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RARE EARTH ELEMENTS: INDUSTRIAL APPLICATIONS

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Rare earth elements and their ions possess unique chemical and physical properties. Therefore, they are widely applied in various household and industrial devices. Many of us might even be unaware that one or the other devices that we use on the daily basis contain rare earth elements or their ions. For example, many of us cannot imagine the life without music and high quality head- or ear- phones that contain strong neodymium based magnets. These magnets are very strong; thus high quality products can be made smaller. Another application of these magnets are wind turbines, what makes them more powerful. Cerium (Ce^{3+}) and europium (Eu^{2+}) ions are found in white light emitting diodes (wLEDs) used for illumination as well as fluorescent lamps used for tanning. Moreover, Eu^{3+} and Tb^{3+} are used in fluorescent (FL) and compact fluorescent (CFL) lamps. The presentation will overview the most important areas, where rare earth elements and their ions are applied.