VALVES AND STOPS
Plastic Ball and Plastic Plug Valves

1. SCOPE

This specification covers plastic ball and plug valves in sizes 1/2" CTS, 1" CTS, 1-1/4" IPS, 2" IPS, 3" IPS, 4" IPS, 6" IPS and 8" IPS intended for use in plastic natural gas distribution systems. All valves indicated in this specification will be in English units with the metric equivalent for reference.

Ball and plug valves may be installed as single components without installation pressure testing.

2. APPLICABLE DOCUMENTS

2.1 American National Standards Institute (ANSI) B-16.40, "Manually Operated Thermoplastic Gas Shutoffs and Valves in Gas Distribution Systems."

2.2 ASTM International (ASTM) D-2513, "Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing and Fittings."

2.3 Title 49, Code of Federal Regulations, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards."

NOTE: Unless otherwise specified, the editions of the above document incorporated in whole or in part by 49 CFR 192 are applicable. The above documents, and parts of documents (including annexes), not incorporated by 49 CFR 192 are incorporated by this Material Specification and will be the most recent edition. If a conflict exists between the applicable documents and/or this Material Specification, the requirements of 49 CFR 192 shall govern, and in the event of all other conflicts, the more stringent requirement shall govern.

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 information that a manufacturer must submit to SWG to determine if the product is suitable for use by SWG, unless specifically stated otherwise.

3.1.4 The term "valves" wherever used in this specification will mean plastic ball valves.

4. MATERIALS AND MANUFACTURING

4.1 Valves manufactured to this specification will meet the minimum requirements of DOT 49 CFR 192, ANSI B-16.40 and all additional requirements defined in this material specification.

4.2 The resins from which the valves are molded must be approved by SWG. The manufacturer will supply a Plastic Pipe Institute (PPI) listing number, if available, for each resin used in the manufacture of the valves.

4.3 All valves, for PE, will be made from virgin material. No rework or regrind material shall be allowed. The valves produced must meet all of the requirements of this specification.

4.4 The valves will have uniform physical and chemical properties and will be free of cracks, holes, foreign inclusions, areas of non-pigmented polymer ("windows") or other injurious defects.

4. MATERIALS AND MANUFACTURING (Cont'd)

4.5 The valves will be clean and internally free of paint, dirt, sand and other debris.

4.6 The valves will contain suitable ultraviolet inhibitors which are acceptable to SWG so that their physical properties will not be adversely affected by exposure to natural ultraviolet light in locations throughout SWG's service area for at least 1 year from the date of manufacture.

4.7 The valves will contain suitable antioxidants which protect against oxidation when required.

4.8 End Connections

4.8.1 Butt-fused valves which are not molded of SWG-approved resin will be provided with the length of pipe extensions (pups) as specified by the purchase order made of Performance Pipe 8100 PE3408/PE100 or similar as approved by Southwest Gas. As specified on the order, this must be butt fused to both ends of the valve. Both butt fusions on each valve must be imprinted with the welder's identification stamp. The manufacturer must provide Southwest the qualified butt-fusion procedures used by the manufacturer to make the fusion between the valve and the pup ends.

4.8.2 Valves molded from a resin approved by Engineering shall not require buttfused pups.

4.8.3 All polyethylene pipe extensions (pups) must have the pipe manufactured date visibly indicated on the pipe by print line, label or another acceptable method that is clearly and completely readable.

4.8.4 Upon deliver, the manufacture date of any PE components will not have exceeded 12 months.

5. PERFORMANCE REQUIREMENTS

5.1 Valves will be designed for use in gas distribution systems in all class locations, at pressures up to 100 psig and at temperatures up to 140°F (60°C). All valves designed must be capable of operating at 60 psig and 140°F (60°C) simultaneously. All product features must be approved by SWG.

5.2 The valves will be designed so that no harmful or hazardous substances will be released into the gas and/or ground.

5.3 The valves will be designed so that oils and other agents and debris commonly found in natural gas pipelines will not adversely affect the product serviceability.

