عنوان مقاله:

Optimizing the Characteristics of the Motion of Steel Balls and their Impact on Shell Liners in Semi-Autogenous Grinding Mills

محل انتشار:

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خلاصه مقاله:

The equations governing the motion of steel balls in industrial Semi-Autogenous Grinding (SAG) mills and their impact onto shell liners were derived in full details and were used in order to determine the effective design variables for optimizing the working conditions of the mill and to avoid severe impacts which lead to the breakage of SAG mill shell liners. These design variables are lifter height H, the working coefficient of friction μ, lifter face inclination angle φ, steel ball size rB, mill rotational velocity ω, and mill size R. In order to optimize the operating conditions and avoid severe impacts to its shell liners, the effect of these parameters, need to be studied. The effect of lifter height (H) and the coefficient of friction (μ) on some of the main impact characteristics were simultaneously investigated, for the SAG mill in Sarcheshmeh Copper Complex. It was shown that as the lifter height or the coefficient of friction increases, the impact position tends to move upward, but the maximum impact force and the absolute value of the maximum principal stress decreases, reducing the impact severity.

کلمات کلیدی:

Comminution, Semi-Autogenous Grinding Mill (SAG Mill), Liner, Impact, Hertz Contact Law

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