

## CHASE BRASS & COPPER COMPANY, INC.

14-212 County Road M-50 Montpelier, OH 43543

1-888-BLUE-DOT / Fax: 419/485-8929

January 20, 2018

Mr. James Rupany Grove Industries 855 Golf Avenue Bensenville, IL 60106

Dear Mr. Rupany,

This letter certifies that all Chase brass rod produced in 2018 meets the ASTM specifications detailed below (Table #1 - #4) for the alloys shown. In addition, our rod products meet the following requirements:

- 1). The ACS Metallic Components composition rules of the modified French departmental order dated May 29, 1997 related to the materials and parts used in installations for production, treatment and distribution of water intended for human consumption.
- 2). The composition rules as described by the French departmental order dated January 13, 1976 related to materials in contact with food products.
- 3). European Commission Directive 2000/53/EC on End-of-Life Vehicles: Annex II dated 9/20/05, item 3 showing an exemption for leaded brass rod containing less than 4% lead.
- 4). European Commission Directive 2002/95/EC (also referred to as RoHS) on the restriction of hazardous substances in electrical and electronic equipment: Annex item 6 showing an exemption for leaded brass rod containing less than 4% lead.

In accordance with ASTM B16/16M-05, Chase C36000 meets all half hard temper hardness requirements, unless tensile strength is specified by the customer (ASTM B16/16M-05 section 8.1.1.1). All Chase produced brass rod is mercury free, PCB free, asbestos free, does not contain, nor do we use ozone-depleting chemicals and is not subject to weld repair.

**TABLE #1: CURRENT ASTM ALLOY SPECFICATION** 

ALLOY	ASTM SPECFICATION	MEETS REQUIREMENTS FOR:		
C36000	ASTM B16/16M-05	Chemical composition and mechanical properties		
C34500	ASTM B453/453M-01	Chemical composition and mechanical properties		
C35000	ASTM B453/453M-01	Chemical composition and mechanical properties		
C35300	ASTM B453/453M-01	Chemical composition and mechanical properties		
C37000	ASTM B124-04	Chemical composition		
C37700	ASTM B124-04	Chemical composition		

## TABLE #2 ASTM CHEMICAL COMPOSITION SPECIFICATION (See table above for spec. number)

ELEMENT	C36000	C34500	C35000	C35300	C37000	C37700
Copper (%)	<mark>60-63</mark>	62-65	61-63	61-63	59-62	58-61
Lead (%)	<mark>2.5-3.7</mark>	1.5-2.5	0.8-2.0	1.5-2.5	0.8-1.5	1.5-2.5
Iron (%), max	<mark>0.35</mark>	0.15	0.15	0.15	0.15	0.30
Zinc	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder