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European Lamp Industry Calls for Intensified Research on the Substitution of Rare Earths

The European Lamp Companies' Federation took note of the European Commission's Communication on tackling the challenges in commodity markets and on raw materials (COM 2011-25)¹ of 2 February 2011 and supports the European Commission's strategy to put resource efficiency in the core of its 2020 strategy. The respective flagship initiative² launched earlier this year is a major step in the right direction. The European lighting industry is dedicated to actively contributing to the success of this initiative where possible and appropriate.

The Communication mentioned above has identified 14 critical raw materials, among them the fifteen lanthanoids plus Scandium and Yttrium, commonly referred to as "Rare Earths". These rare earths are used in the production of lighting products, especially in energy efficient fluorescent tubes rare earth elements are vital components; Cerium, Europium, Terbium, Lanthanum and Yttrium are examples of rare earths elements contained in phosphors of fluorescent lamps, which provide an affordable energy saving solution.

The Communication rightly points out the scarcity and importance of these materials for the production of a considerable number of high-tech products. Many technical solutions that are crucial to achieve more energy efficiency require the use of rare earths. It is also referred to the fact that apparently no recycling or substitution processes for rare earths are currently commercially viable.

Given recent developments related to the availability of rare earths and the restriction of exports of these materials by the Chinese Government, the question needs to be addressed in how far a mere reference to the obstacles to recycling or substitution is sufficient.

According to publicly available sources³, the first half year 2011 saw a tremendous increase in price correlating to a limited availability of the materials. The following four examples illustrate vividly the threatening situation:

YEu Oxide TREO \geq 99%, increase by factor 4 to USD 300/kg

Tb Oxide 99.9%min, increase by factor 8 to USD 3.000/kg

Ce Oxide 99%min, increase by factor 36 to USD 150/kg

¹ http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/communication_en.pdf

² http://ec.europa.eu/resource-efficient-europe/pdf/resource_efficient_europe_en.pdf

³ Cf in general www.asiametals.com

La Oxide 99%min, increase by factor 25 to USD 140/kg

Given this significant increase in price combined with a restrictive export policy of the main global export country, the situation becomes increasingly critical for the European light source manufacturers. LED technology can bring further energy gains and provide for even better possibilities in lighting design but this depends to a large extent on the use of rare earths, similar to how hybrid cars, wind turbines, solar panels –all kinds of technologies on which we need to rely if we want Europe to achieve its 20 – 20 – 20 targets.

The European lamp industry expresses its concern that the development of future technologies is likely to be heavily impeded by the restricted access to rare earth and calls upon the Commission to make use of the appropriate instruments to fight this trend. In this context addressing this practice in front of the WTO is certainly a courageous and necessary step.

However, the aim of the EU must be to become as little dependent on the import of these materials from global regions where arbitrary trade measures cannot be ruled out and can be expected to continue or worsen in the future. The European lamp industry in this context calls upon the competent services in the European Commission to take up accelerated measures that can lead to a larger autarky in this field by engaging in research on the better recycling and substitution of rare earths in the products at stake. We are convinced that for the field of LED technology, the soon to be expected Green Paper on Solid State Lighting in the competence of DG Information Society is the appropriate tool to develop a concrete and tangible road map to achieve this aim.

ELC is dedicated to actively support all appropriate steps in this direction and to provide further scientific and empiric input into this strategy.