



Designation: F 109 – 91 (Reapproved 1996)

AMERICAN SOCIETY FOR TESTING AND MATERIALS  
100 Barr Harbor Dr., West Conshohocken, PA 19428  
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## Standard Terminology Relating to Surface Imperfections on Ceramics<sup>1</sup>

This standard is issued under the fixed designation F 109; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

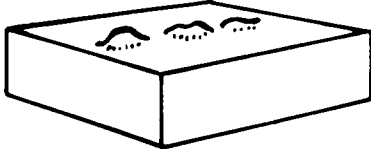
1.1 This terminology describes and illustrates imperfections observed on whitewares and related products. For additional definitions of terms relating to whitewares and related products, refer to Terminology C 242. To observe these defects, examination shall be performed visually, with or without the aid of a dye penetrant, as described in Test Method C 949. Agreement by the manufacturer and the purchaser regarding specific techniques of observation is strongly recommended.

### 2. Referenced Documents

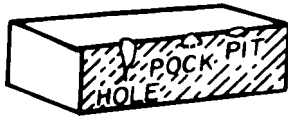
- 2.1 *ASTM Standards*:  
C 242 Terminology of Ceramic Whitewares and Related Products<sup>2</sup>  
C 949 Test Method for Porosity in Vitreous Whitewares by Dye Penetration<sup>2</sup>  
E 165 Practice for Liquid Penetrant Inspection Method<sup>3</sup>

### 3. Terminology

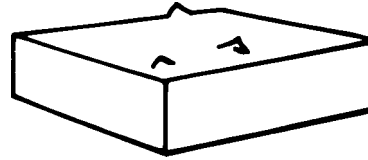
**blemish**—strained or discolored area attributable to normal composition or forming, or both. (See also **inclusion**.)



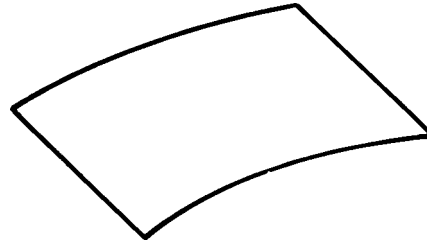
**blister**—bubble or gaseous inclusion at the surface which if broken could form a pit, pock, or hole.



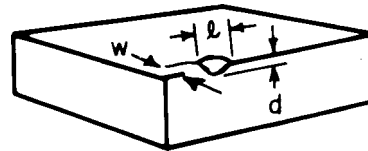
**burr**—fragment of excess material or foreign particle adhering to the surface.



**camber**—a single arch of curvature. (See also **waviness**.)



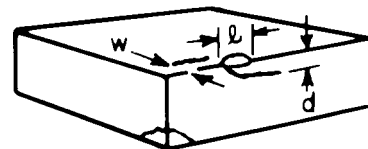
**chip**—area along an edge or corner where the material has broken off.



where:

- $w$  = width  
 $l$  = length, and  
 $d$  = depth.

**closed chip**—fractured area on the edge or corner when the material has not broken off (Syn. *potential chip*).



where:

- $W$  = width

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee C-21 on Ceramic Whitewares and Related Products and is the direct responsibility of Subcommittee C21.01 on Nomenclature.

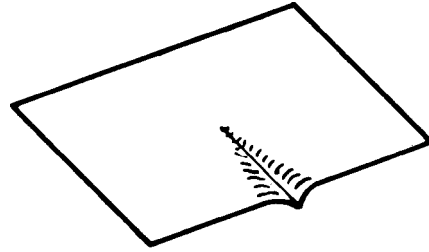
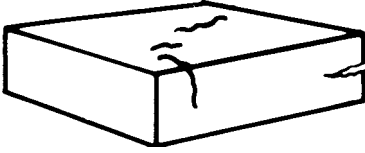
Current edition approved Dec. 15, 1991. Published February 1992. Originally published as F 109 – 69 T. Last previous edition F 109 – 73 (1991) <sup>$\epsilon$ 1</sup>.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 15.02.

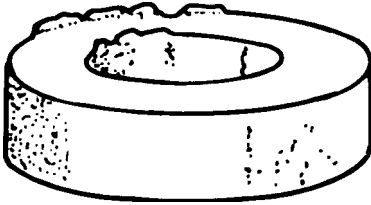
<sup>3</sup> *Annual Book of ASTM Standards*, Vol 03.03.

