McMASTER-CARR®

Certificate

330-995-5500
330-995-9600 (fax)
cle.sales@mcmaster.com

| Purchase Order | Order Date | Placed By | McMaster-Carr Number | Number of Certificates |
|---|---|---|---|---|
| P1480140 | 5/2/2023 | Jane Beattey | 2318059-01 | 1 |

| Line | | Product | Ordered | Status | Certificate |
|---|---|---|---|---|---|
| 1 | 8911K371 | 932 Bearing Bronze Tube, 1/2" Wall Thickness, 5" OD, 13" Long | 1 each | 1 each delivers May 4 | 211–2865 |

**Your order is subject only to our terms and conditions, available at www.mcmaster.com or from our Sales Department.**

# CERTIFICATE OF ANALYSIS

**THE FOLLOWING MATERIAL IS CERTIFIED TO:**

CONCAST METAL PRODUCTS CO.

PO BOX 816 - MARS, PA 16046

April 14 , 2023

McMaster-Carr Supply Co.
600 North County Line Road
P.O. Box 1207
Elmhurst, IL 60126-1207
Attn: Quality Control Department

## GENERAL PRODUCT INFORMATION

**Heat#: 2350437**

**Manufacture Date:** 03/13/23
**Alloy:** 932
**Shape:** TUBE
**Size#:** 4 X 5
**Internal Standards:** ASTM B505

**Customer PO#:** RG-51698770
**Customer Job#:**
**Customer Part#:** 603
**Control#:**
**Date Shipped:** 04/14/23
**Quantity Shipped:** 8
**Weight Shipped:** 275.00
**Packslip#:** 355953
**Invoice#:** 0
**Country of Origin:** UNITED STATES

## CHEMICAL ANALYSIS

| | | DEFINED BY SPECIFICATION Minimum | | Maximum | MEASURED IN LABORATORY |
|---|---|---|---|---|---|
| ** | Cu | 81.0000 | - | 85.0000 | 82.0292 |
| | Sn | 6.3000 | - | 7.5000 | 6.4800 |
| | Pb | 6.0000 | - | 8.0000 | 7.1200 |
| | Zn | 2.0000 | - | 4.0000 | 3.7000 |
| | Fe | 0.0000 | - | 0.2000 | 0.0620 |
| | Ni | 0.0000 | - | 1.0000 | 0.4420 |
| | SB | 0.0000 | - | 0.3500 | 0.0790 |
| | P | 0.0000 | - | 1.5000 | 0.0570 |
| | S | 0.0000 | - | 0.0800 | 0.0280 |
| | Al | 0.0000 | - | 0.0050 | 0.0008 |
| | Si | 0.0000 | - | 0.0050 | 0.0020 |

** In determining copper minimum, copper may be calculated as copper plus nickel

| Physical Analysis * | Yield .5% UNDER LOAD (PSI) | N/mm² | Tensile (PSI) | N/mm² | Elongation in 4D or 2 in. min % | Brinell Hardness BRINELL 500 |
|---|---|---|---|---|---|---|
| Defined By Specification | 20000 | 137.9 | 35000 | 241.3 | 10 | 0 - 0 |
| | | | | | | |

This is to certify that all material listed is free from mercury contamination and no mercury bearing equipment was used in any of our manufacturing, fabricating, assembly or testing operations. No materials containing Class I or Class II ODC's; CFC's; Halons or HCFC's are used in our manufacturing process. None of the EPA's listed ODC's are used in our testing, assembly or fabricating procedures. Additionally we do not purchase, from our suppliers, any of the EPA's listed ODC's. * Minimum tensile and yield strength shall be reduced 10% for cast bars having a thickness, diameter, cross section or wall of 4" or more. All Nickel measurements are inclusive of Cobalt concentrations.

CERTIFICATE NO.'S
25513/A/0001/AN/En
32119/A/0001/UK/En

CONCAST METAL PRODUCTS

Richard J. Hartman Jr.
Lab Manager