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Temperature and Strain Rate Effects on TRIP Sheet Steel. Measurement of Temperature by Infrared Thermograph

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More and more, new sheet steels are design to assume a high energy level absorption as DP steel or TRIP steel. The energy level absorption of this materials is due to high stress level with large ductility. However, some problems appears to define precisely analytical behaviour of TRIP steel since the behavior is strongly dependency of the phase transformation which occurs during plastic deformation. To obtain a complete knowledge of the behavior affected by the phase transformation, an experimental analyse has been performed in tensile test and shear test for different strain rates, temperature at low and high strain rates. Moreover, in the same time, a thermographic set-up has been used during tests to measure the temperature increase during plastic deformation. This complementary information may be used to explain and understand the phase transformation of TRIP steel during plastic deformation. Moreover, an analyse of the temperature gradient effect on the plastic behaviour has been realised in relaxation tests.

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