

**BRADY B-311 PORCELAIN SIGNS, TAGS, AND MARKERS**

TDS No. B-311  
Effective Date: 07/29/2011

**Description:**

Brady B-311 porcelain enamel signs, tags, and markers are manufactured by fusing a basecoat mineral content glass and inorganic pigment content mixture to a stainless steel substrate.

**Details:**

**Use:**

Brady B-311 porcelain sign, tag, and marker constructions are designed for applications requiring very long outdoor life, high heat resistance, and inert reaction with chemical and biological agents. This sign construction is recommended for both indoor and outdoor use.

**Relevant Standards:**

Meets the requirements of IEEE Class 1E Power Systems for Nuclear Power Generating Stations.

**Special Properties:**

Signs, tags, and markers manufactured from these "lifetime" materials can last anywhere from 25 to 50 years or more, dependent upon the conditions and severity of the environments to which they are exposed.

**Substrate Type:**

Porcelain enamel fused to stainless steel. All required shaping, holes, and corner rounds shall be performed on the stainless steel base material prior to preparation.

**Standard Material Color:**

White

**Standard Legend Colors:**

Black, red, dark blue, light blue, hunter green, light green, yellow, orange, ANSI orange, brown,

**Thickness (ASTM D 1593):**

.056 in. (1.4 mm)

**Tensile Strength (ASTM 882):**

27,000 psi

**Dielectric Strength (ASTM D 149):**

200 V/mil of P/E

**Gloss:**

98 Gardner Units

**Abrasion Resistance (Method 5306 of U.S. Federal Test Method Std. No. 191A):**

CS-17 Wheels, 1000g wts.

Legend shows no effect after 4,000 cycles

Substrate shows no effect after 15,000 cycles

**Service Temperature:**

-50°F to 1500°F (-45°C to 815°C)

**Average Outdoor Durability:**

25 years (Average expected outdoor life of product will depend on user definition of failure and climatic conditions.)

**Chemical Resistance:**

REAGENT	7 DAY IMMERSION	DIP TEST	RUB TEST
30% Sulfuric Acid	NE	NE	NE
10% Sulfuric Acid	NE	NE	NE
30% Hydrochloric Acid	NE	NE	NE
10% Hydrochloric Acid	NE	NE	NE
Glacial Acetic Acid	NE	NE	NE

5% Acetic Acid	NE	NE	NE
50% Sodium Hydroxide	NE	NE	NE
10% Sodium Hydroxide	NE	NE	NE
10% Ammonia	NE	NE	NE
5% Sodium Hypochlorite	NE	NE	NE
Methyl Ethyl Ketone	NE	NE	NE
Acetone	NE	NE	NE
Toluene	NE	NE	NE
Methanol	NE	NE	NE
Isopropyl Alcohol	NE	NE	NE
Heptane	NE	NE	NE
Mineral Spirits	NE	NE	NE
Turpentine	NE	NE	NE
Kerosene	NE	NE	NE
Diesel Fuel	NE	NE	NE
Gasoline	NE	NE	NE
ASTM #3 Oil	NE	NE	NE
SAE 20 Oil	NE	NE	NE
10% Sodium Chloride	NE	NE	NE
Alconox	NE	NE	NE
DI Water	NE	NE	NE

NE = No Effect

F = Failed (affected sample)

7 Day Immersion: Immersed in reagent for 7 days.

Dip Test: Five 10 minute dips in reagent with 30 minute recovery.

Rub Test: Surface rubbed for 1 minute with swab soaked in reagent.

**Shelf Life:**

25 to 50+ years

**Trademarks:**

ANSI: American National Standards Institute (U.S.A.)

ASTM: American Society for Testing and Materials (U.S.A.)

Alconox® is a registered trademark of Alconox Co.

Fed. Spec.: United States Federal Specification (U.S.A.)

SAE: Society of Automotive Engineers (U.S.A.)

**Note:** All values shown are averages and should not be used for specification purposes.

Test data and test results contained in this document are for general information only and shall not be relied upon by Brady customers for designs and specifications, or be relied on as meeting specified performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact Brady for further information.

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