

Analysis of stirred ball milling of food products

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Ball milling is an old, well-known unit operation widely used in the paint and mineral industry. Recently, stirred ball mills are finding increasing application in the chocolate and confectionery industry to reduce the particle size of solids in chocolate, anhydrous pastes and derived products. Such mills have become completely different compared to their old ancestors, and the scientific literature dealing with them is scarce. The few studies that are available are generally limited to the description of the effect of the operating parameters on the product performance, i.e. the particle size distribution or its percentiles, by using empirical models. The aim of this work was to analyse the behaviour of stirred ball mills used in food applications through a stress energy analysis. A case study on the refining of a confectionary product in industrial stirred ball mills is considered.