



## Application of DL-EPR Method for Measuring Degree of Sensitization of DSS2205

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### Abstract

Degree of sensitization (DOS) assessment of particularly high alloy stainless steel is still a scientific challenge. In this study, double loop electrochemical potentiodynamic reactivation (DL-EPR) method in standard solution (0.5M H<sub>2</sub>SO<sub>4</sub>+0.1M KSCN, ASTM G108-94 recommended for SS304 alloy) and a new proposed solution containing 1M H<sub>2</sub>SO<sub>4</sub>+0.2M KSCN was used for measuring DOS of duplex stainless steel (DSS) 2205. The specimens were sensitized at 650°C for 10, 60 and 300min. Although DOS value at low sensitization time in standard solution was higher than proposed solution (6% and 0.66% for 60min sensitized specimen in standard and new solution, respectively), However, in standard solution, the trend of measured DOS by increase in sensitization time was not acceptable, since 300 min sensitized specimen showed lower DOS value (1%), while in new solution it reached to 5%. As a conclusion, the new solution gives more reliable results and is proposed for measuring DOS of DSS2205.

**Keywords:** DL-EPR, Sensitization, DSS2205, DOS

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