Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7510/2

Issued 1-15-77
Revised

MAGNETS, RARE-EARTH/COBALT, PERMANENT
Samarium/Cobalt, 33/67 - 18 (143) 250

1. SCOPE:

1.1 Form: This specification covers one type of samarium/cobalt permanent magnet.

1.2 Application: Primarily for components of electrical, electronic, and magnetic devices requiring an energy level of 18 MGOe (143 kT· A/m) for use at service temperatures up to 250°C.

1.3 Classification: Nominal composition of 33% samarium and 67% cobalt with an energy level of 18 MGOe (143 kT· A/m) with 250°C maximum service rating.

2. APPLICABLE DOCUMENTS: Shall be as shown in AMS 7510.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification: The complete requirements for procuring the magnets described herein shall consist of this document and the latest issue of the basic specification, AMS 7510.

3.2 Composition: Shall be nominally 33% samarium and 67% cobalt. Composition variations will be permitted if the magnetic properties are met.

3.3 Condition: Shall be unmagnetized, unless otherwise ordered.

3.4 Magnetic Characteristics: Hysteresis data, determined at 25°C ± 5, shall be as follows:

3.4.1	Required magnetizing field, H_s, min	15 kOe	1194 kA/m
3.4.2	Energy product level, $(BH)_m$, nominal	18 MGOe	143 kT· A/m
3.4.3	Residual flux density (induction), B_r	8.3 - 8.8 kG	0.83 - 0.88 T
3.4.4	Induction coercive force, H_c	7.8 - 8.2 kOe	621 - 652 kA/m
3.4.5	Intrinsic coercive force, H_{ci}, min	16 kOe	1273 kA/m

3.5 Permanent Magnet Performance as a Function of Temperature: Shall be as follows:

3.5.1 Reversible coefficient, nominal, when B/H = 1.0:

25° to 100°	0.040% per deg C
25° to 250°C	0.048% per deg C

3.5.2 Irreversible loss after exposure to temperature noted, nominal

100°C, when B/H = 1.0	0.8%
100°C, when B/H = 0.25	1.8%
250°C, when B/H = 1.0	3.0%
250°C, when B/H = 0.25	10.0%