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Standard Practice for Determining Equivalent Boron Contents of Nuclear Materials¹

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1. Scope

1.1 This standard details a recommended practice for the calculation of the Equivalent Boron Content (EBC) values for elements that are of potential significance as thermal neutron poisons. The values are determined from a knowledge of the atomic weight of elements and the thermal neutron absorption cross section in barns. This practice is illustrated by using the EBC factors of Table 1 which are based on thermal neutron (2200 m/s) absorption cross sections. Other EBC factors may be used depending upon the actual neutron energy characteristics of the applicable reactor system.

1.2 The following elements do not require to be included in the EBC calculations, as their EBC factors are less than or equal to 0.0001.

aluminum	fluorine	rubidium
barium	lead	silicon
beryllium	neon	tin
bismuth	oxygen	zirconium
carbon	magnesium	
cerium	phosphorus	

Their contribution to the total poison effect is not considered significant.

2. Referenced Documents

2.1 ASTM Standards:

¹ This practice is under the jurisdiction of ASTM Committee C-26 on Nuclear Fuel Cycle and is the direct responsibility of Subcommittee C26.02 on Fuel and Fertile Material Specifications.

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