

KES

Grinding Etching Test

KES T – L314

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1. Scope of Application

This standard shall prescribe about the method from grinding to etching of test samples.

2. Purpose

The Purpose is to inspect the material, characteristics, surface finish and special formation for each test specimen.

3. Test Apparatus

Soft paper, sand paper, polishing machine, soft wrap (Al₂O₃), Drier, corrosion fluids

Table 1 Types and Usages of Corrosion Fluids

Name	Formation	Usage
Nital Fluids (5 %)	Nitrogen Acid (1.4 %) 5 mℓ, methanol (95 %) 100 mℓ	Metal
Picral Fluids (3 %)	Picral Fluids 3g, methanol (96 %) 100 mℓ	Metal
Chloride 2 Iron Fluids	Chloride 2 Iron 5 g, Hydrochloride 50 mℓ, Distilled Water 100 mℓ	Highly durable Metal
Steel Cell Corrosion Fluids	Chloride 2 Iron 10 g, Magnesium Chloride 4 g, methanol 100 mℓ, Distilled Water 0.5 mℓ	Steel
Austenite Corrosion Fluids	Picral Acid Saturation Fluids 1000 mℓ, Copper Chloride (II) 80 g, Catalyst 60 mℓ	Heat treated Metal for corrosion
Muragammer Corrosion Fluids	Deformed soda 10 g, Potassium Iron { F ₃ Fe(CN) ₆ } 10 g, Distilled Water 100 mℓ	Stainless steel
Internal Heat Steel Corrosion Fluids	Hydrochloride 5 mℓ, Picral Acid 1 g, Ethyl Alcohol 100 mℓ	Special Metal (TK3D)
Non-oxidized Fluids (0.5 %)	Non-oxidized (40 %) 0.5 mℓ, Distilled Water 100 mℓ	Al plating
Deformed soda Fluids (2 %)	Sodium oxides 2 g, Distilled Water 100 mℓ	Plating Al – Cu – Mg – Si – Zn

Table 1 (Continued)

Name	Formation	Usage
Copper Corrosion Fluids	Hydrochloride (1.9 %) 20 ml, Chloride 2 Iron 5 g, Distilled Water 100 ml	Copper, Corrosion Resistance Metal
Nitrogen Acid Fluids (Copper)	Nitrogen Acid (1.4 %) 50 ml, , Distilled Water 50 ml	Copper
Zinc Corrosion Fluids	Hydrochloride (1.7 %) 3 ml, Ethyl Alcohol (96 %) 100 ml	Zinc (ZDC2) Plating
Silver Corrosion Fluids	Hydrogen peroxides (3 %) 50 ml, Ammonium Hydroxides over saturation fluids 25 ml, Distilled Water 25 ml	Ag – Cd Ag – Cu

4. Test Sample

One type of test samples is to etch the sample by grinding after mounting and the other is to etch the sample only by grinding without mounting. The both methods of etching samples are performed under the same conditions

5. Test Method

(1) Grinding

1st Sandpaper grinding (Perform the grinding with # 220 ~ 1200)

2nd Grinding by the polishing machine (using Alumina 1 μ ~ 0.05 μ)

(a) Sandpaper grinding

Grinding methods of products with mounting and test sample are identical. : Make the grinding surface uniformly flat by using roller grinder with respect to product shapes or conditions.

(There are a lot of cases without using roller grinder)

Start grinding slowly without rounding from #220 (Using with water)

The grinding is performed correctly and uniformly on the beginning and gradually change to softer sandpapers to obtain fine grinding without rounding. Otherwise, using the softer sandpapers causes the delay of time and not uniform surface.