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Methods of pitting potential measurement for stainless steels

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In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Stainless Steel Association (JSSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS G 0577** : 2005 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Methods of pitting potential measurement for stainless steels

1 Scope

This Japanese Industrial Standard specifies the methods of measuring the pitting potential of stainless steel in sodium chloride solution by the potentiokinetic method.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) listed below shall be applied.

JIS G 0202 *Glossary of terms used in iron and steel (Testing)*

JIS K 8150 *Sodium chloride*

JIS P 3801 *Filter paper (for chemical analysis)*

JIS R 6252 *Abrasive papers*

JIS R 6253 *Waterproof abrasive papers*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS G 0202** apply.

4 Test methods

The test methods shall be as follows.

a) **Method A (1 mol · L^{-1} sodium chloride solution test method)** This method measures the pitting potential in 1 mol · L^{-1} sodium chloride solution by the potentiokinetic method.

b) **Method B [3.5 % (mass fraction) sodium chloride solution test method]** This method measures the pitting potential in 3.5 % (mass fraction) sodium chloride solution by the potentiokinetic method.

5 Apparatus

The apparatus shall consist of the following : a test electrode; a potentiostat; a potential sweeping device; a recorder; an electrolytic cell; a reference electrode and a thermostatic bath. Figure 1 shows an example of measuring apparatus. In the case of applying the crevice corrosion protection electrode, it shall be combined with a distilled water supply and drainage system. As a reference electrode, a silver-silver chloride electrode (Ag/AgCl), etc. shall be used. The reference electrode shall be connected, as a general rule, to the electrolytic cell through the liquid junction or salt bridge.