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The Effect of Heat Treatment on Microstructure of the Casting Sheet and Tensile Behavior of AA8023 Rolled Sheet Produced by Twin-Roll Casting Process

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Abstract: The microstructure of the AA8023 (Al-Fe-Mn-Si) produced by the twin-roll casting (TRC) process with/or without homogenization was evaluated using scanning electron microscopy (SEM) and tensile behavior of the rolled sheet annealed at various temperatures, was studied. Results indicated that the homogenized TRC eutectic alloy structure was fine and the short semi-rod eutectic phase was dispersed, uniformly. After homogenization, Mn and Fe diffused from eutectic phase toward matrix phase that caused the hardness reduction. It was also found that the grain structure of the middle section of the specimen was better than the surface while using homogenization after casting the AA8023.

Keywords: AA8023, Heat Treatment, Microstructure, Rolling.