

TAM International, Inc.

ES-7.3-13 Specifications for Metallic & Phenolic Balls

Approved by Department Manager

Signature/Date: *Brett Guillory 1/25/2010*

Revision Level: **C**

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Reviewed by ISO Management Representative

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Review date: 4/2014

1.0 Purpose

- 1.1 These specifications define the requirements for physical and dimensional characteristics of Metallic and Phenolic balls used in the operation of TAM products.

2.0 Status and Records

- 2.1 Records and document maintenance of these specifications shall be the responsibility of the Director of Engineering.
- 2.2 A copy of the specifications shall be provided to the vendor and shall be considered valid for the life of the purchase order.

3.0 Size and Material Requirements

- 3.1 For all metallic balls, the composition shall consist of an austenitic stainless steel manufactured from 316 or 316L grade material and shall be non-magnetic in nature. If unavailable, brass may be used if approved by U.S. Operations Manager for that specific job.
- 3.2 Phenolic balls shall conform to the following specifications:

Resin Chemistry	100% Phenolic Compound
Compressive Strength	15,000 psi Minimum.
Impact Strength, 1200	30 ft/lbs Minimum
Specific Gravity	1.20 – 1.48
Water Absorption	0.3% by Weight Maximum
Refractive Index	1.59 Nd
Color	None required

4.0 Dimensional Tolerances (Unless otherwise specified on drawing)

4.1 Diameter:

Ball sizes will be specified and purchased in fractional increments and will be verified using decimal indicating equipment.

Metallic Brass Balls - The diameter shall be plus or minus .002" of the decimal equivalent as specified.

Phenolic Balls – The diameter shall be $\pm .005$ " of the decimal equivalent as specified. Tighter tolerances may be required for certain sizes. These will be called out specifically on the setting ball drawing.

- 4.2 Sphericity - Balls shall be within .001" of a true spheroid.