

**EUROMAT 2017/ Education and Technology Transfer/Area G**

<b>G3</b>	<b>Title: Critical Materials in Design, Manufacturing and Recycling</b>		
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	<b>Summary</b>		
<p>Materials in innovative products are classified as “critical” due to their confined availability caused by resource limitations, expensive extraction methods, geopolitical factors, and a variety of further influences. Other factors of criticality link to high price volatilities, and impact on the political, social and ecological environment of the mining region as well as world-wide. Although during the last two years, supply shortages and price variations of critical materials were less dramatic, the topic is continuing to be of high relevance.</p> <p>The European Commission classifies elements such as cobalt, gallium, indium and the Rare Earths to be critical, but also e,g, chromium or magnesium. Many of these elements are required in some ways for innovative products such as technologies for green energy and transporting with less pollution, and communication electronics for enabling private connectivity, global business activities and information exchange at all levels (private to business) and for broad areas of our planet. Most people are not aware that we are successively running short of such materials, as they are used – although in small quantities – in millions of products and in compounds that are mostly difficult to recycle and to re-use and that are in many cases not engineered in an economical and sustainable way. Life Cycle Analysis (LCA) is a way to assess the various processing steps of a product and by this to improve its sustainability in the whole value chain. Changes in design, and new solutions in substitution and recycling must be introduced so that crucial functions of critical elements elements in innovative materials and components can be sustained for the future. This workshop in Session G will highlight some of the tools used to assess and to evaluate the situation and will provide recommendations and an outlook for the future.</p>			