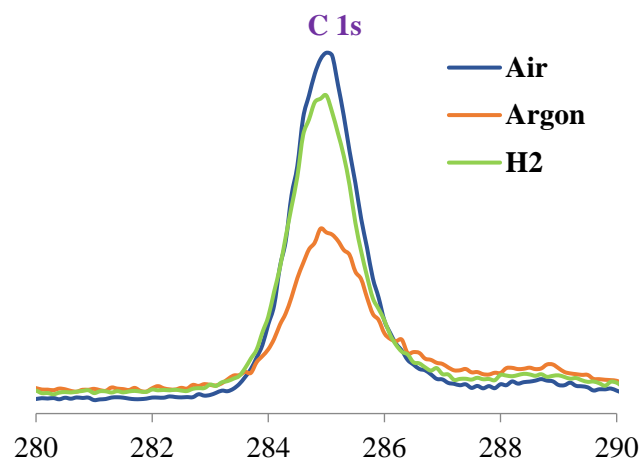


Fig. 11. C 1s spectra at the surface of the race wear track

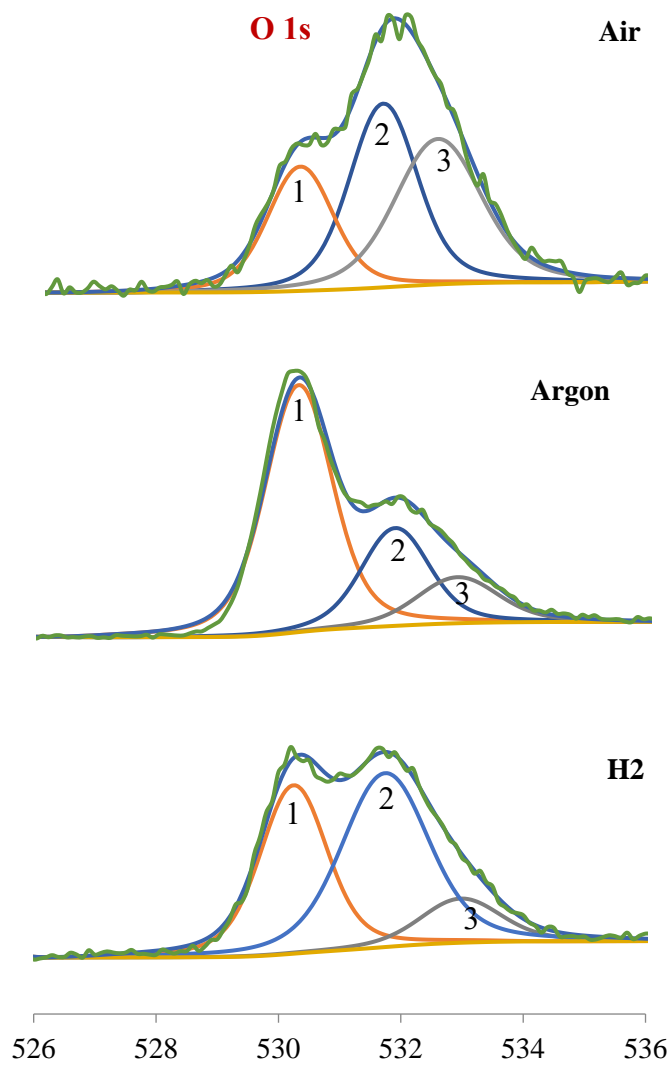


Fig. 12. O 1s spectra at the surface of the race wear track

