



Designation: B 807 – 9502

Standard Practice for Extrusion Press Solution Heat Treatment for Aluminum Alloys¹

This standard is issued under the fixed designation B 807; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

¹ This practice is under the jurisdiction of ASTM Committee B-7 B07 on Light Metals and Alloys and is the direct responsibility of Subcommittee B07.03 on Aluminum Alloy Wrought Products.

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1. Scope *

1.1 This practice is intended to cover the controls necessary to press solution heat treat some ~~6XXX~~ 6xxx and ~~7XXX~~ 7xxx series aluminum alloys at extrusion facilities when the alloy design permits them to be so treated; specific alloys are shown in Table 1. For the alloys listed in Table 1, this practice is an alternate process to solution heat treatment in a furnace, such as specified in Practice ~~B-597~~ B 918 for the attainment of T3, T4, T6, T7, T8 and T9-type tempers (See ANSI H35.1).

2. Referenced Documents

2.1 The following documents of the issue in effect on the date of material purchase form a part of this specification to the extent referenced herein:

2.2 ASTM Standards:

B 557 Test Methods of Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products²

B 597~~18~~ Practice for Heat Treatment of Wrought Aluminum Alloys²

2.3 ANSI Standard:

H35.1 Alloy and Temper Designation Systems for Aluminum²

3. Terminology

3.1 Definitions:

3.1.1 *extrusion billet*—the starting stock for the extrusion operation. Extrusion billet is a solid or hollow form, commonly cylindrical, that is usually a cast product, but may be a wrought product or manufactured from sintered powder. Extrusion billet is termed as the final length of material charge used in the extrusion process.

3.1.2 *extrusion ingot*—a cast form that is solid or hollow, usually cylindrical, suitable for extruding.

3.1.3 *extrusion log*—the starting stock for extrusion billet. Extrusion log is usually produced in long lengths from which the shorter length extrusion billets are cut.

3.1.4 *solution heat treatment*—heating an alloy at a suitable temperature for sufficient time to cause one or more soluble constituents to enter into solid solution, and then cooling the material rapidly enough to retain the constituents in solution. (Note 1)

NOTE 1—Metallurgical structure of the alloy is influenced by the heating equipment used. Some heating equipment achieves very rapid temperature rise and may require the metal to be soaked for a period within the temperature range noted in Table 1 to ensure that sufficient applicable alloying elements are taken into solid solution. This soaking stage may be eliminated if the alloying elements are substantially in solid solution prior to charging the metal to the heating equipment.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *potentiometer measuring system*—a means of temperature measurement which compares thermoelectric electromotive force (emf) with a reference emf (also known as a null-balance indicator).

3.2.2 *remote temperature sensing system*—a system of temperature measurement of a non-contact type usually including either a single or multi-wave length radiation sensing device.

3.2.3 *statistical significance of material property data*—though different statistical techniques may be found useful in the analysis of mechanical property data, sufficient mechanical property test data should be accumulated to adequately determine the

² Annual Book of ASTM Standards, Vol 02.02.

*A Summary of Changes section appears at the end of this standard.