

A statistical study of the role of molybdenum in the pitting resistance of stainless steels

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The local breakdown of passive films grown on stainless steels in the presence of chloride ions generally leads to pitting. To study this phenomenon, the pitting potential of several stainless steels in neutral chloride media has been determined, by a statistical technique. This parameter is obtained when the statistical pit generation rate corresponds to a preset critical value. Two cases were considered: (a) stainless steels without alloyed Mo (AISI 430 or 304) in NaCl or NaCl+Na₂MoO₄, aerated or de-aerated, solutions, and (b) Mo alloyed stainless steels (AISI 434 or 316) in NaCl aerated or de-aerated solutions