



Designation: G188 – 05 (Reapproved 2021)

Standard Specification for Leak Detector Solutions Intended for Use on Brasses and Other Copper Alloys¹

This standard is issued under the fixed designation G188; 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.

INTRODUCTION

This specification is intended for purchasing agents to use in purchase orders for leak detection fluids (LDF). The primary purpose of the specification is to assign the responsibility for passing Specification **G186** to the manufacturers of these products. Previously the only corrosion related specification for LDFs was an obsolete Military Specification that required that the LDF not exceed a corrosion rate of 100 mpy in a total immersion test. The problem of stress corrosion cracking of brass has shown up as a major cause of failures in compressed gas service of brass components resulting from ammonia used to adjust the pH of LDFs. This specification will give the industrial gas industry a means to prevent these failures in the future.

1. Scope

1.1 This specification covers the requirements for leak detector solutions suitable for use in checking the leakage of valves, pipes, fittings, joints, and so forth of a pressurized gas system fabricated from brasses and other copper alloys.

1.2 This specification deals with the stress-corrosion cracking aspect of leak detector solutions. The effectiveness, chemical, physical and mechanical properties of leak detector solutions are not within the scope of this specification.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and to determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee **G01** on Corrosion of Metals and is the direct responsibility of Subcommittee **G01.06** on Environmentally Assisted Cracking.

Current edition approved Aug. 1, 2021. Published August 2021. Originally approved in 2005. Last previous edition approved in 2017 as G188 – 05 (2017). DOI: 10.1520/G0188-05R21.

2. Referenced Documents

2.1 *ASTM Standards:*²

E300 Practice for Sampling Industrial Chemicals

G15 Terminology Relating to Corrosion and Corrosion Testing (Withdrawn 2010)³

G186 Test Method for Determining Whether Gas-Leak-Detector Fluid Solutions Can Cause Stress Corrosion Cracking of Brass Alloys

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 **Gas Leak Detector Solutions**—Also known as leak detection fluids, leak detector solutions, bubble solutions, and soap solutions, designated in this standard as LDFs, are fluids used to detect leaks in pressurized gas systems by the formation of bubbles at the leak site.

3.1.2 **Other Definitions**—For other definitions used in this specification, refer to Terminology **G15**.

4. Performance Requirements

4.1 The leak detector solution shall not show stress-corrosion cracking of copper alloy specimens as shown in Test Method **G186**.

² 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.

³ The last approved version of this historical standard is referenced on www.astm.org.