

**P32. Comparison of cavitation erosion resistance of mullite and zircon samples based on non destructive characterization**

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**Abstract:** Mullite and zircon are widely used for different applications for refractory materials. In this paper their cavitation erosion resistance will be investigated. For synthesis of mullite samples, ( $3 \text{ Al}_2\text{O}_3 \cdot 2 \text{ SiO}_2$ ) at the temperature  $1200 \text{ }^\circ\text{C}$ , the mixture of kaolin and alumina was used with presence of mineralizer 1% NaF. Zircon samples used for experiment were pure zircon (wt %): 99.99 %  $\text{ZrSiO}_4$ . Zircon was obtained by mechanical processing of refractory mineral raw materials-zircon sand, purification methods and milling. In this paper image analysis will be implemented for monitoring degradation level during testing, as well as number of formed pits during testing, and their characterization (average diameter and area). Ultrasonic measurements will be related to the determination of Dynamic Young modulus of elasticity. During the test ultrasonic velocities will be measured, and used as controlling factor for degradation level during cavitation erosion as well as strengths and weaknesses of the used methodology.

**Key words:** mullite, zircon, wear resistance (cavitation erosion), image analysis, level of degradation, UPVT