

Dust particles in magnetic fusion devices

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Thermonuclear reactor licensing requires that the quantity of dust in the vacuum vessel be maintained below stringent safety limits, mainly due to the explosion hazards in loss-of-coolant accidents. The accumulation of dust depends on the balance between the dust production and deposition rate, the remobilization rate and the rate of vaporization. Studies concerning dust characterization, transport and formation, based on modeling and specific diagnostics implementation are reviewed. Recent results on the formation and interaction of dust particles with transient heat loads on bulk tungsten and beryllium are discussed.