Designation: ~~B899 – 18~~ B899 – 21

Standard Terminology Relating to Non-ferrous Metals and Alloys[1]

This standard is issued under the fixed designation B899; 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. Scope*

1.1 To promote precise understanding and interpretation of standards, reports, and other technical writings promulgated by Committee B02.

1.2 To standardize the terminology used in these documents.

1.3 To explain the meanings of technical terms used within these documents for those not conversant with them.

1.4 Some definitions include a *discussion* section, which is a mandatory *part* of the definition and contains additional information that is relevant to the meaning of the defined term.

1.5 Definitions of terms specific to a particular standard will appear in that standard and will supersede any definitions of identical terms in this standard.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

~~2. Referenced Documents~~

~~2.1 *ASTM Standards:*[2]~~

~~B6 Specification for Zinc~~
~~B29 Specification for Refined Lead~~
~~B32 Specification for Solder Metal~~
~~B39 Specification for Nickel~~
~~B69 Specification for Rolled Zinc~~
~~B86 Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings~~
~~B160 Specification for Nickel Rod and Bar~~
~~B161 Specification for Nickel Seamless Pipe and Tube~~
~~B163 Specification for Seamless Nickel and Nickel Alloy Condenser and Heat-Exchanger Tubes~~
~~B164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire~~
~~B165 Specification for Nickel-Copper Alloy Seamless Pipe and Tube~~

[1] This terminology is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.91 on ~~Editorial and~~ Terminology.