$l$  = length, and  
 $d$  = depth.

**crack**—line of fracture without complete separation.

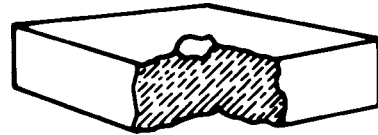


**fin**—fine feather-edge protrusion from the surface (Syn. *flash*).

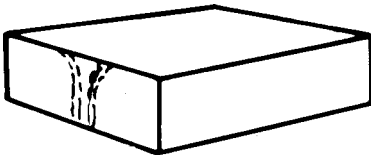


**lump**—a raised area on the surface having the appearance of being solid.

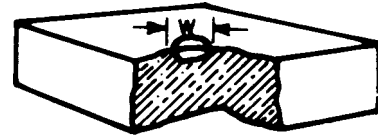
**pit**—a shallow depression or crater in which all surfaces are visible by normal (20/20) vision under 200 fc of illumination.



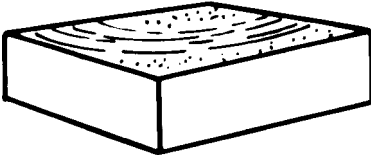
**flow line**—one or more streaks distinguished by a difference in light reflectance from the surrounding area, characteristic of injection-molded parts. (See also **weld mark**.)



**pock**—a partially closed surface cavity.



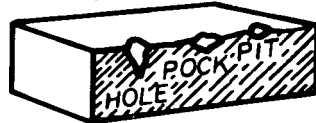
**grinding mark**—a pattern of fine striations or scoring, usually directional, resulting from machining, as distinct from **surface marks**



where:

$w$  = width.

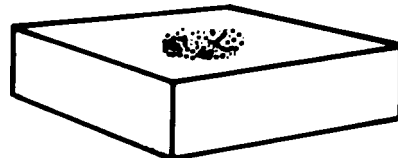
**pore**—an internal cavity which may be exposed by cutting, grinding, or polishing to become a pit, pock, or hole.



**hole**—a deep depression or void, the bottom of which is not visible by normal (20/20) vision under 200 fc illumination.



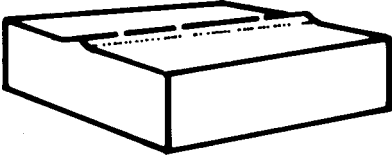
**porous area**—an area that will retain dye when tested in accordance with Practice E 165 and, if broken through at the porous area, will show evidence of dye penetration into the body.



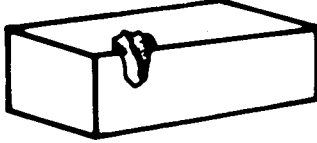
**inclusion**—embedded foreign material or a stain other than from normal composition or forming, or both (see **blemish**).

**kink**—a type of waviness occurring interior to the edges, not to be confused with the more abrupt departures as ridges or surface marks. (See also **waviness**.)

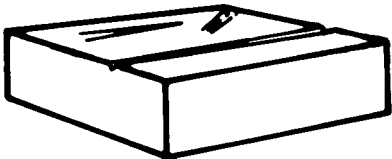
**ridge**—long, narrow protrusion on any surface.



**rim**—a protrusion, usually of base material, bordering either partially or completely a hole, pit, or pock.

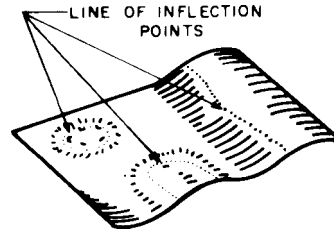


**surface marks**—relatively long, narrow, shallow grooves or cuts in the surface, such as scratches, score marks, and machining marks. (See also **grinding mark**)

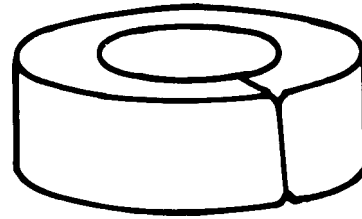


**waviness**—a long-order departure from flatness as opposed to

sharp discontinuities. Amplitude is in excess of specified surface finish. In general, waviness will exhibit a number of inflection points that, if connected, would form a line whose path may be open or closed (Syn. *warp*).



**weld mark**—a deep groove or fissure formed by incomplete union of two or more particles or streams of material flowing together.



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