

KES

Method of Making Anodic
Polarization Measurement
for Stainless Steels

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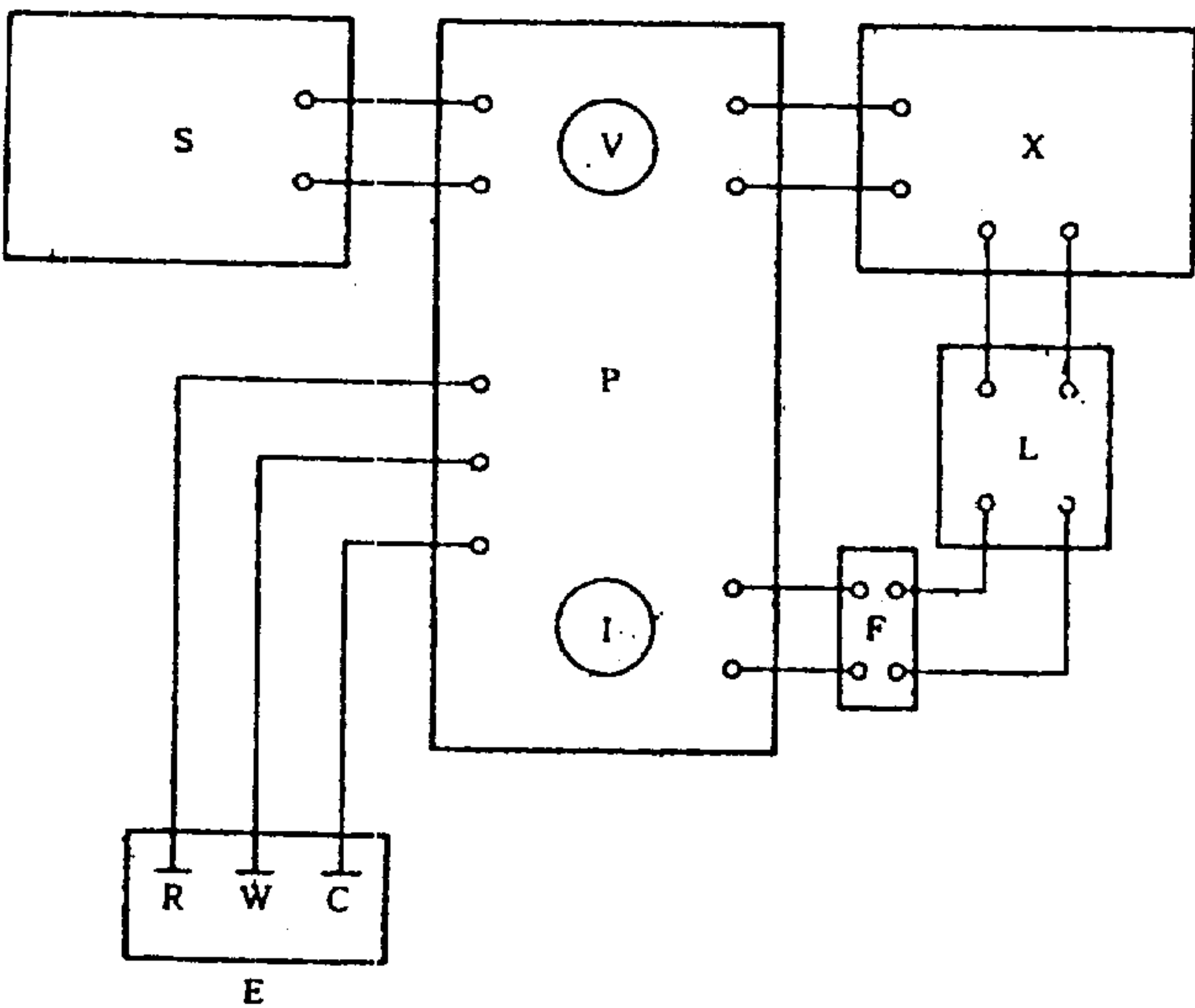
1. Scope of application

This standard shall specify the method of measuring anodic polarization curve of stainless steel in 20% or 5% (All mass %) sulfuric acid solution.

2. Device for testing

Devices for testing shall be made of potentiostat, voltage sweep device(1), recording device, electrolytic cell device and constant-temperature bath. Figure 1 shall show an example of configuration of devices for test.

Note (1) For the case of step method (5. refer to method of measurement (4)) it is not necessarily needed.



E : Electrolytic cell (Refer to figure 2)

R : Reference electrode

W : Sample

C : Anti- cell

S : Voltage sweep device

P : Potentiostat

V : Voltage meter

I : Ampere meter

L : Algebraic converter

X : X,Y recorder

F : Filter

Figure 1. Example of configuration of test device (Reference)

2.1 Protect the error due to the noise of AC through suitable filter for using the algebraic converter by the method of current record.

