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## The effect of cryogenic treatment on the room and cryogenic properties of 9Ni steel

The 9Ni steel is widely used in cryogenic temperature due to its superior cryogenic properties. In the present paper, the tensile and impact properties of 9Ni steel at 20°C, -40°C, -70°C, -110°C, -140°C and -196°C were tested by the MTS-SANS CMT500 universal tensile testing machine. The result showed that the strength increased with the fall of temperature while the impact toughness decreased with the fall of temperature. However, the reduction of impact toughness is slightly, it still could keep 225 J at -196°C. Furthermore, the effects of cryogenic treatment on the room temperature properties and cryogenic properties at -140°C and -196°C were also investigated in this paper. The results showed that cryogenic treatment at -140 °C and -196°C both could increase the impact toughness of 9Ni steel. However, the cryogenic treatment had no obvious influence on the cryogenic properties at -140°C and -196°C.

**Author:** Dr GU, Kaixuan (Key Laboratory of Cryogenics, TIPC, Chinese Academy of Sciences, Beijing 100190, China)

**Co-authors:** Mrs ZHANG, Hong (Key Laboratory of Cryogenics, TIPC, Chinese Academy of Sciences, Beijing 100190, China); Prof. WANG, Junjie (Key Laboratory of Cryogenics, TIPC, Chinese Academy of Sciences, Beijing 100190, China)

**Presenter:** Dr GU, Kaixuan (Key Laboratory of Cryogenics, TIPC, Chinese Academy of Sciences, Beijing 100190, China)

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