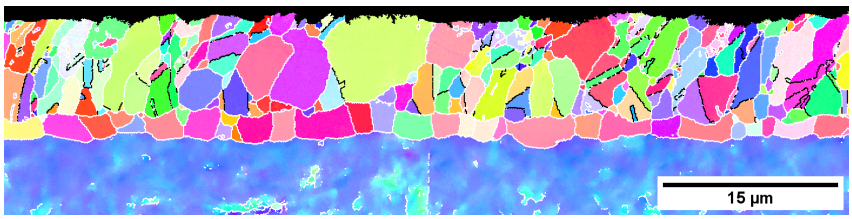
Laboratoire Bourguignon des Matériaux et Procédés

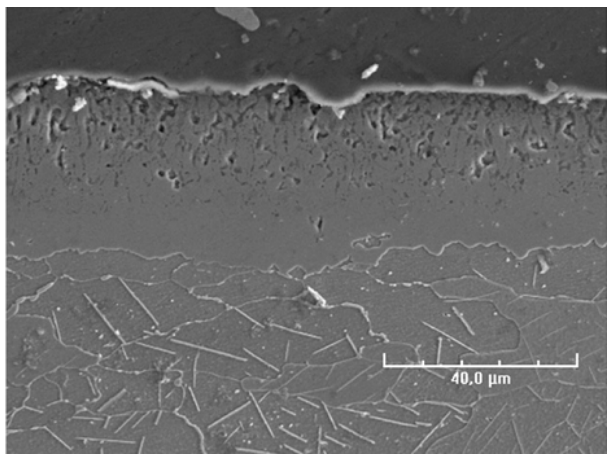
LaBoMaP Materials and Surfaces Engineering *Topic 1.2 MSE*

Topic 1.2: Thermochemical treatments

This axis is focused on the development of Thermochemical Heat Treatments by diffusion, especially processes under reduced pressure (i.e. below atmospheric pressure). This concerns low pressure carburizing, low pressure carbonitriding and plasma nitriding. Different gases (ethylene, acetylene, ammonia, nitrogen, hydrogen, argon) and different pressures from 1 mbar up to 5 bar (for nitrogen gas quenching) are available in our furnaces. It is possible to heat from room temperature up to 1600°C under vacuum or specific gases to achieve the required specifications. Most of the studies concern steels but some other materials like tantalum for example can be taken into consideration.



EBSD picture of Tantalum carburized by a low pressure process



DC04 steel after 8 h of nitriding – SEM cross sectional view

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