

Rapid comparative wear evaluation of oilseed screw press maintenance materials in Nigeria

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In Nigeria, the performance of refurbished oilseed screw presses has been severely limited by the arbitrary use of locally available materials for maintenance. To improve the future performance of such presses, a comparative study of the wear characteristics of four different locally available materials, namely mild steel, hardfacing, cast-iron and stainless steel electrode fills, was carried out using a low cost wear testing rig. Mild steel electrode fill deposit proved to have the lowest wear resistance. Whereas cast-iron electrode fill performed best at relatively low operating speed (40 rpm) and pressure (13.7 MPa), stainless steel electrode fill proved to have the highest wear resistance at higher operating speed (85 rpm) and pressure (19.7 MPa). This study provides a scientific basis for future selections of appropriate materials for refurbishing worms and cage linings of worn out oilseed screw presses in Nigeria.

Author Keywords: Wear testing rig; Oilseed screw press; Wear evaluation; Electrode fill samples; Wear rate coefficient