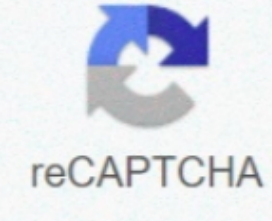Continue

Statistical Analysis Of The Virkler Data On Fatigue Crack Growth

Finally, the mean of intercepts and mean of exponents of Paris-Erdogan law for each data set were studied, and it was found that the mean of intercepts decreases greatly as applied stress amplitude increases, while the mean of exponents decreases slightly.. Abstract: The fatigue properties of ferritic-pearlitic-bainitic steel using specimens produced from massive forging were measured in stress controlled regime with positive mean stress.. Three sets of fatigue crack growth data tested under different constant-amplitude loads for CT specimens made of 2024 T-351 aluminum alloy are released, and the analyzed results presented in this study are specially emphasized on the correlation between statistics of these scattered fatigue data and their applied loads.. Investigating the scatters of initiation cycle and specimen life, it was found that both the mean and standard deviation of initiation cycle, as well as the mean and standard deviation of specimen life, decrease as applied stress amplitude increases.. Moreover, the negatively linear correlation between the median values of initiation cycle and applied stress amplitudes presented in linear scale, and between the median values of specimen life and applied stress amplitudes presented in logarithmic scale were found, where the initiation cycle and specimen life are all best depicted by normal distributions for all three data sets.

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