



## Detailed Microstructural Characterization of the Disk Alloy Me3

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By Timothy P. Gabb

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 48 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. The advanced powder metallurgy disk alloy ME3 was designed using statistical screening and optimization of composition and processing variables in the NASA General Electric Pratt and Whitney HSREPM disk program to have extended durability for large disks at maximum temperatures of 600 to 700 C. Scaled-up disks of this alloy were then produced at the conclusion of that program to demonstrate these properties in realistic disk shapes. The objective of the present study was to assess the microstructural characteristics of these ME3 disks at two consistent locations, in order to enable estimation of the variations in microstructure across each disk and across several disks of this advanced alloy. Scaled-up disks processed in the HSREPM Compressor Turbine Disk program had been sectioned, machined into specimens, and tested in tensile, creep, fatigue, and fatigue crack growth tests by NASA Glenn Research Center, in cooperation with General Electric Engine Company and Pratt and Whitney Aircraft Engines. For this study, microstructures of grip sections from tensile specimens in the bore and rim were evaluated from these disks. The major and minor phases were identified and quantified using transmission...



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