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Burbuļu sagraušana ar elektromagnētiski ierosinātu plūsmu. Bubble dispersion in electromagnetically induced flow.

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Most aluminum degassing methods rely on inert gas bubbles to carry and remove excess dissolved hydrogen. In this work, we focus on bubble dispersion by metal flow, more specifically an electromagnetically flow created by rotating permanent magnets. Here the conditions for bubble dispersions are defined and necessary flow characteristics are calculated by numerical modelling. Experimentally bubble size of bubble is measured across different stirring intensities by imaging the surface. Numerically turbulence kinetic energy (TKE) dissipation rate is calculated with a custom OpenFOAM and ELMER solver. Both approaches confirm the dispersion of bubble to target threshold for optimal efficiency. Bubbles are observed and measured across a frequency range of 3 to 60 Hz corresponding to flow in a range of 1 - 4 m/s. Experimentally mean bubble size decreased from 16 to 2.3 mm which reaches the desired threshold. Numerical results predict similar reduction in size from 22 to 1.2 mm.

Primary author: BARANOVSKIS, Reinis (University of Latvia, Institute of Physics)

Co-author: Mr BERENIS, Didzis (University of Latvia)

Presenter: BARANOVSKIS, Reinis (University of Latvia, Institute of Physics)

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