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New method for increase in product fineness in stirred mills(Article)

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Краткое описание Просмотров пристатейных ссылок (22)

Nowadays, ultrafine product particles size ($<20 \mu\text{m}$) is more demanded for various industries. However, the problem in achieving the target product fineness in the stirred milling exists. To solve this problem, new method of the grinding process in stirred mills is proposed and investigated in this paper. The method implies increase in grinding balls collision energy in the radial and axial directions by introducing the ellipsoidal stirrer and the unbalanced drive with the spring elements, respectively, to the typical design of stirred mill. Description of the collision forces and collision energies calculation in the radial and axial directions is presented. Efficiency of the new method has been investigated and approved by mathematical modeling and experimental studies. It has been proved that joint increase in collision energy in the radial and axial directions allows to obtain finer product particles size with spending less processing time. © 2019 Politechnika Wroclawska