



# Corrosion Testing Laboratories, Inc.

August 23, 2012

CTL REF #29288R

NIBCO INC.  
1516 Middlebury Street  
Elkhart, IN 46516-4750

## Re: Testing of NIBCO Products for Stress Corrosion Cracking and Dezincification Corrosion

Laboratory testing was conducted at the request of NIBCO INC. on five (5) samples (Table 1) in accordance with ISO 6957:1988 (E) Copper Alloys – Ammonia test for stress corrosion resistance, and BS EN ISO 6509:1995 Corrosion of metals and alloys – Determination of dezincification resistance of brass. At NIBCO's request, ISO 6597 tests were performed at a test solution pH of 9.5 in accordance with the above-referenced testing methodology. The acceptance criterion for ISO 6509 was that of BS EN 13828:2003, Section 5.1.1.2 (dezincification depth of less than 200µm in any direction). Following testing, test specimens tested per ISO 6509 were prepared for examination according to ASTM E 3 and examined at 500X magnification using an inverted metallographic microscope with a calibrated eyepiece reticle. The results are summarized in Table 1.

**Table 1**  
**Test Results**

Sample	Test Result	
	ISO 6957:1988 (E) (Test Solution pH = 9.5)	BS EN ISO 6509:1995
595 Valve End Piece (C87850) (Note 1)	No cracks	No dezincification (0 µm depth)
585-80 Valve Body (C87600) (Note 2)	No cracks	No dezincification (0 µm depth)
585-80 Valve End Piece (C87600) (Note 2)	No cracks	No dezincification (0 µm depth)
585-80 Valve Stem (C69300) (Note 1)	No cracks	No dezincification (0 µm depth)
585-80 Valve Ball (C69300) (Note 1)	No cracks	No dezincification (0 µm depth)

Notes:

1. Tested as individual component in ISO 6957.
2. Tested as assembled valve in ISO 6957.

## CONCLUSION

All samples PASSED appropriate testing standards for both stress corrosion cracking and dezincification corrosion.

Fred M. Sherman  
Senior Materials Analyst

Approved:

Bradley D. Krantz  
Vice-President of Laboratory Services  
NACE Materials Selection/Design Specialist Certificate #4195

60 Blue Hen Drive, Newark, DE 19713 USA  
(302) 454-8200 • fax (302) 454-8204 • e-mail [ctl@corrosionlab.com](mailto:ctl@corrosionlab.com)

*a Subsidiary of*

**Corrosion Probe, Inc.**

Corporate Headquarters:

12 INDUSTRIAL PARK ROAD • P.O. BOX 178 • CENTERBROOK, CT 06409-0178  
PHONE: (860) 767-4402 • FAX: (860) 767-4407 [www.cpiengineering.com](http://www.cpiengineering.com)