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Utilization of ^{241}Am - ^9Be neutron source in PGNAA setup used in cement raw material analysis

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Hundreds of cement factories use online bulk material analyzers to improve their quality control for both raw material and kiln feed, and reduce their variability. The most used technology for online analysis is Prompt Gamma Neutron Activation Analysis (PGNAA), with ^{252}Cf as the neutron source. Cost and short half-life of the ^{252}Cf neutron sources are the main problems in cement industry. Therefore, simulation and experimental study has been done to develop the setup geometry and investigate the feasibility of using ^{241}Am - ^9Be neutron source as an alternative option. Utilizing ^{241}Am - ^9Be neutron source resolves the need of system periodic calibration and concern about the cost of ^{252}Cf neutron source renewing.

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