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

B166 Specification for Nickel-Chromium-Aluminum Alloy, Nickel-Chromium-Iron Alloys, Nickel-Chromium-Cobalt-Molybdenum Alloy, Nickel-Iron-Chromium-Tungsten Alloy, and Nickel-Chromium-Molybdenum-Copper Alloy Rod, Bar, and Wire
B167 Specification for Nickel-Chromium-Aluminum Alloys (UNS N06699), Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696), Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617), Nickel-Iron-Chromium-Tungsten Alloy (UNS N06674), and
B240 Specification for Zinc and Zinc-Aluminum (ZA) Alloys in Ingot Form for Foundry and Die Castings
B327 Specification for Master Alloys Used in Making Zinc Die Casting Alloys
B333 Specification for Nickel-Molybdenum Alloy Plate, Sheet, and Strip
B339 Specification for Pig Tin
B407 Specification for Nickel-Iron-Chromium Alloy Seamless Pipe and Tube
B408 Specification for Nickel-Iron-Chromium Alloy Rod and Bar
B418 Specification for Cast and Wrought Galvanic Zinc Anodes
B423 Specification for Nickel-Iron-Chromium-Molybdenum-Copper Alloy (UNS N08825, N08221, and N06845) Seamless Pipe and Tube
B425 Specification for Nickel-Iron-Chromium-Molybdenum-Copper Alloys Rod and Bar
B434 Specification for Nickel-Molybdenum-Chromium-Iron Alloys (UNS N10003, UNS N10242) Plate, Sheet, and Strip
B435 Specification for UNS N06002, UNS N06230, UNS N12160, and UNS R30556 Plate, Sheet, and Strip
B444 Specification for Nickel-Chromium-Molybdenum-Columbium Alloys (UNS N06625 and UNS N06852) and Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219) Pipe and Tube
B445 Specification for Nickel-Chromium-Iron-Columbium-Molybdenum-Tungsten Alloy (UNS N06102)* Seamless Pipe and Tube (Withdrawn 1995)[3]
B446 Specification for Nickel-Chromium-Molybdenum-Columbium Alloy (UNS N06625), Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219), and Nickel-Chromium-Molybdenum-Tungsten Alloy (UNS N06650) Rod and Bar
B463 Specification for UNS N08020 Alloy Plate, Sheet, and Strip
B471 Specification for UNS N08020, UNS N08026, and UNS N08024 Nickel Alloy Spring Wire (Withdrawn 1999)[3]
B473 Specification for UNS N08020, UNS N08024, and UNS N08026 Nickel Alloy Bar and Wire
B475 Specification for UNS N08020, UNS N08024, and UNS N08026 Nickel Alloy Round Weaving Wire
B511 Specification for Nickel-Iron-Chromium-Silicon Alloy Bars and Shapes
B512 Specification for Nickel-Chromium-Silicon Alloy Billets and Bars
B518 Specification for Nickel-Chromium-Iron-Columbium-Molybdenum-Tungsten Alloy (UNS N06102) Rod and Bar
B522 Specification for Gold-Silver-Platinum Electrical Contact Alloy
B535 Specification for Nickel-Iron-Chromium-Silicon Alloys (UNS N08330 and N08332) Seamless Pipe and Tube
B536 Specification for Nickel-Iron-Chromium-Silicon Alloys Plate, Sheet, and Strip
B540 Specification for Palladium Electrical Contact Alloy
B541 Specification for Gold Electrical Contact Alloy
B575 Specification for Low-Carbon Nickel-Chromium-Molybdenum, Low-Carbon Nickel-Chromium-Molybdenum-Copper, Low-Carbon Nickel-Chromium-Molybdenum-Tantalum, Low-Carbon Nickel-Chromium-Molybdenum-Tungsten, and Low-Carbon Nickel-Molybdenum-Chromium Alloy Plate, Sheet, and Strip
B582 Specification for Nickel-Chromium-Iron-Molybdenum-Copper Alloy Plate, Sheet, and Strip
B599 Specification for Nickel-Iron-Chromium-Molybdenum-Niobium Stabilized Alloy Plate, Sheet, and Strip
B620 Specification for Nickel-Iron-Chromium-Molybdenum Alloy (UNS N08320) Plate, Sheet, and Strip
B622 Specification for Seamless Nickel and Nickel-Cobalt Alloy Pipe and Tube
B625 Specification for Ni-Fe-Cr-Mo-Cu-N Low-Carbon Alloy, Ni-Fe-Cr-Si Alloy, Cr-Ni-Fe-N Low-Carbon Alloy, Fe-Ni-Cr-Mo-Cu-N Alloy, and Ni-Fe-Cr-Mo-N Alloy Plate, Sheet, and Strip
B637 Specification for Precipitation-Hardening and Cold Worked Nickel Alloy Bars, Forgings, and Forging Stock for Moderate or High Temperature Service
B639 Specification for Precipitation Hardening Cobalt-Containing Alloys (UNS R30155 and UNS R30816) Rod, Bar, Forgings, and Forging Stock for High-Temperature Service
B649 Specification for Ni-Fe-Cr-Mo-Cu-N Low-Carbon Alloy and Cr-Ni-Fe-N Low-Carbon Alloy Bar and Wire, Ni-Cr-Fe-Mo-N Alloy Wire, and Ni-Fe-Cr-Mo-N Alloy Bar
B667 Practice for Construction and Use of a Probe for Measuring Electrical Contact Resistance
B672 Specification for Nickel-Iron-Chromium-Molybdenum-Columbium Stabilized Alloy (UNS N08700) Bar and Wire
B677 Specification for Nickel-Iron-Chromium-Molybdenum and Iron-Nickel-Chromium-Molybdenum-Copper Seamless Pipe and Tube
B688 Specification for Chromium-Nickel-Molybdenum-Iron (UNS N08367) Plate, Sheet, and Strip
B690 Specification for Iron-Nickel-Chromium-Molybdenum Alloy (UNS N08367) Seamless Pipe and Tube
B691 Specification for Iron-Nickel-Chromium-Molybdenum Alloy (UNS N08367) Rod, Bar, and Wire

