

**Title:** Research on Arc Spot Welding of T12 Steel

**Abstract:** This paper mainly studied the microstructure change and hardness change of manual arc spot welding of T12 steel before and after post weld heat treatment. The experiment results showed the weld microstructure of J422 and J506 electrodes, which were common structural steel electrodes, were similar under different welding current. The weld microstructure of D256 wear resistance electrode were significantly different from those of structural steel electrodes. The hardness of spot weld before heat treatment had little change except for wear resistance electrode. The hardness of wear resistance electrode was the highest under different welding current before heat treatment. After quenching, the microstructure of spot weld were changed, the dendritic crystal disappeared and the hardness were generally improved. The microstructure and hardness of structural steel electrodes and wear resistance electrode before and after heat treatment were greatly different, which were caused by the different content of carbon and alloying elements of electrodes.