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PHASE TRANSFORMATIONS IN Al-Li-BASED ALLOY STUDIED BY IN-SITU TEM.

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Al-Li based alloys of AA2195 type are designed mainly for aerospace applications. They exhibit a very high strength due to a presence of strengthening precipitates of a nanometric size. However, materials prepared by a conventional direct-chill casting and following rolling exhibit strong crystallographic texture and inhomogeneous mechanical properties. This inconvenient behavior could be suppressed by a direct twin-roll casting of the material to a final gauge and subsequent precipitation annealing. Phase transformations occurring at selected temperatures could be characterized using in-situ transmission electron microscopy (TEM) annealing experiments. Nevertheless, the processes could be significantly influenced by a constrained volume of thin foils used in TEM. A formation of platelike Li and Cu-rich non-equilibrium precipitates was studied in materials annealed conventionally in a furnace and in-situ in TEM.

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