B709 Specification for Iron-Nickel-Chromium-Molybdenum Alloy (UNS N08028) Plate, Sheet, and Strip
B710 Specification for Nickel-Iron-Chromium-Silicon Alloy Welded Pipe
B718 Specification for Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy (UNS N06333) Plate, Sheet, and Strip
B719 Specification for Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy Bar
B722 Specification for Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy (UNS N06333) Seamless Pipe and Tube (Withdrawn 2021)[3]
B723 Specification for Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy Welded Pipe
B726 Specification for Nickel-Chromium-Molybdenum-Cobalt-Tungsten-Iron-Silicon Alloy (UNS N06333) Welded Tube
B729 Specification for Seamless Nickel-Iron-Chromium-Molybdenum-Copper Nickel Alloy Pipe and Tube
B739 Specification for Nickel-Iron-Chromium-Silicon Alloy Welded Tube
B749 Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products
B750 Specification for GALFAN (Zinc-5 % Aluminum-Mischmetal) Alloy in Ingot Form for Hot-Dip Coatings
B751 Specification for General Requirements for Nickel and Nickel Alloy Welded Tube
B756 Specification for Nickel-Chromium-Molybdenum-Tungsten Alloy(UNS N06110) Rod and Bar (Withdrawn 2021)[3]
B759 Specification for Nickel-Chromium-Molybdenum-Tungsten Alloys (UNS N06110) Pipe and Tube (Withdrawn 2021)[3]
B775 Specification for General Requirements for Nickel and Nickel Alloy Welded Pipe
B791 Specification for Zinc-Aluminum (ZA) Alloy Foundry and Die Castings (Withdrawn 1999)[3]
B792 Specification for Zinc Alloys in Ingot Form for Slush Casting
B805 Specification for Precipitation Hardening Nickel Alloys Bar and Wire
B814 Specification for Nickel-Chromium-Iron-Molybdenum-Tungsten Alloy(UNS N06920) Plate, Sheet, and Strip
B818 Specification for Cobalt-Chromium-Nickel-Molybdenum-Tungsten Alloy(UNS R31233) Plate, Sheet and Strip
B834 Specification for Pressure Consolidated Powder Metallurgy Iron-Nickel-Chromium-Molybdenum (UNS N08367), Nickel-Chromium-Molybdenum-Columbium (Nb) (UNS N06625), Nickel-Chromium-Iron Alloys (UNS N06600 and N06690), and Nickel-Chromium-Iron-Columbium-Molybdenum (UNS N07718) A
B860 Specification for Zinc Master Alloys for Use in Hot Dip Galvanizing
B892 Specification for ACuZinc5 (Zinc-Copper-Aluminum) Alloy in Ingot Form for Die Castings
B894 Specification for ACuZinc5 (Zinc-Copper-Aluminum) Alloy Die Castings
B897 Specification for Configuration of Zinc and Zinc Alloy Jumbo, Block, Half Block, and Slab Ingot
B907 Specification for Zinc, Tin and Cadmium Base Alloys Used as Solders
B908 Practice for the Use of Color Codes for Zinc Casting Alloy Ingot
B914 Practice for Color Codes on Zinc and Zinc Alloy Ingot for Use in Hot-Dip Galvanizing of Steel
B943 Specification for Zinc and Tin Alloy Wire Used in Thermal Spraying for Electronic Applications
B952/B952M Specification for Zinc Alloys in Ingot Form for Spin Casting
B989 Specification for High Fluidity (HF) Zinc-Aluminum Alloy in Ingot Form for Thin Wall Die Castings
B997 Specification for Zinc-Aluminum Alloys in Ingot Form for Hot-Dip Coatings

2. Significance and Use

2.1 The terms defined in this document are generic in respect to the standards under the jurisdiction of Committee B02 on Nonferrous Metals and Alloys. The same terms may have different definitions in other ASTM technical committees.

2.2 Some definitions may differ within the committee because of limitations on items such as weights or dimensions. In such cases the terms will be more precisely defined in the *Terminology* section of the standards in which these terms are used.

