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Sommario/riassunto	A single-crystal plasticity model as well as a gradient crystal plasticity model are used to describe the creep behavior of directionally solidified NiAl based eutectic alloys. To consider the transition from theoretical to bulk strength, a hardening model was introduced to describe the strength of the reinforcing phases. Moreover, to account for microstructural changes due to material flux, a coupled diffusional-mechanical simulation model was introduced.