



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

## **MATERIAL SPECIFICATION**

*Prepared By:* Engineering Staff 

*Approved By:* Jerome T. Schmitz 

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	1 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

### **CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

#### **1. SCOPE**

This specification covers air-cooled anode terminal boxes used in cathodic protection systems.

#### **2. APPLICABLE DOCUMENTS**

- 2.1 Southwest Gas Material Specification (MS) L-6, "Rectifier - Cathodic Protection (50 volt - 30 ampere maximum)."
- 2.2 United States Department of Transportation (DOT), Code of Federal Regulations, Title 49, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards."

**NOTE:** Unless otherwise specified, the editions of the above documents incorporated by DOT 49 CFR 192 are applicable. Documents not incorporated by DOT 49 CFR 192 will be the most recent edition.

#### **3. TERMINOLOGY**

##### **3.1 General**

- 3.1.1 "Southwest Gas," "Southwest" or "SWG" wherever used in this specification and other related documents will refer exclusively to Southwest Gas Corporation.
- 3.1.2 The terms "approved," "as approved," "satisfactory," "as directed," "or equal" or other similar terms wherever used in this specification and other related documents will mean "as determined by Southwest Gas," unless specifically stated otherwise.
- 3.1.3 "Product Information Package" or "PIP", whenever used in this specification and other related documents, will mean the required technical product information that a manufacturer must submit to SWG to determine if the product is suitable for use by SWG, unless specifically stated otherwise.



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

## ***MATERIAL SPECIFICATION***

***Prepared By:*** Engineering Staff 

***Approved By:*** Jerome T. Schmitz 

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	2 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

### **CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

#### **4. MATERIALS AND MANUFACTURING**

- 4.1 Anode terminal boxes built to this specification shall be NEMA Type 3R for outdoor installations. They will be fabricated from .090" (14 gauge) 5052-H32 aluminum or other approved material.
- 4.2 All air vents will be of louver design and open downward. The vents will provide sufficient convection air cooling to prevent overheating of components for ambient temperatures of 122°F (50°C). Aluminum screen or similar mesh material will be attached behind the vents on the inside of the box.
- 4.3 All air vents will be of louver design and open downward. The vents will provide sufficient convection air cooling to prevent overheating of components for ambient temperatures of 122°F (50°C). Aluminum screen or similar mesh material will be attached behind the vents on the inside of the box.
- 4.4 Overall construction will be of good quality. All sharp edges will be removed.
- 4.5 Coatings:
  - All aluminum parts will be anodized prior to coating.
  - The interior of the box will be coated with approved white dry powder fusion bonded polyester containing UV stabilizers.
  - The exterior of the box will be coated with a white or other approved color, as specified on the purchase order; dry powder fusion bonded polyester containing UV stabilizers.
- 4.6 The enclosure will be equipped with a removable lift-off door hinged on the left side.
- 4.7 The enclosure door will contain a stainless steel lockable draw pull latch assembly. The lock assembly shall be capable of accepting a lock with a 3/8" shank.
- 4.8 The anode terminal box shall have an aluminum channel or tabs attached to the back for pole mounting.



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

## ***MATERIAL SPECIFICATION***

***Prepared By:*** Engineering Staff 

***Approved By:*** Jerome T. Schmitz 

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	3 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

### **CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

#### **4. MATERIALS AND MANUFACTURING** (Cont'd)

- 4.6 The enclosure will be equipped with a removable lift-off door hinged on the left side.
- 4.7 The enclosure door will contain a stainless steel lockable draw pull latch assembly. The lock assembly shall be capable of accepting a lock with a 3/8" shank.
- 4.8 The anode terminal box shall have an aluminum channel or tabs attached to the back for pole mounting.
- 4.9 Component Panel:
- The component panel shall be a fully engraved Grade XX phenolic.
  - A 1/16" x 3/4" (0.16 x 1.9 cm) copper buss bar shall be provided to accommodate six Holloway type JB current shunts and six 50 watt, 1 ohm adjustable slide wire resistors. All slide wire resistors shall be adjusted to the minimum resistance position. The buss bar shall be mounted on the back side of the phenolic panel.
  - Teflon stranded #18 gauge copper wire, as a minimum, will be used for all internal wiring of the anode terminal box.
  - The terminals and mechanical lugs for the rectifier positive header cable, reference electrode lead, and the cathode reference lead will be installed in the lower right corner of the panel. All terminal leads must be clearly identified by engraving on the component panel.