4. Index of Terms

4.1 *Alphabetical Listing of Terms*
average diameter
bar
billet
can
cathodic protection
cobalt alloy
coiled sheet
compact
contact resistance
contact resistance probe

~~die casting~~
~~ellipsis~~
~~fill pin~~
~~fineness~~
~~flat sheet~~
~~foundry casting~~
~~galvanic anode~~
~~graphite permanent mold casting~~
~~heat~~
~~ingot~~
~~liquidus~~
~~lot~~
~~lot number~~
~~melt~~
~~nickel~~
~~nickel alloy~~
~~nickel-base alloy~~
~~nickel-based alloy~~
~~nominal wall~~
~~nonferrous material~~
~~part~~
~~permanent mold casting~~
~~pig~~
~~pipe~~
~~plate~~
~~platinum group metal~~
~~powder~~
~~powder blend~~
~~precious metals~~
~~precipitation hardening~~
~~pressure die-casting~~
~~producer~~
~~ribbon anode~~
~~rod~~
~~rough part~~
~~saline electrolyte~~
~~sand casting~~
~~seamless pipe~~
~~semi-permanent mold casting~~
~~shapes~~
~~sheet~~
~~shot~~
~~solidus~~
~~sponge~~
~~spring wire~~
~~strip~~
~~test report~~
~~thin-wall tube~~
~~tube~~
~~weaving wire~~
~~welded pipe~~
~~wire~~

3. Terminology

General Nonferrous Metals and Alloys

3.1 *Terms and Their Definitions:*

bar, *n*—an elongated, forged or rolled metal product with uniform strength, length and section (such as rectangular, square, round, oval or hexagonal).

DISCUSSION—
The term "bar" may have a similar definition, but with greater and more specific detail in the product standard.

billet, *n*—a formed shape that may be further worked, or a solid, semifinished, round, or rectangular product that has been hot-worked by forging, rolling, or extrusion.

ellipsis, *n*—in a tabular entry, three periods (...) that indicate that there is no requirement.

heat, *n*—refer to **melt**.

ingot, *n*—a casting of simple shape suitable for hot-working or remelting.

liquidus, *n*—the lowest temperature at which an alloy under equilibrium conditions begins to freeze on cooling or is completely melted on heating.

lot, *n*—a quantity of metal made under conditions that, for sampling purposes, are considered uniform.

lot number, *n*—a unique alphanumeric designation for a lot that is traceable to manufacturing records.

melt, *n*—all the metal that, while molten, was held at the same time in the same holding vessel.

nonferrous material, *n*—metals and alloys that do not contain iron as the principal component.

DISCUSSION—
The iron content is not always stated in the specification and is not always determined by chemical analysis. The iron content may be taken to be 100 % minus the sum of the mean values permitted by the specification for all other elements having a specified range or a specified maximum. For conformance purposes, the mean value for iron, whether specified or calculated, is compared on an individual basis to the mean values permitted by the specification for each of the other elements having a specified range or a specified maximum. If an element other than iron is not specified, but is listed as remainder or balance, then, for conformance purposes the mean value for iron is compared to the calculated value for that other element.

plate, *n*—a flat-rolled metal product of same minimum thickness and width arbitrarily dependent on the type of metal.

producer, *n*—the primary manufacturer of the material.

sheet, *n*—a flat-rolled metal product of some maximum thickness and minimum width arbitrarily dependent on the type of metal; it is thinner than plate.

solidus, *n*—the highest temperature at which under equilibrium conditions an alloy begins to melt on heating or is completely solid on cooling.

sponge, *n*—a form of metal characterized by a porous condition that is the result of decomposition or reduction of a compound without fusion.

strip, *n*—a flat-rolled metal product of some maximum thickness and width arbitrarily dependent on the type of metal, it is narrower than sheet.

test report, *n*—a document that presents the applicable qualitative or quantitative results obtained by applying one or more given test methods.

DISCUSSION—

A single document, containing test report information and certificate of compliance information, may be used.

wire, *n*—a thin, flexible continuous length of metal, usually of uniform, round cross section.

