

## Copper Corrosion by the Copper Strip Tarnish Test

ASTM D 130, ASTM D 4048, ISO 2160, DIN 51759-1 (obs.), DIN 51811, FTM 791-5325, IP 112, IP 154, JIS K2220, JIS K2513, BS 4351 (obs.)

**Product group(s):** Fuel, Grease, Oil

**User group(s):** Automotive, Biodiesel, Biofuel, Fuel, Gasoline, Kerosene, Lubricating Grease, Lubricating Oil, Solvent

**Scope:** This test method covers the detection of the corrosiveness to copper of aviation gasoline, aviation turbine fuel, automotive gasoline, natural gasoline or other hydrocarbons having a Reid vapour pressure no greater than 18 psi (124 kPa), cleaners solvent, kerosene, diesel fuel, distillate fuel oil, lubricating oil, and certain other petroleum products.

For testing the corrosive effect of liquid petroleum products a tempering bath is used in combination with low pressure vessels or open test tubes. Greases are tested in a circulating air oven with the use of test jars.



### Copper Strip Tarnish Test Equipment

#### for **Petroleum Products:**

ASTM D 130 (FTM 791-5325) - IP 154 (BS 4351) -  
ISO 2160 (DIN 51 759-1) - ISO 22 160 - JIS K2513

#### to be composed of :

- Copper Strip Corrosion Apparatus
- Silicon Carbide Grit Paper
- Copper Strip Corrosion Standards

#### for **Grease:**

ASTM D 4048 - DIN 51 811 - IP 112 - JIS K2220

#### to be composed of :

- Circulation Air Oven
- Test Jars
- Metal Strip Vice & Grit Paper
- Copper Strips (12.5 mm x 75 x 3 mm) & Flat Viewing Tubes
- Copper Strip Corrosion Standards

### Technical Data

<u>Temperature Range:</u>	ambient to 200 °C
<u>Stability:</u>	+/- 0.1 °C
<u>Bath Volume:</u>	20 liters
<u>Dimensions (WxDxH):</u>	280 x 430 x 450 mm (external) 230 x 380 x 250 mm (internal)

### Main Unit

13-0700

#### Copper Strip Corrosion Apparatus

##### Petroleum Products:

ASTM D 130 (FTM 791-5325) - IP 154 (BS 4351) -  
ISO 2160 (DIN 51 759-1) - ISO 22 160 - JIS K2513

##### Grease:

ASTM D 4048 - DIN 51 811 - IP 112 - JIS K2220

##### Consisting of:

6-place constant-temperature bath, made of stainless steel with infinitely variable heating control, low level and excess temperature protection and the following accessories:

- 4 low pressure vessels (for aviation & natural gasoline),
- 8 test tubes 25 by 150 mm (for automotive gasoline, diesel, fuel oil, lubricating oil, solvents),
- 4 test tube holders,
- 4 flat viewing glasses,
- 1 metal strip vice,

- 1 set of "O"-ring seals,
- 3 packs of 10 each copper strips  
(12.5 mm x 75 x 3 mm / 1/2" x 3" x 1/8"),
- 1 thermometer 0 ... + 125: 1°C

Power supply: 230 V, 50/60 Hz

**13-0699 Copper Strip Corrosion Apparatus**

Like 13-0700 but:

Power supply: 115 V, 50/60 Hz

**Options & Accessories**

**17-0802**

**Circulation Air Oven**

Consisting of:

thermostatically-controlled, includes of 2-hours & permanent time switch, thermometer for temperature inspection and perforated intermediate bottom.

Important: Not explosion protected!

Technical Data:

Temperature range: +60 to +200 °C

Temperature constancy: +/- 2-3 K

Capacity: 14 l

Inner dimensions (W x H x D): 19 x 20 x 36 cm

Outer dimensions (W x H x D): 31 x 38.5 x 47 cm

Weight: 17 kg

Power supply: 230 V, 50/60 Hz



**17-0804**

**Circulation Air Oven**

Like 17-0802 but:

