

**“The official Book of D1.1 Interpretations” 1976-2008 editions.**

**Subject:** Surface Porosity  
**Code Edition:** D1.1-90  
**Code Provision:** None  
**AWS Log:** ID1-91-010-09

**Inquiry:** (1) Is surface porosity a requirement for visual inspection?  
(2) Is surface porosity acceptable?

**Response:** (1) No, the Code has no requirement for surface porosity relative to visual inspection.  
(2) If surface is of concern to the Engineer, the limit of porosity shall be established by agreement between the owner and contractor.

**2008 AWS D1.1. definitions**

**Annex K**

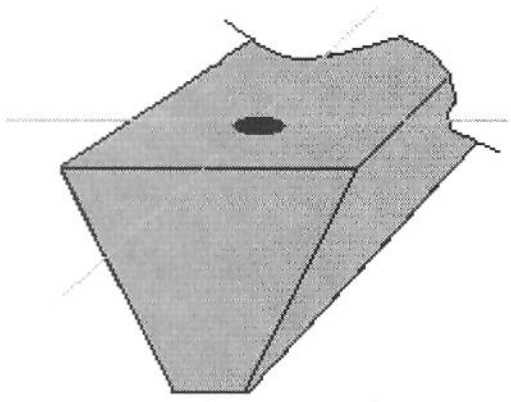
\***pipng porosity (general).** Elongated porosity whose major dimension lies in a direction approximately normal to the weld surface. Frequently referred to as *pin holes* when the porosity extends to the weld surface.

**Commentary**

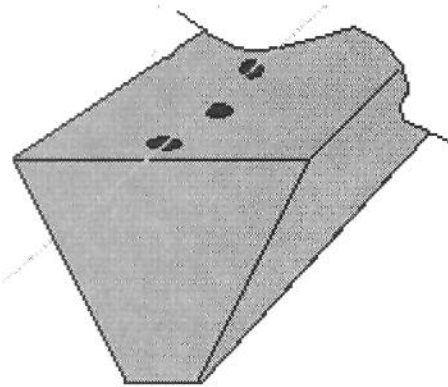
**C-Table 6.1 Item 8—Piping Porosity.** Table 6.1 contains visual acceptance criteria for surface-breaking piping porosity, since this is visually detectable, and may significantly reduce the cross-sectional areas of the weld available to resist applied loads. Other forms of surface-breaking porosity do not reduce the cross-sectional area as significantly (see Annex K for a definition of piping porosity).

**2010 AWS A3.0 definitions**

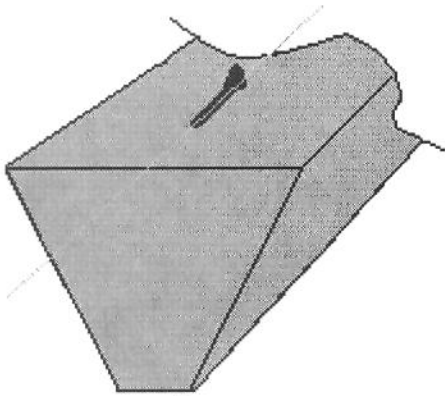
- **Porosity** – Cavity-type discontinuities formed by gas entrapment during solidification or in a thermal spray deposit.
- **Aligned Porosity** – A localized array of porosity oriented in a line. Also known as linear porosity.
- **Blowhole** – A nonstandard term when used for porosity.
- **Cluster Porosity** – A localized array of porosity having a random geometric pattern.
- **Piping Porosity** – A form of porosity having a length greater than it's width that lies approximately perpendicular to the weld face. Also known as wormhole porosity.
- **Elongated Porosity** – A form of porosity having a length greater than its width that lies approximately parallel to the weld axis.
- **Hollow bead** – A nonstandard term when used for elongated porosity occurring in a root bead.



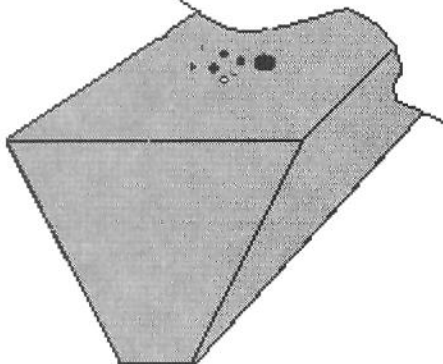
Porosity – Cavity-type discontinuities formed by gas entrapment during solidification or in a thermal spray deposit.



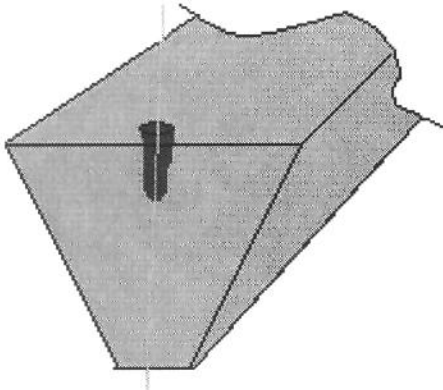
Aligned Porosity – A localized array of porosity oriented in a line. Also known as linear porosity.



Elongated Porosity – A form of porosity having a length greater than its width that lies approximately parallel to the weld axis.



Cluster Porosity – A localized array of porosity having a random geometric pattern.



Piping Porosity – A form of porosity having a length greater than its width that lies approximately perpendicular to the weld face. Also known as wormhole porosity.