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EDXRF法测定铀上铝镀层厚度

@韦孟伏\$中国工程物理研究院!四川绵阳621900 @鲜晓斌\$中国工程物理研究院!四川绵阳621900 @刘继东\$中国工程物理研究院!四川绵阳621900

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摘要 讨论了初级X射线与铝镀层和铀基体物质、铀的特征线与铝镀层之间的相互作用、铀基体的放射性对测量铝厚度的影响程度,提出强度与镀层厚度关系的数学模型,以及在同一数学模型中,根据铝镀层厚度的实际情况分别选用铀的M和L线测定薄样和厚样。采用准直技术对样品的小区域进行测量,然后利用测量的特征线强度结果和工作样品的已知厚度进行最小二乘法回归分析,建立了无损测定铀材料上铝镀层厚度(6~85 μm)的测试方法。

关键词 [无损测定](#) [铀](#) [镀层厚度](#) [X射线荧光](#)

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Testing of Al Plating Thickness on U Matrix by EDXRF

WEI Meng fu, XIAN Xiao bin, LIU Ji dong(China Academy of Physical Engineering, Mi anyang 621900, China)

Abstract The interaction of X ray between Al plating and U matrix materials, the effect of U matrix's radioactivity to measurement of Al thickness has been discussed. A mathematical model of the relationship between intensity and plating thickness has been advanced, as well as in the same model, U M and U L ray are selected to measure thin and thick sample, respectively. Nondestructive testing method of Al plating thickness on U matrix has been found by measurement microarea on the working sample using collimating technology, and carrying out Least Square Regressing Analysis for the result of measurement.

Key words [nondestructive analysis](#) [uranium](#) [plating thickness](#) [X ray fluorescence](#)

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通讯作者

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