Power supply: 115 V, 50/60 Hz

**16-0361**

**Test Jar, flat bottomed glass**

with filling mark, Ø 34 x 120 mm

**13-0708**

**Set of Copper Strip Corrosion Standard**

ASTM D 130

**50-4040**

**Silicon Carbide Powder, 105 µm (150 mesh)**

bag of 1 kg

**13-0727**

**Silicon Carbide Grit Paper , 100-grit, 10 sheets**

**13-0719**

**Silicon Carbide Grit Paper , 150-grit, 10 sheets**

**13-0720**

**Silicon Carbide Grit Paper , 240-grit, 10 sheets**

**13-0721**

**Silicon Carbide Grit Paper , 360-grit, 10 sheets**

**13-0722**

**Silicon Carbide Grit Paper , 500-grit, 10 sheets**

**13-0723**

**Silicon Carbide Grit Paper , 600-grit, 10 sheets**

**13-0702**

**Strip Vice Set**

consisting of: - 1-place metal specimen strip holder

- 4-place metal specimen strip holder



**13-0730**

**Strip-Vice holding 4 metal test specimens**



<b>40-1533</b>	<p><b>Metal Test Specimens - Code: 153 D</b>  <b>for Copper Corrosion Test of fuels and aviation fuels</b>                  ASTM D 130, ASTM D 1838, ASTM D 4048, FTM 791-5325</p> <p>(Surfaces prepared)</p> <p>Material/Composition: Copper                  Dimension: 1/2" x 3" x 1/8" (without hole)                  Pack/Set: 10</p>
<b>13-0715</b>	<p><b>Thermometer ASTM 12C / IP 64C</b>                  Range: -20 to +102 : 0.2 °C                  Length: 420 mm, Immersion: total, Ø 7 mm</p>
<b>13-0716</b>	<p><b>Thermometer ASTM 12C / IP 64C</b>                  Range: -20 to +102 : 0.2 °C (officially certified)</p>
<b>21-0603</b>	<p><b>Thermometer ASTM 19C</b>                  Range: +49 to +57 : 0.1 °C                  Length: 275 mm, Immersion: total, Ø 6.5 mm</p>
<b>21-0609</b>	<p><b>Thermometer ASTM 19C</b>                  Range: +49 to +57 : 0.1 °C (officially certified)</p>
<b>21-0606</b>	<p><b>Thermometer ASTM 22C / IP 24C</b>                  Range: +95 to +103 : 0.1 °C                  Length: 275 mm, Immersion: total, Ø 7 mm</p>
<b>21-0612</b>	<p><b>Thermometer ASTM 22C / IP 24C</b>                  Range: +95 to +103 : 0.1 °C (officially certified)</p>
<b>13-0714</b>	<p><b>Flat Viewing Tube, DIN-type</b>                  safety glass, 250 mm in length</p>
<b>13-0128</b>	<p><b>Test Tube - DIN, glass, Ø 25 mm x 150 mm long</b></p>
<b>13-1712</b>	<p><b>Metal Test Specimens - Code: 152 B</b>  <b>for Copper Corrosion Test of fuels and aviation fuels</b>                  ASTM D 7095</p> <p>Material/Composition: Copper                  Dimension: 1/2" x 3" x 1/8" (with hole)                  Pack/Set: 30.5 meter</p>
<b>40-1531</b>	<p><b>Metal Test Specimens - Code: 153 B</b>  <b>for Copper Corrosion Test of fuels and aviation fuels</b>                  ASTM D 130</p> <p>Material/Composition: Copper                  Dimension: 1/2" x 3" x 1/16" (with hole)                  Pack/Set: 10</p>
<b>40-1530</b>	<p><b>Metal Test Specimens - Code: 153 A</b>  <b>for Copper Corrosion Test of fuels and aviation fuels</b>                  ASTM D 130</p> <p>Material/Composition: Copper                  Dimension: 1/2" x 3" x 1/8" (with hole)                  Pack/Set: 10</p>
<b>40-1532</b>	<p><b>Metal Test Specimens - Code: 153 C</b></p>

**for Copper Corrosion Test of fuels and aviation fuels**  
ASTM D 130

Material/Composition: Copper  
Dimension: 1/2" x 3" x 1/32" (with hole)  
Pack/Set: 10

**Spare Parts**

**13-0701 Low Pressure Vessel**



ASTM D 130 - ISO 2160

stainless steel, with screw cap and gasket,  
for pressure tests up to 7 bar (100 psi)

**13-0710 O-Ring Seals for pressure vessels, set of 10**

**13-0703 Test Tube Holder**

**13-0111 Test Tube - ASTM, glass, Ø 25 mm x 150 mm long**

**13-0713 Metal Test Specimens**



**for Copper Corrosion Test of fuels and aviation fuels**  
ASTM D 130

(Surfaces not prepared)

Material/Composition: Copper  
Dimension: 1/2" x 3" x 1/8" (without hole)  
Pack/Set: 10

**13-0711 Strip Vice holding 1 metal test specimen**



**13-1714 Flat Viewing Tube, ASTM-type**

safety glass, 250 mm in length

**25-0602 Heating Element DP, 2000 W, 230 V**

**25-0603 Heating Element DP, 1000 W, 115 V**

**21-0721 Cover for bath opening with Ø 51 mm**

**13-0709 Thermometer DIN 12 786**

Range: 0 to +125 : 1 °C

**Order Guideline**

Minimum equipment:  
Spares (approx. 1 year):

1x 13-0700  
Thermometer, 13-0710, Metal Test Specimens,  
13-0111, Flat Viewing Tube, Silicon Carbide Grit Paper, 50-4040

Additional requirements: