Designation: C162 – 23

Standard Terminology of Glass and Glass Products[1]

This standard is issued under the fixed designation C162; 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 This terminology defines terms generally used in C14 standards with related additional terms from the glass industry.

1.2 In some cases in which a usage is specific to a certain industry, that is spelled out within the definition. For completeness and historical purposes, terms that are outdated are listed as being archaic. The reader is cautioned that some companies or industries may define or use terms differently than the way these terms are defined within this terminology.

1.3 Other sources of glass glossaries are *National Glass Association's GANA Glazing Manual,*[2] *NGA Engineering Standards Manual for Tempered Glass,*[2] *Laminated Glass Design Guide,*[2] and ASTM Committee C-14 standards.

2. Referenced Documents

2.1 *ASTM Standards:*[3]

C148 Test Methods for Polariscopic Examination of Glass Containers

C336 Test Method for Annealing Point and Strain Point of Glass by Fiber Elongation

C338 Test Method for Softening Point of Glass

C598 Test Method for Annealing Point and Strain Point of Glass by Beam Bending

C813 Test Method for Hydrophobic Contamination on Glass by Contact Angle Measurement

C1048 Specification for Heat-Strengthened and Fully Tempered Flat Glass

C1172 Specification for Laminated Architectural Flat Glass

3. Terminology

Abbé value—the reciprocal dispersive power, a value used in optical design, expressed mathematically as:

$$\textbf{Abbé value} = (n_d - 1)/(n_F - n_C)$$

where n_d is the refractive index for the helium line at 587.6 nm and n_F and n_C are the refractive indices for the hydrogen lines at 486.1 nm and 656.3 nm, respectively. See synonymous term *nu-value* and related term **dispersion**.

abraded—describes a test specimen that has at least a portion of the area under test subjected to an operationally defined procedure for mechanical abrasion. The severity and uniformity of abrasion should be sufficient to ensure origin of failure substantially in the region of maximum stress.

absorption—a magnitude reduction of electromagnetic energy of neither transmission nor reflection, such as sunlight being absorbed by tinted glass.

acid polishing—the polishing of a glass surface by acid treatment.

acoustics—the science of sound and sound control.

air bells—bubbles of irregular shape formed generally during the pressing or molding operations in the manufacture of optical glass.

alabaster glass—a milky-white glass that diffuses light without fiery color.

alcove—a narrow channel to convey molten glass from refiner to forehearth or to the revolving pot where it is gathered by the Owens machine.

alkali—an industrial term for the oxide of sodium or potassium; less frequently of lithium.

ampoule—a glass container designed to be filled and sealed by fusion of the glass neck.

analyzer—a polarizing element, typically positioned between the specimen being evaluated and the viewer.

anisotropy—a strain pattern inherent in all heat-strengthened and fully tempered glass. This strain pattern may be visible under certain lighting conditions. It is a characteristic of heat-treated glass and should not be mistaken as discoloration, nonuniform tint or color, or a defect in the glass. The strain pattern does not affect any physical properties or performance values of the glass. Also known as *iridescence*.

[1] This terminology is under the jurisdiction of ASTM Committee C14 on Glass and Glass Products and is the direct responsibility of Subcommittee C14.01 on Nomenclature and Definitions.

Current edition approved Oct. 1, 2023. Published December 2023. Originally approved in 1941. Last previous edition approved in 2015 as C162 – 05 (2015). DOI: 10.1520/C0162-23.

[2] Available from National Glass Association (NGA), 344 Maple Ave. West, Unit 272, Vienna, VA 22180. http://www.glass.org.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

anneal—to attain acceptably low stresses, or desired structure, or both, in glass by controlled cooling from a suitable temperature.

annealed glass—describes glass subjected to the annealing process.

annealing—a controlled cooling process for glass designed to reduce residual stress to a commercially acceptable level and modify structure.

annealing lehr—an on-line, controlled heating/cooling apparatus located after the glass is formed and before the glass is cooled. Its purpose is to anneal the glass product.

annealing point (A.P.)—that temperature corresponding either to a specific rate of elongation of a glass fiber when measured by Test Method C336, or a specific rate of midpoint deflection of a glass beam when measured by Test Method C598. At the annealing point of glass, internal stresses are substantially relieved in a matter of minutes.

annealing range—the range of glass temperature in which stress in glass can be relieved at a commercially practical rate. For purposes of comparing glasses, the annealing range is assumed to correspond with the temperature between the annealing point (A.P.) and the strain point (St.P.)

antimony—an industrial term for an oxide of antimony.

applied color label (ACL)—a ceramic-glass enamel/ink applied to and fired on a glass surface for the purposes of decoration and labeling. Also called Applied Ceramic Label.

arch, *n*—a part of a glass melting furnace; a crown.

arch, *v*—to heat a pot in a pot arch.

architectural glass, *n*—a general term applied to glass used in the building industry.

arrest mark—see **dwell mark**.

arsenic—an industrial term for an oxide of arsenic.

autoclave—a vessel that employs pressure and heat, used to produce a permanent bond between glass and interlayers suitable for this process, creating a laminated glass product.

aventurine—{archaic} glass containing colored, opaque spangles of non-glassy material.

back wall—the wall at the charging end of a glass melting furnace.

baffle—a mold part used to close the delivery or baffle hole in a blank mold.

baffle mark—a mark or seam on a bottle resulting from a mold joint between blank mold and baffle.

baffle wall—a wall used to deflect gases or flames in a glass melting furnace.
See **shadow wall**.

baghouse—a chamber containing bag filters for the removal of particles from a process exhaust stream.

bait—the tool dipped into molten glass to start any drawing operation.

barrel, glass container—{archaic} see **sidewall, glass container**.

base—{archaic} the bottom of a bottle.

basic fiber—unprocessed glass fibers directly from the forming equipment.

batch—(*1*) the recipe of batch ingredients.
(*2*) the raw materials weighed but unmixed.
(*3*) the raw materials, properly proportioned and mixed, for delivery to the furnace.

batch charger—a mechanical device for introducing batch to the glass melting furnace.

batch feeder—see **batch charger**.

batch house—the place where batch materials are received, handled, weighed, and mixed.

bath—synonymous with **float bath**.

bead—(*1*) an enlarged, rounded raised section on a glass article.
(*2*) a small piece of glass tubing bonded around a wire lead.
(*3*) in fiber glass, a tear drop-shaped glass mass which forms as a result of the interruption of the fiber forming process below an orifice.

beam bending viscometer—a device used to determine the viscosity of glass by viscous bending of a loaded beam.

bearer arch—see **rider arch**.

bearing surface—the outside surface of an item of glassware on which it rests when in its normal upright position.

beltmarks—see **chain marks**.

bench—see **siege**.

bending stress—a continuously and linearly changing stress across the thickness of a glass body, varying from compression on one surface to tension on the opposite surface.

bent glass—previously flat glass that has been configured in an out-of-plane manner by a method such as heating followed by cooling into a new self-sustaining form, or the application of external sustained load.

beveling—the process of edge finishing flat glass to a beveled angle.

bicheroux process—{archaic} an intermittent process for making plate glass, in which the glass is cast between rolls, onto driven conveyer rolls, or a flat moving table.

binder—(*1*) for a continuous filament process, a constituent of a fiber glass sizing that couples the fiber to the composite matrix.
(*2*) for insulation, material applied to glass fibers to hold them in a desired arrangement.