

## SR-200 HOT ROLLED BERYLLIUM SHEET

Effective: December 12, 2011

Rev A

### 1. SCOPE

This specification defines the requirements for beryllium sheet produced by hot rolling beryllium, and is designated SR-200.

- 1.1. Be Sheet to this specification is available in thicknesses of 0.020" to 0.249"

### 2. CHEMICAL COMPOSITION

Be Sheet shall be produced by hot rolling beryllium.

- 2.1. The chemical composition shall conform to the following:

Beryllium Assay, % minimum (1)	98.0
Beryllium Oxide, % maximum (2)	2.0
Aluminum, % maximum (3)	0.16
Carbon, % maximum (4)	0.15
Iron, % maximum (3)	0.18
Magnesium, % maximum (3)	0.08
Silicon, % maximum (3)	0.08
Other Metallic Impurities, each, % maximum (3)	0.04

- Note: (1) Difference (i.e. 100% - other elements)  
(2) Leco Inert Gas Fusion  
(3) Spectrochemical Methods  
(4) Leco Combustion

### 3. CONDITION

The standard condition of sheet shall be hot rolled, ground, stress relieved and etched. Rework of local areas may be performed within tolerances established by this specification. Surface finish shall be 63 microinches rms or finer.

#### 4.TENSILE PROPERTIES

- 4.1. Minimum longitudinal and transverse tensile properties at room temperature based on one test in each direction. Determination by ASTM E 8, Federal Test method No. 151 is applicable

Ultimate Tensile,Strength-ksi	70.0
Yield Strength, 0.2% Offset-ksi	50.0
Elongation, % in 1"	10.0

#### 5.TOLERANCES

- 5.1. Thickness:

Nominal  Thickness Inches	Tolerance in Inches	
	Plus	Minus
Including 0.020 to 0.025 inclusive	0.003	0.003
Over 0.025 to 0.034 inclusive	0.004	0.004
Over 0.034 to 0.056 inclusive	0.005	0.005
Over 0.056 to 0.070 inclusive	0.006	0.006
Over 0.070 to 0.078 inclusive	0.007	0.007
Over 0.078 to 0.093 inclusive	0.008	0.008
Over 0.093 to 0.109 inclusive	0.009	0.009
Over 0.109 to 0.125 inclusive	0.010	0.010
Over 0.125 to 0.140 inclusive	0.012	0.010
Over 0.140 to 0.171 inclusive	0.014	0.010
Over 0.171 to 0.249	0.015	0.010

- 5.1.1. Thickness measurements on sheets one inch or more in width shall not be conducted closer than .375 inches to any edge. There shall be no restriction of thickness measurement location for sheet under one inch wide.

- 5.2. Width: Shall not vary more than plus 0.125, minus 0 inch.

- 5.3. Length: Shall not vary more than plus 0.250, minus 0 inch.

- 5.4. Straightness:

Maximum edgewise curvature (depth of arc) shall not exceed 1/16 inch in any foot length, when measured in the plane of the sheet.

5.5. Flatness:

5.5.1. Shall not vary more than the following:

Thickness	Flatness			
	Type I	II	III	IV
0.040 and under	2%	1%	.030"/Ft.	N/A
over .040	1%	1/2%	.030"/Ft.	.010"/Ft.

5.5.2. Flatness tolerances indicate the maximum deviation between the surface of the sheet and a straight edge which is in contact with the surface of the sheet and laid in any direction. This deviation is expressed as either a percent of the distance spanned by the contact points or measured deviation per 12 inch span. Flatness measurements may be made with the sheet restrained. Alternate measuring methods are subject to prior agreements between buyer and seller.

6.REPORTS

6.1. Certification of compliance with this specification will be furnished upon request. When requested, actual test results will be certified. Testing in accordance with the individual customer's instructions will be performed if mutually acceptable, and actual test results will be certified.

7.IDENTIFICATION AND PACKAGING

7.1. Identification - unless otherwise specified, each sheet shall be marked using a waterproof black ink, non-harmful to the material, and shall consist of the following:

- Materion Brush
- Sales Order Number
- Purchase Order Number
- Specification Identification
- Sheet Number
- Lot Number
- Size
- "Warning Beryllium"

Packaging and shipping shall be as determined by mutual agreement and in accordance with applicable regulations.

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## 8. SAFETY / ENVIRONMENTAL

Handling Beryllium Containing Material in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. Read and follow the guidance in the Material Safety Data Sheet (MSDS) before working with this material. For additional information on safe handling practices or technical data on Beryllium Containing Material, contact Materion Brush Beryllium & Composites, EH&S Product Steward @ 216-383-4040

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