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Standard Terminology Relating to Non-ferrous Metals and Alloys¹

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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.

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.

3. Index of Terms

3.1 Alphabetical Listing of Terms

average diameter
bar
billet
can
cathodic protection
coiled sheet
compact
contact resistance
contact resistance probe
die casting
fill pin
fineness
flats
flat sheet
foundry casting
galvanic anode
graphite permanent mold casting

heat
ingot
liquidus
lot
lot number
melt
nominal wall
part
permanent mold casting
pig
pipe
plate
powder
powder blend
precious metals
pressure die casting
producer
rod
rough part
saline electrolyte
sand casting
seamless pipe
semi-permanent mold casting
shapes
sheet
shot
solidus
sponge
spring wire
strip
thin-wall tube
tube
weaving wire
welded pipe
wire

4. Terminology

4.1 Terms and Their Definitions

average diameter, n —the average of the maximum and minimum outside the diameters, as determined at any one section of the pipe or tube. **B 160, B 161, B 163, B 165, B 167, B 407, B 423, B 444, B 445, B 535, B 622, B 677,**

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 Terminology.

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B 690, B 710, B 722, B 723, B 726, B 729, B 739, B 751, B 759, B 775

bar, n—an elongated, forged or rolled metal product with uniform strength, length and section (such as rectangular, square, round, oval or hexagonal). **B 327, B 518**

NOTE 1—In the following standards the term “bar” has a similar definition, but with greater and more specific detail. **B 160, B 164,**

B 166, B 408, B 425, B 446, B 473, B 511, B 512, B 637, B 639, B 649, B 672, B 691, B 719, B 756, B 805

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.

can, n—the container used to encapsulate the powder during the pressure consolidation process; it is removed from the final part. **B 834**

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. **B 418**

coiled sheet, n—sheet in coils with slit edges. **B 69**

compact, n—the consolidated powder from one can; it may be used to make one or more parts. **B 834**

contact resistance, n—the resistance to current flow between two touching bodies, consisting of constriction resistance and film resistance. **B 667**

contact resistance probe, n—an apparatus for determining electrical contact resistance characteristics of a metal surface.

DISCUSSION—probe, in this instance, should be distinguished from the classical tool whose function it is to touch or move an object. **B 667**

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. **B 6, B 240, B 892, B 894**

fill pin, n—the part of the compact in the spout used to fill the can; it is usually integral to the part produced. **B 834**

fineness, n—a measure of the purity of precious metals expressed in parts per thousand.

flat sheet, n—sheet with sheared, silt, or sawed edges that has been flattened or leveled. **B 69**

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. **B 86**

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. **B 418**

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. **B 86**

heat, n—refer to melt.

ingot, n—a casting of simple shape suitable for hot-working or remelting. **B 240, B 327**

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. **B 6, B 32, B 240, B 418, B 749**

lot number, n—a unique alphanumeric designation for a lot that is traceable to manufacturing records. **B 32**

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

nickel, n—a refined nickel primarily produced from ore or matte or similar raw material containing a minimum of 99.80 percent nickel by weight. **B 39**

nickel alloy, n—a material that conforms to a specification that requires, by weight percent, more nickel than any other element.

DISCUSSION—Beginning in 1992, only alloys containing nickel as the principal constituent have been categorized as a nickel alloy for the purpose of new coverage in B02 specifications. Prior to 1992, nickel alloys were defined as alloys nominally containing less than 50 % iron with nickel as the highest nonferrous element present.

nickel-base alloy and nickel-based alloy—these terms are not used in ASTM standards under the jurisdiction of Committee B02 and are not preferred. See **nickel alloy**.

nominal wall, n—specified wall thickness with a published plus and minus tolerance from the specified thickness at any point. **B 535, B 710, B 722, B 723, B 726, B 739, B 751, B 775**

part, n—a single item coming from a compact, either prior to or after machining. **B 834**

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. **B 86, B 792**

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. **B 29, B 339**

pipe, n—a tubular metal product, cast or wrought, of dimensions that conform to those referred to commercially as standard pipe sizes. **B 161, B 165, B 167, B 407, B 423, B 444, B 445, B 535, B 622, B 677, B 690, B 710, B 722, B 723, B 729, B 759, B 775**

plate, n—a flat-rolled metal product of same minimum thickness and width arbitrarily dependent on the type of metal. **B 69, B 333, B 434, B 435, B 463, B 536, B 575, B 582, B 599, B 620, B 625, B 709, B 718, B 814, B 818**

powder, n—particles of a solid characterized by small size, nominally within the range of from 0.1 to 1000 u.m.

powder blend, n—a homogeneous mixture of powder from one or more heats; it is limited to the amount that can be mixed in the same blender at one time. **B 834**

precious metals, n—the eight noble metals: gold, silver, palladium, platinum, rhodium, iridium, osmium, and ruthenium.

pressure die-casting, n—Same as die casting. **B 86, B 791**

producer, n—the primary manufacturer of the material. **B 32**