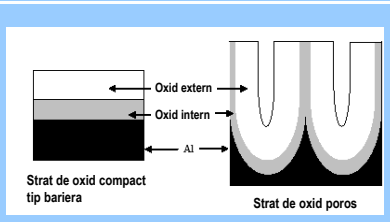
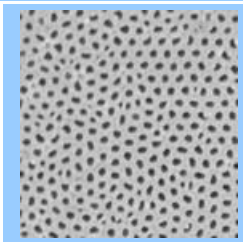
Competences (Research) Center:
Interfaces - Tribocorrosion and Electrochemical Systems (CC-ITES).

Offer name:	**Controlled growth of aluminum oxide protective films on aluminum and aluminum alloys**
Description	Aluminum oxide protective films obtained by controlled electrochemical methods have two functions, namely: a decorative function and a protective or anti-corrosive function. The controlled formation of aluminum oxide-aluminum oxide films and aluminum alloys is accomplished by electrochemical methods using the high voltage sources TDK LAMBDA GEN 300-8 and PLH 250 connected to an electrochemical cell specifically designed for such operations. Films formed by electrochemical methods may have dimensions between 1 and 50 μm and their structure may be compact or porous. By varying the parameters involved in the electrochemical process of forming the aluminum oxide films, there are obtained surfaces corresponding to the needs of the beneficiaries. Other advantages of the electrochemical method of forming the aluminum oxide protective film are that parts with irregular surfaces or complex shapes can be used and are formed at room temperature without requiring special conditions of manufacture. Also, the surfaces obtained have an improved corrosion resistance over time as well as high adhesion to polymeric paints. Aluminum always has a fine layer of natural oxide (alumina) on its surface. This layer is subject to deterioration because of its fragility due to both its reduced thickness and its in-homogeneity. The anodizing process (controlled oxidation) that we make allows us to control the thickness of this oxide layer, obtaining an homogeneous and durable layer. Fig. 1 shows schematically the aluminum oxide layer in cross-section. In Fig. 2 it is shown surface morphology of nanoporous layers of aluminum oxide and in Fig. 3 is the Drying oven 0-300 degree C Pol-EKO Model SLW 53 STD.
	 Fig. 1
	 Fig. 2
	 Fig. 3
Resposible	**Prof. Univ. Dr. (Ph.D.) Chem. Lidia BENEA.** **Competences (Research) Center: Interfaces - Tribocorrosion and Electrochemical Systems (CC-ITES).** **Dunărea de Jos University of Galati.**
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