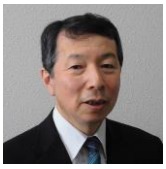
Fracture probability assurance of ceramics-metal joining parts to receive the flame heating



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ABSTRACT

The purpose of this study is the proposed quality assurance method for the ceramic-metal jointing part to be heated. Jointing parts has been found that the destruction caused by a thermal load generated in the manufacturing process. It confirmed the stress distribution generated in the process by simulation analysis. Furthermore, we evaluated the ceramic material strength probability distribution. It made it possible to fracture probability evaluation for quality assurance based on those. Fracture probability in the actual manufacturing process is very low. Accordingly, it was evaluated by the test to generate even stronger load than the actual load. And, we developed a method for estimating an indication of sampling inspection to ensure the fracture probability. The fracture probability of production conditions by changing the parameters from to suit the required quality, using the method to calculate the probability of the test conditions.

Key words : Template for Author, Materials Research

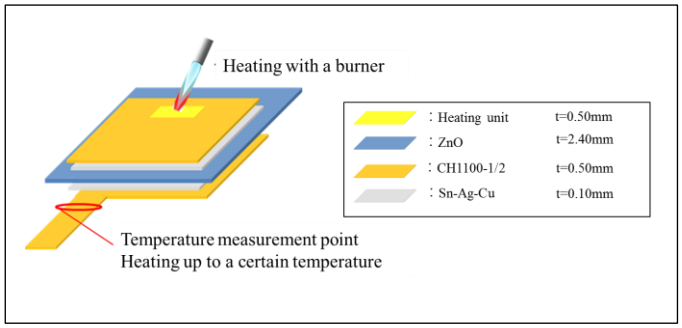

Fig.1 The structure of joining parts

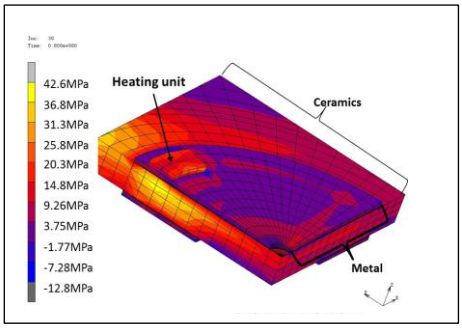

Fig.2 Stress distribution

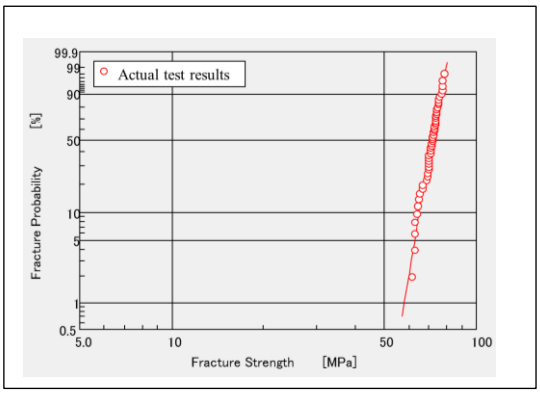

Fig.3 Weibull plot of materal strength

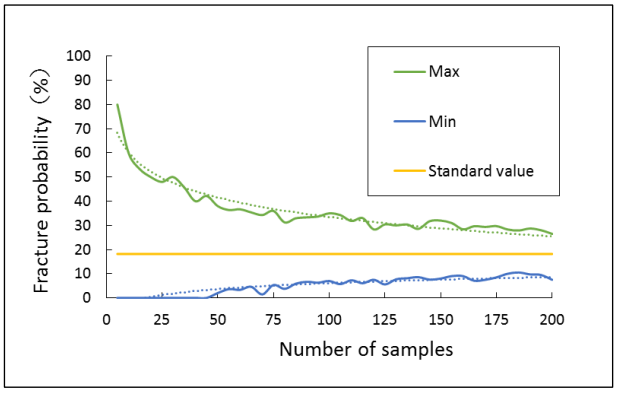

Fig.4 The range of the failure probability due to the number of samples of cange