

The Incubation Time Criterion and its Applications

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Summary

Rupture criterion, based on a concept of incubation time of a fracture process, proposed in the end of previous century in order to predict fracture under high and ultra high rate load (i.e. situation when classical fracture criteria is not applicable) is not generally recognized yet. In the present report possibilities to apply incubation time concept to a variety of practical problems are demonstrated.

Following examples will be provided: 1. Problems incorporating brittle to ductile fracture transition 2. Problems of erosion fracture 3. Formation of craters in consequence of collisions between celestial bodies 4. Phenomenon of high-temperature embrittlement under high-rate load.

Predictions received utilizing incubation time approach are compared to experimental results.

