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The condition for dynamic recrystallization of aluminum alloy in shock waves¹ NATALIA NAUMOVA, SVETLANA ATROSHENKO, YURI MESCHERYAKOV, ALEXANDR DIVAKOV, Institute for Problem in Mechanical Engineering, IPME RAS, ST.PETRSBURG TEAM — A series of mechanical tests on aluminum alloy samples under uniaxial strain conditions in single and double impact loading regimes showed that dynamic recrystallization in localized shear bands takes place only in the latter case, with the second (additional loading) pulse delayed by 0.5–0.7 μ s relative to the first shock-wave front. It is established that, in addition to well-known conditions ($\gamma \geq 3$, $\dot{\gamma} \geq 10^4 \text{ s}^{-1}$, $T \geq 0.4T_m$), a determining role in the dynamic recrystallization process is played by the nonuniformuty (variation) of particle velocity at the leading front of the compression pulse.

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