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Fabrication and development of neutron shielding materials based on natural rubber and boron carbide

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Neutron shielding materials were fabricated based on natural rubber (NR) and boron carbide (B4C) as their main components. Natural rubber, which contains a lot of hydrogen, can lower the energy of a neutron. Boron carbide, which contains a lot of boron, may absorb neutrons. The shielding materials were created with boron carbide concentrations of 0, 20, 40, and 60 parts per hundred rubber (phr) and thicknesses of 2, 5, 10, and 15 mm. The manufactured materials will be examined for neutron absorption efficiency using an Am/Be neutron source at the Radiation Measurement Laboratory at the Nuclear Engineering Department, Faculty of Engineering, Chulalongkorn University. In this example, the findings will be compared to those of a Monte Carlo N-Particle (MCNP) transport code and silicone rubber sold in Japan by Atom Shield Co., Ltd.

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