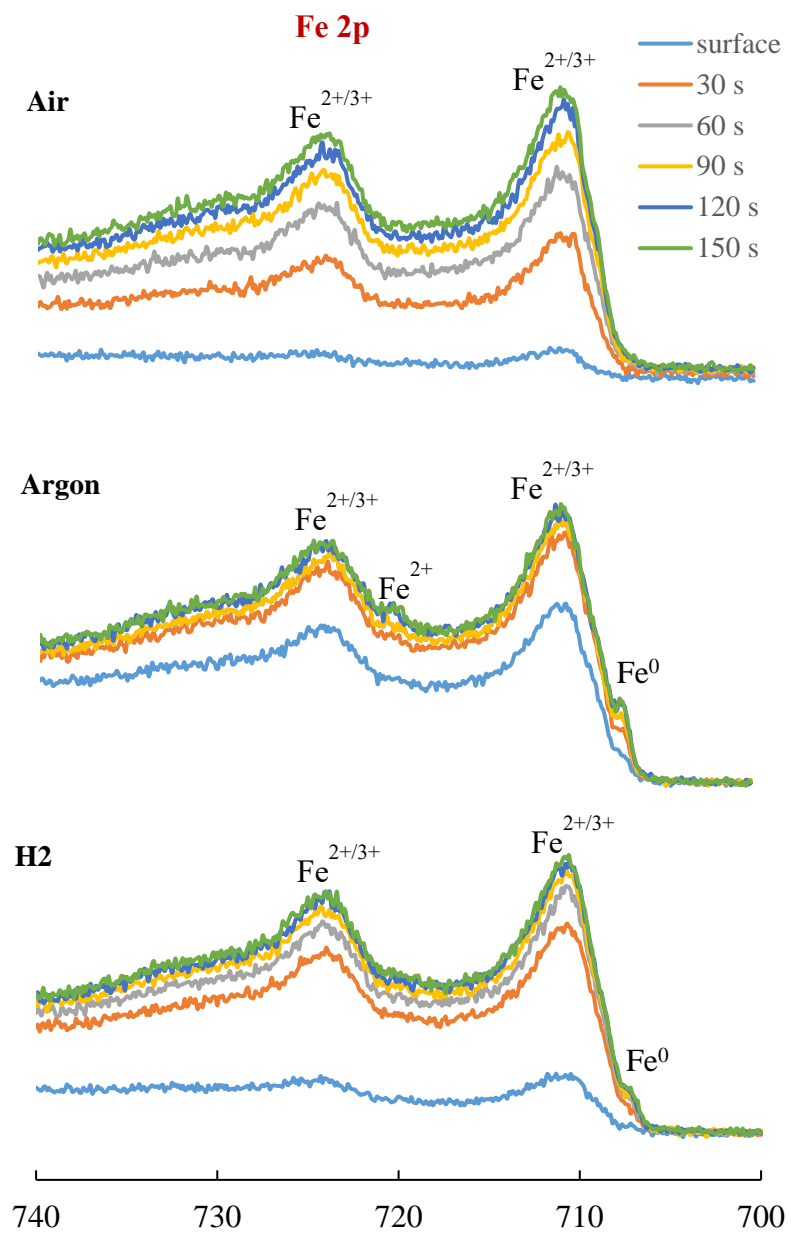


Fig. 13. XPS Depth profile spectra for Fe 2p

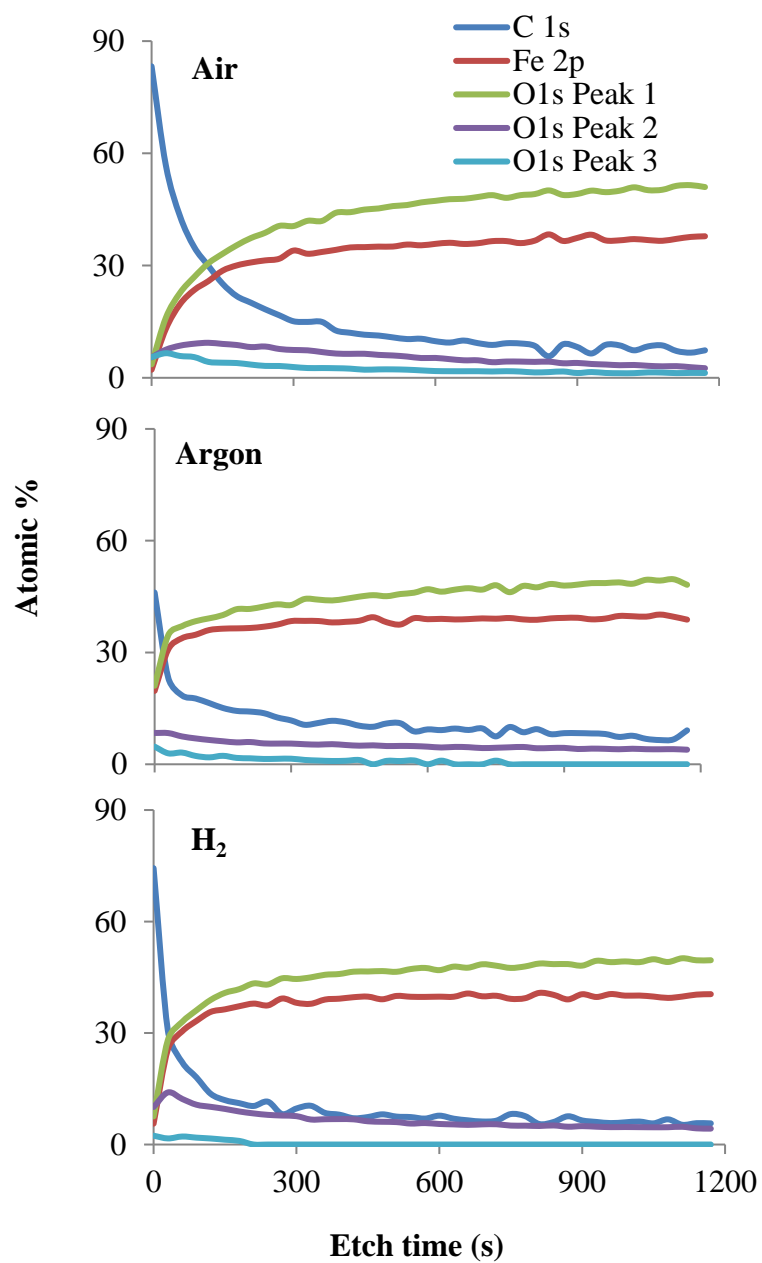


Fig. 14. XPS atomic% depth profiles for C 1s, Fe 2p and O 1s peaks