



META

Alpha track detection on CR-39 from granitic waste employing tetraethyl ammonium bromide as new chemical etchant

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Abstract

[en] Natural radioactivity is widely spread in the earth's crust environment and it exist in various geological formations like rocks, soils, plants, air, water and in building materials like granites and marbles. The concentrations of ^{238}U , ^{232}Th , and ^{40}K in the granite materials significantly contribute to the environmental radioactivity during its cutting and processing. SSNTD is a convenient technique for low radio activity measurement since it is of low cost, a simple operation, has high registration sensitivity. For this present investigation different samples of granites (G1 to G15) were collected in the form of effluent waste from granite and marble cutting and molding center Turbhe, Mumbai. CR-39 detector pieces were then exposed for different times (24 h and 30 days) to all the samples with solid residue (1g) as well as filtrates (10 mL) for alpha track detection and measurements. After exposure of the CR-39 etching was carried out by employing 6N NaOH and 6N NaOH with 5% Tetra Ethyl Ammonium Bromide (TEAB) (w/w) solution as a new chemical etchant at 60°C for 6-8 h, and track density (T_d) for all samples were measured

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