



Designation: D3918 – 11

Standard Terminology Relating to Reinforced Plastic Pultruded Products¹

This standard is issued under the fixed designation D3918; 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 These definitions cover terms used in the reinforced plastics pultrusion industry. In some cases the terms may be identical to those employed in other standards.

NOTE 1—There is no known ISO equivalent to this standard.

2. Terminology

barcol hardness—a measurement of the surface hardness using a Barber Colman impresser.

NOTE 2—The Barcol hardness is a relative measure of cure and the nominal value can differ on a fully cured part with the use of different additives.

blister—a rounded elevation of the pultruded surface with boundaries that may be more or less sharply defined. A blister may be a small percentage or large percentage of the pultruded part surface.

NOTE 3—The rounded elevation somewhat resembles a blister on the surface of human skin. Blisters may exist within the pultrusion as a hollow area (usually gas-filled) under a raised portion of the surface.

blooming, fiber—a pultrusion surface condition exhibiting a fiber prominence or fiber show that usually has a white or bleached color on parts without a surfacing veil.

NOTE 4—The surface generally feels rough when touched by the fingers and is of superficial thickness easily removed by buffing or light sanding. There is not a structural issue.

blooming, undercure—a dull and bleached surface color that is evident in pultruded material not exposed to the weather.

NOTE 5—This condition is usually the result of insufficient surface cure.

bow—See *camber* and *straightness*.

camber—the deviation of the edge or surface of a pultruded shape from a reference straight line.

chips—minor damage to the pultruded surface that removes material but does not cause a crack or craze. Typically

caused by minor impact damage closed shape—a pultruded shape that has a hollow component.

crack—a visual separation that occurs internally or penetrates down from the pultruded surface to the equivalent of one full ply or more of reinforcement (at least 0.019 in. or 0.48 mm).

crater—a small, shallow pultrusion surface imperfection.

craze—multiple fine cracks at or under the pultruded surface.

craze, hairline—multiple fine pultrusion surface separation cracks that exceed $\frac{1}{4}$ in. (6.4 mm) in length and do not penetrate in depth to the equivalent of full ply of reinforcement.

craze, resin—multiple fine separation cracks at the pultruded surface not penetrating into the reinforcement.

NOTE 6—This condition is usually due to resin shrinkage during cure in resin-rich areas.

delamination—the separation of two or more layers or plies of reinforcing material within a pultrusion, which increases the localized part thickness by more than 0.13 mm (0.005 in.).

die-parting line—a lengthwise flash or depression on the surface of a pultruded plastic part.

NOTE 7—The die-parting line is associated with the area where separate pieces of the die join together to form the cavity.

die struck dimension—a dimension that is controlled exclusively by the dimensions of the steel die and not by processing.

discoloration—a streak or other pattern on the surface that causes a noticeable change of color from the rest of the pultruded surface.

dry fiber—a condition in which fibers are not fully encapsulated by resin during pultrusion.

dullness—a lack of normal pultruded surface gloss or shine.

NOTE 8—This condition can be caused by insufficient cure locally or in large areas end cut angularity-The squareness of the end cut on a pultruded shape measured in reference to a flat surface on the pultruded part which is parallel to the direction of pull.

dwarf width—a condition in which the crosswise (of the direction of pultrusion) dimension of a flat surface of the part is less than that the die normally would yield for a particular composite.

¹ These definitions are under the jurisdiction of ASTM Committee D20 on Plastics and are the direct responsibility of Subcommittee D20.18 on Reinforced Thermosetting Plastics.

Current edition approved April 1, 2011. Published April 2011. Originally approved in 1980. Last previous edition approved in 2003 as D3918 - 96(2003). DOI: 10.1520/D3918-11.