



SUBJECT MAGNET - For Checking Magnetic Properties of Materials

SUPERSEDED DATE 11/7/39

An Alnico, 1/2" square face, horseshoe magnet weighing about 5 oz. is standardized for determining the magnetic properties of chrome-bearing and chrome-free alloy tubing, wire or strip used in cathode-ray tubes.

A magnetic test is used to check the magnetic properties of the material or to identify and distinguish it from some other metal.

Due to a magnet losing its strength with continued use, by being dropped or by being left unused without the keeper in place (metal bar across the faces) it should be checked for strength each month or so, as learned by experience, depending upon amount used. At all times the magnet should be capable of lifting a 4 lb. piece of soft iron having a ground surface for contact with the magnet. Whenever the magnet will no longer lift the test sample it should be remagnetized by Meter Lab. of Equipment Dept.

PRECAUTIONS: When a magnet is not to be used for a period of 10 min. or longer return the keeper across the faces.
 Use care not to drop a magnet since blows of this character cause it to lose strength.

**MAGNETIC TEST

Test specimens should be 1-1/2 to 2" of wire, strip or tubing. The specimen should be approached by the magnet and the response noted, being graduated as follows:

- M - Magnetic: Jumps to magnet and adheres strongly.
- W - Weakly Magnetic: Does not jump to magnet but can be lifted.
- S - Slightly Magnetic: Adheres readily but cannot be lifted.
- VS - Very slightly magnetic: A slight attraction.
- VF - Very faintly magnetic: **Very** faint attraction to move the specimen only when balanced on an edge or when tubing placed on a plate glass rolls slowly toward the magnet.
- NM - Not magnetic: No attraction even with special procedure used for VF.

**TEMPERATURES

It may be specified that the metal sample be cooled or heated to one of the following temperatures which are obtained as indicated:

- 180°C Immerse in liquid air.
- 75°C Immerse in acetone containing solid carbon dioxide (dry ice).
- 0°C Ice and water.
- 30°C (86°F) Warm room temperature.
- 100°C Air oven.

At -180°, -75° and 0° the tests are made when the specimens are under a liquid which so dampens the movement that the "very faintly" magnetic class cannot be detected. If a sample, under this condition, is very faintly magnetic, it is recorded as non-magnetic.

STANDARDIZING SECTION
 RESEARCH & ENGINEERING DEPT.