Investigation of Structural Questions on Europium Compounds by Means of ^{151}Eu Mössbauer Spectroscopy

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^{151}Eu Mössbauer spectroscopy permits the determination of the symmetry of the site in which Eu is accommodated. It has been shown that the $^{151}SmF_3$ source can be considered a monochromatic source. This source was used to measure the line width of Eu^{3+} in a site with cubic symmetry, i. e. in a $Cs_2NaEuCl_6$ crystal. The isomer shift of commercial compounds used as standards (anhydrous EuF_3 and EuS) was also measured. In the case of $Cs_2NaEu(NO_2)_6$ hexanitritoelpasolite the trivalent europium ion is accommodated in a site with perfect cubic symmetry. In $Eu(PO_3)_3$ crystalline metaphosphate, the rare earth is located in a site which appears to be distorted with respect to cubic symmetry; this site has no threefold or fourfold symmetry axis.

Key words: Elpasolites; Oxides; ^{151}Eu Mössbauer Spectroscopy.