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

**MATERIAL SPECIFICATION**

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	4 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

*Prepared By:* Engineering Staff 

*Approved By:* Jerome T. Schmitz 

**CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

**4. MATERIALS AND MANUFACTURING** (Cont'd)

4.9 Component Panel (Cont'd):

- The terminals and mechanical lugs of Section 4.8.4 will be made of silicon bronze and uniformly tin plated to prevent atmospheric corrosion.
- All nuts, bolts and washers will be made of brass.
- All bolts passing through the phenolic panel shall have an internal tooth, shaker proof phosphorus-bronze lock washer installed on each side of the panel.

4.10 The anode terminal box shall be fabricated and shipped without any conduit holes unless specified otherwise on the purchase order.

**5. PERFORMANCE REQUIREMENTS**

The anode terminal box will have a bracket or other approved support to attach the component panel to the inside of the box.

The enclosure door will be securely locked when attached with a padlock provided by SWG.

**6. DIMENSIONS AND TOLERANCES**

There will be a minimum of (2) vents, one on each side of the box. The vents will be a minimum of three inches (3") (7.62 cm) in length and height, and have at least three (3) louvers per air vent.

The anode terminal boxes will have outside dimensions of 21" (53.3 cm) height, 14" (35.56 cm) width, and 6" (15.24 cm) depth.

**7. INSPECTION**

7.1 Successful review of the PIP, as well as any future reference by SWG to the Seller's part number or internal code number in any future contract or purchase, will mean only that no conflict with the specification was found, and will not relieve the seller from meeting all the requirements of this specification.

7.2 SWG retains the option to inspect the manufacture and testing of any and all materials, products or systems referenced in this specification that are sold to SWG.



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

## **MATERIAL SPECIFICATION**

*Prepared By:* Engineering Staff 

*Approved By:* Jerome T. Schmitz 

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	5 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

### **CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

#### **7. INSPECTION (Cont'd)**

7.3 SWG will make appropriate inspections and tests of any and all materials, products or systems supplied to this specification. SWG will have the right, at their option, to reject any material which fails to conform to this specification. Any such rejection may take place at the manufacturer's facility; the supplier's warehouse or any subsequent delivery location, before or after Southwest assumes possession. Notice of the rejection will be made promptly to the supplier by SWG. The defective product will be replaced or returned for credit at the manufacturer's expense.

7.4 Any changes in the manufacturing of previously approved products or systems described in this material specification for sale to SWG, must be approved by SWG's Engineering Staff. **Failure to obtain SWG's approval may be cause for rejection and disqualification as an approved supplier.**

#### **8. CERTIFICATION**

The manufacturer's or supplier's certification will be furnished to Southwest. This certification will state that samples representing each lot have been manufactured, tested, and inspected in accordance with this specification and that all requirements have been met. When requested or specified in the purchase order or contract, a report of test results will be provided.

Upon the request of Southwest, the certification of an independent third party indicating conformance to the specification may be considered at Southwest's expense.

#### **9. SAFETY DATA SHEETS**

In accordance with law, the seller shall supply Safety Data Sheets for all applicable items supplied under this specification to the following:

- 1) The Receiving Location
- 2) Southwest Gas Engineering Staff
- 3) Southwest Gas Corporation  
Corporate Safety  
Mail Station LVA-120  
P.O. Box 98510  
Las Vegas, NV 98193-8510



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

***MATERIAL SPECIFICATION***

*Prepared By:* Engineering Staff 

*Approved By:* Jerome T. Schmitz 

<b>Section No:</b>	MS L-22
<b>Page No.:</b>	6 of 11
<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	01/26/15

**CORROSION CONTROL MATERIALS**

Box, Anode Terminal

---

**10. PACKAGING AND PACKAGE MARKING**

All anode terminal boxes will be packaged to prevent scratching, bending, denting, or any other damage that may occur during transportation and storage.

**11. STOCK CLASSIFICATION DESCRIPTION**

BOX, ANODE (SIX) TERMINAL, 21" HIGH X 14" WIDE X 6" DEEP; 0.090" (14 GAUGE) 5052-H32 ALUMINUM; \_\_\_\_\_ (WHITE, ETC.) EXTERIOR.