



400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS-STD-66

Issued

DEC 1998

Steel: Chemical Composition and Hardenability

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1. SCOPE:

This standard, as referenced in the applicable product specifications in procurement documents, contains:

- (a) A catalog of the standard carbon steels, alloy steels (including H-steels), and stainless and heat-resisting steels that are designated by chemical composition, or (for H-steels) by chemical composition and hardenability limits by reference to standard industry documents.
- (b) Rules for designating the chemical content of carbon steels, alloy steels, and stainless and heat-resisting steels that are not classified as standard.

2. CLASSIFICATION AND DESIGNATION OF STEELS BY CHEMICAL COMPOSITION:

2.1 Classification:

Chemical composition indicates only one aspect of a steel product and is not to be considered as a complete guide to quality and performance. Chemical composition, however, is the most common basis for the classification and designation of steels. The precise chemical content, together with the desired form (bar, sheet, strip, plate, etc.) and the size (primarily cross-sectional area or diameter, will determine whether a given product can be obtained simply by ordering a standard steel, or whether all the requirements must be specified in detail.

2.2 Standard steels:

Standard steels have specified compositions and are limited to particular forms and sizes. These steels have individual numerical designations assigned by industry to facilitate ordering, as shown in table 1. The numbers are for identification and are not indicative of quality. The steel numbers used in this standard are generally Unified Numbering System (UNS) numbers; corresponding American Iron and Steel Institute (AISI) numbers and Society of Automotive Engineers (SAE) numbers are included for further information.

In general, standard steels are used more often and are more readily available than other compositions.

2.3 Former standard steels:

These steels were formerly listed as "standard steels" in previous editions of this standard and the AISI manuals but, because of decreased usage, they have been placed in separate tables in the referenced documents.

2.4 Nonstandard steels:

Nonstandard steels are steels which do not fall into the category of standard steels because of differences in their composition. These unlisted steels must be ordered by specifying the chemical content in accordance with established ranges and limits.