Refined Lead, Tin, Antimony, and Their Alloys

3.2 *Terms and Their Definitions:*

pig, *n*—an oblong or square mass of metal that has been cast while still molten into a mold that gives the metal its particular shape; most commonly used for lead and tin in weights that can be handled manually.

Zinc and Cadmium

3.3 *Terms and Their Definitions:*

alloy composition, *n*—the composition is identified by a two or four-letter symbol and number. The letters typically indicate the chemical symbol for the critical element in the solder and the number indicates the nominal percentage, by weight, of the critical element in the solder.

brightener bar, *n*—brightener bar is a zinc alloy containing aluminum which is added to the galvanizing bath to adjust the aluminum content of the bath to: suppress the formation of iron-zinc alloy layers, increase the brightness and ductility of the galvanized coating, and improve the drainage of zinc from the work as it exits the bath; also called brightener.

cathodic protection, *n*—protection of a metal from corrosion by making it a cathode through the galvanic sacrifice of a less noble metal or through an impressed electric current.

coiled sheet, *n*—sheet in coils with slit edges.

color code, *n*—code to follow the quick identification of ingots.

die casting, *n*—a casting process in which molten metal is injected under high velocity and pressure into a metal die and solidified; also, a product produced by such a process; alternately known as pressure die casting.

flat sheet, *n*—sheet with sheared, silt, or sawed edges that has been flattened or leveled.

foundry casting, *n*—a casting process wherein a molten metal is poured by gravity into the cavity of a mold and solidified; also, a product of such a process.

galvanic anode, *n*—a metal electrode that sacrificially corrodes when coupled to a more noble metal in a conducting medium, thereby supplying a protective electric current to the more noble electrode.

graphite permanent mold casting, *n*—a metal object produced by introducing molten metal by gravity or low pressure into a graphite mold and allowing it to solidify.

hardener, *n*—an aluminum-base master alloy added to Special High Grade Zinc (SHG) to produce a zinc alloy for die casting.

high fluidity alloy, *n*—a zinc alloy by nature of its composition is capable of producing die castings with thinner wall sections compared to typical die cast alloys, often less than 0.012 in. (0.30 mm) in thickness.

permanent mold casting, *n*—a metal object produced by introducing molten metal by gravity or low pressure into a mold constructed of durable material, usually iron or steel, and allowing it to solidify. See also graphite permanent mold casting.

pressure die-casting, *n*—same as die casting.

ribbon anode, *n*—a long, continuous sacrificial anode shape, with a diamond, square, rectangular, oval, or other cross-section, most commonly made of zinc, magnesium or aluminum, having a core wire normally made of steel, that is, usually supplied in coils or reels of 100 to 3600 ft depending upon size and cross-section.

saline electrolyte, *n*—a solution customarily consisting of the chlorides of the alkali metals.

shot, *n*—small spherically shaped particles of metal.

spin casting, *n*—a casting process in which molten metal is poured into a rubber, polymer, graphite or metal mold and spun centrifugally until solidified, also a product produced by such a process.

type 5, *n*—95 % zinc-5 % aluminum.

type 10, *n*—90 % zinc-10 % aluminum.

type 15, *n*—85 % zinc-15 % aluminum.

3.4 *Abbreviations:*

CGG—continuous galvanizing grade zinc.

HG—High Grade Zinc.

MM—mischmetal.

PW—Prime Western Zinc.

SHG—Special High Grade Zinc.

UNS—Unified Numbering System.

V–12—zinc-12 % aluminum master alloy used to produce die casting alloy #3.

ZA—zinc-aluminum.

ZA–8—zinc-8 % aluminum-1 % copper die casting alloy.

ZA–12—zinc-11 % aluminum-1 % copper die casting and foundry alloy.

ZA–27—zinc-27 % aluminum-2 % copper die casting and foundry alloy.

Zn-5Al-MM—zinc-5 % aluminum-mischmetal galvanizing alloy.