

## **Anodising of Al-Mg-Si-(Cu) Alloys Produced by R-HPDC**

L. Chauke<sup>a</sup>, H. Möller<sup>b</sup>, U.A. Curle<sup>c</sup> and G. Govender<sup>d</sup>

Materials Science and Manufacturing, Council for Scientific and Industrial Research (CSIR), Pretoria, South Africa

alchauke@csir.co.za, bhmoller@csir.co.za, cucurle@csir.co.za, dsgovender@csir.co.za

### **Abstract**

Anodising of aluminium alloys can be used to improve corrosion resistance during application or it can be simply for decorative purposes. In this research, anodising of 6111 (Cu containing) and 6082 (without Cu) alloys produced by Rheo-High Pressure Die Casting (R-HPDC) was studied. R-HPDC components suffer from surface liquid segregation (SLS), the surface layer of the casting is enriched in alloying elements and it is expected to have different properties than the bulk material. An advantage of R-HPDC is that traditional wrought alloys such as the 6xxx series can be cast into near-net shape. Therefore, in order to commercialise R-HPDC of certain wrought alloy components, the anodisability of the SLS is of importance. The two alloys, in the T6 condition, were anodised in a 250 g/l sulphuric acid solution. The anodisability of the alloys with and without SLS was studied by using a scanning electron microscope coupled with energy dispersive spectroscopy (SEM/EDS). The thickness of the sample with SLS and without the SLS was measured. The intermetallic phases in the alloys and their influence on anodising were analysed using SEM/EDS.