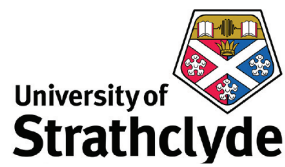


Speaker 8



Obey Suleyman

The effect of inconsistent casting on the mechanical performance of cast iron wind turbine components

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ABSTRACT:

Currently, there is a lack of end-of-life solutions for wind turbine components, with many items being disposed of in landfill. To reduce material waste and carbon emissions, end-of-life solutions must be advanced. Approximately 5000 offshore wind turbines are due to undergo decommissioning in the UK by 2050, additionally, the ever-increasing demand for new wind turbines means there are substantial requirement projections for cast iron, specifically spheroidal graphite iron (SGI).

SGI is cast in compliance with standards such as ASTM A536 and has a broad leeway on how to attain the target grades, leading to casting inconsistencies and differences between components. This study focuses on preliminary metallurgical investigation and mechanical assessment of two turbine components, the yaw planetary gear and yaw brake calliper. These will be analysed and benchmarked against each other, with the aim of correlating differences in composition, cooling parameters, microstructure to their mechanical performance.

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