SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

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CORROSION CONTROL MATERIALS

Skid, Casing Insulating

1. SCOPE

This specification is for casing insulating skids that are used to electrically isolate the carrier pipe from the casing.

2. APPLICABLE DOCUMENTS

2.1 United States Department of Transportation (DOT), Code of Federal Regulations, Title 49, Part 192, "Transportation of Natural and Other Gas by Pipelines 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" wherever used in this specification and other related documents will mean the required technical product information that a manufacturer must submit to Southwest to determine if the product is suitable for use by Southwest, unless specifically stated otherwise.

4. MATERIALS AND MANUFACTURING

4.1 The casing insulating skid shall consist of two or more segments, including any required bolting, which can be assembled together to form the complete unit.

4.2 The runners shall be permanently fastened to or formed integrally with the segments.

4.3 When the segments are assembled on the carrier pipe, the runners shall be positioned parallel to the pipe's longitudinal axis.

4.4 The skids shall be designed to accommodate the carrier pipe in the casing.

4.5 The skid, including the runners, may be made of a polymeric material for 10" and smaller sizes of carrier pipe.

- Structural strength may be achieved by using steel in any size of casing skid provided the electrical resistance equals or exceeds the requirements of this specification.

4.6 Sufficient runners and adequate runner height shall be provided so that adequate separation between the carrier pipe and casing is maintained after installation to achieve the required electrical resistance.

4.7 The runners shall be shaped so that the skids resist hanging up or sticking in the casing when the carrier pipe is being installed.

4.8 All metallic fasteners and structural members shall be corrosion resistant or coated to prevent corrosion.

5. PERFORMANCE REQUIREMENTS

5.1 The skids shall be of sufficient strength to support the carrier pipe during and after installation without deforming.

5.2 When fitted around the carrier pipe, the skids shall be able to withstand installation into the casing whether by pushing or pulling, without damage.

5.3 The skid shall resist slipping or sliding on the carrier pipe or damaging the carrier pipe's coating during installation into the casing.

6. DIMENSIONS AND TOLERANCES

6.1 The electrical resistance between the carrier pipe and the casing is to be at least 50,000 ohms after installation and before the carrier pipe is tied into the system.

6.2 Skids are to be designed for use on bare pipe or coated pipe.

- Coating thickness on pipe will vary; however, the maximum thickness will be 180 mils.

6. DIMENSIONS AND TOLERANCES (Cont'd)

6.3 Table L-12.1 summarizes the standard skid designs.

- Specialized skids for undersized casings will be specified by carrier pipe and casing size.

Carrier		Casing	
Nominal Diameter Inches	O.D. *Inches	Nominal Diameter Inches	I.D. ** Inches
2	2.375	4	4.5
3	3.5	6	6.25
4	4.5	8	8.19
6	6.625	10	10.31
8	8.625	12	12.25
10	10.75	16	15.44
12	12.75	18	17.38
16	16.00	20	19.31
18	18.00	14	23.19
20	20.00	26	25.12
22	00.00	30	29.06
24	24.00	30	29.06
30	30.00	36	34.94
36	36.00	42	40.86

- Does not include coating thickness
- Varies dependent on wall thickness

TABLE L-12.1

7. INSPECTION

7.1 Successful review of the Product Information Package (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 supplied to this specification at the manufacturer's facility.

7.3 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 SWG assumes possession. Notice of the rejection will be made by 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 manufacturing of previously approved materials, products or systems described in this material specification for sale to SWG must be approved by SWG's Engineering Staff. **Failure to obtain Southwest approval may be cause for rejection and disqualification as an approved supplier.**

8. CERTIFICATION

The manufacturer's or supplier's certification shall be furnished to Southwest. This certification shall state that samples representing each lot have been manufactured, tested and inspected in accordance with this specification and that 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

10. PRODUCT MARKING

The following is to be marked on the skid or packaging:

- Manufacturer's name or trademark
- Model number
- Size of carrier pipe and casing

11. PACKAGING AND PACKAGE MARKING

11.1 All products covered in this specification will be packaged in a manner to prevent damage during transportation and storage.

11.2 Each skid, including all components, is to be individually packaged.

12. STOCK CLASSIFICATION DESCRIPTION

SHIELDS, FRP-ROLL ON, _____INCH WIDE X _____INCH LONG

SPACER INSULATION, FRP, _____INCH

SHEET, INSULATING REINFORCED LAMINATE, 1/16 INCH X 24 INCH X 36 INCH WITH PHENOLIC RESIN BINDER, NEMA DESIGNATION, GRADE CE

CASING INSULATOR, FRP _____ (SIZE)