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RECRYSTALLIZATION OF TWIN-ROLL CAST AA8079 ALUMINUM ALLOY AFTER HOMOGENIZATION

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Twin-roll casting of AA8079 aluminum sheets creates non-equilibrium structure as a result of high solidification rates. Homogenization treatments consisting of an exposure of the as-cast material to high temperatures close to the melting point result in a redistribution of solute atoms and a formation of a more stable structure. Newly formed equilibrium particles have different crystallographic structure, size and also their distribution is more homogeneous. Their features have a significant influence on softening processes and recrystallization occurring in sheets rolled from the homogenized material. Two different processes controlling the kinetics of recrystallization were identified by electron microscopy, light optical microscopy and microhardness measurements. It was shown, that a particle stimulated nucleation dominates in materials homogenized at high temperatures while a Zener drag is a controlling process in sheets exposed to lower homogenization temperatures.

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