

Abstract Submitted
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The relation between reaction rate and shock strength BRIAN LAMBOURN, AWE plc — Analysis of particle gauge data for plastic bonded explosives undergoing the shock to detonation transition shows that the time from shock to peak particle velocity correlates with shock strength, and that at the same shock strength in different experiments, the velocity histories scale. After analysis of the field and scaling equations, and using shock evolution theory, it is concluded that (1) at least to first order, the reaction rate is solely dependent on shock strength and the time along a particle path since the shock passed; (2) that this conclusion is mainly driven by the scaling phenomena; and (3) that it is very unlikely that the reaction rate can simultaneously depend on pressure and satisfy the scaling phenomena.

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