2.2 Figure 2 shall show an example of method about connecting the reference electrode and configuration of electrolytic cell.

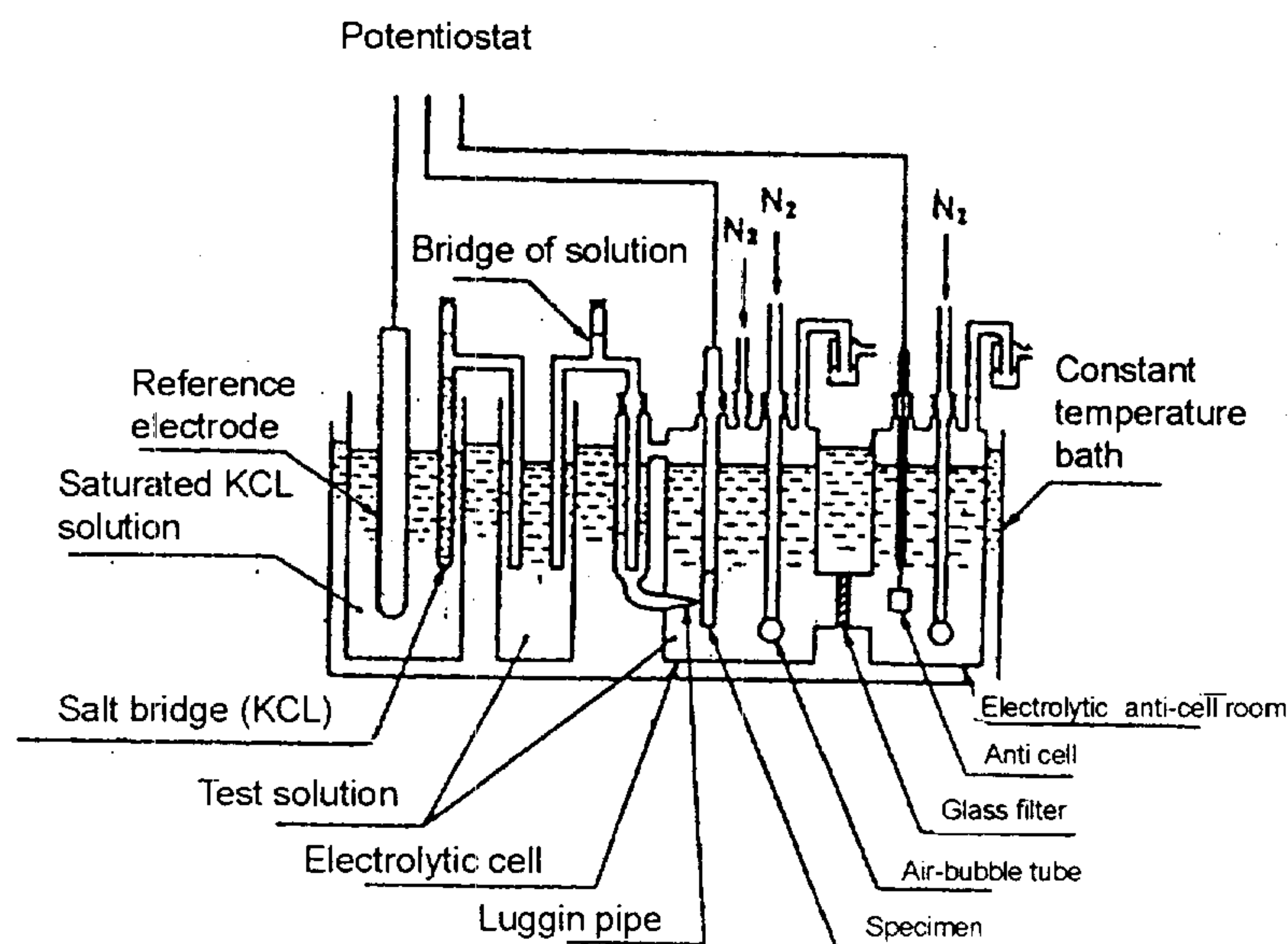


Figure 2. Example of electrolytic cell (Reference)

2.2.1 As the principle of electrode cell use the glass structure for protecting mixture of test solution between sample cell and face poles room

2.2.2 Use as face poles Platinum of more than 1cm^2 area

2.2.3 For the reference electrode, use a saturated calomel electrode, silver chloride electrode, sulfur chloride acid 1, etc. In principle reference electrode cell should be connected to Luggin tube through bridge of solution or salt one. Set the end of Luggin tube to locate 1mm onto the surface at the middle of test surface of sample.

3. Test solution

Use as the test solution sulfuric acid solution adjusted at $20.0 \pm 0.1\%$ or $5.0 \pm 0.1\%$ (mass %) concentration which are mixed patent specified at KS M8103 [Sulfuric (Reagent)] with non-ionic water of less $2\mu\text{s/cm}$ nonconductivity or distilled water