5.4 The valves must be pressure tested to a minimum of 90 psig for a minimum of 10 minutes, including pups if applicable.

6. DIMENSIONS AND TOLERANCES

The valves will be joinable to coiled as well as straight lengths of polyethylene pipe which have the following dimensions:

Nominal Pipe Size (Inches)	OD Inches		Wall Thickness Inches		Nominal SDR
	Average	Tolerance	Minimum	Tolerance	
1 CTS	1.125	±0.005	0.101	±0.012	___
1 1/4 IPS	1.660	±0.005	0.151	±0.018	11
2 IPS	2.375	±0.006	0.216	±0.026	11
3 IPS	3.500	±0.008	0.318	±0.038	11
4 IPS	4.500	±0.009	0.409	±0.049	11
6 IPS	6.625	±0.011	0.602	±0.072	11

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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 referenced in this specification that are sold to SWG.

7.3 SWG will make appropriate inspections and test 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 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'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 specified in the purchase order or contract, a report of results will be provided.

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

9. SAFETY DATA SHEETS

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

1) The Receiving Location
2) Engineering Staff
3) Southwest Gas Corporation
   Corporate Safety
   Mail Station LVA-120
   P.O. Box 98510
   Las Vegas, NV 89193-8510

10. PRODUCT MARKING

10.1 Marking on plastic valves and pups will comply with the marking requirements of ASTM D-2513. The marking method will provide permanent identification of the valve enabling access to quality and manufacturing records at any time.

10.2 The temperature rating marking will be in accordance with ASTM D-2513-87 which consists of, at minimum, a two-letter coding (i.e., “CE”). The first code letter is to identify the high temperature rating and the second code letter is to identify the HDB rating of the resin at that high temperature rating. A third code letter may be included which signifies the melt index. The first code letter must have a minimum of a “C” rating which signifies a temperature rating of 140°F (60°C). The second code letter can be either a “D” which signifies an 800 psig rating or an “E” which signifies a 1000 psig rating.

10.3 All polyethylene pipe extensions (pups) must have the pipe manufactured date visibly indicated on the pipe by print line, label or another acceptable method that is clearly and completely readable.

11. PACKAGING AND PACKAGE MARKING

All valves will be packaged in a manner to prevent damage during transportation and storage.

12. STOCK CLASSIFICATION DESCRIPTION

VALVE, _____ (BALL), POLYETHYLENE PIPE, _____-INCH _____ (IPS OR CTS), PROVIDED WITH ____ - INCH LONG PIPE PUPS OF M8100 SDR 11 PIPE, BUTT-FUSED TO EACH END, FUSIONS TO BE IMPRINTED WITH THE APPLICABLE WELDER ID NUMBER, IN ACCORDANCE WITH "ANSI B16.40" AND "ASTM D2513". AT A MINIMUM, MARKINGS MUST STATE "D2513" AND THE TEMPERATURE/PRESSURE RATING INITIALS "CE". VALVE MUST BE PRESSURE TESTED TO A MINIMUM OF 90 PSIG FOR 10 MINUTES INCLUDING PUPS.

VALVE, _____ (BALL), POLYETHYLENE PIPE, _____-INCH, WITHOUT PUPS, IN ACCORDANCE WITH "ANSI B16.40" AND "ASTM D2513". AT A MINIMUM, MARKINGS MUST STATE "D2513" AND THE TEMPERATURE/PRESSURE RATING INITIALS "CE". VALVE MUST BE PRESSURE TESTED TO A MINIMUM OF 90 PSIG FOR 10 MINUTES.

VALVE, _____ (BALL), M8100, _____ -INCH _____ (IPS OR CTS), VALVE MUST BE MARKED "ASTM D-2513', "ANSI B-16.40", AND EITHER ("CE") OR ("CD" WITH ADDITIONAL MARKING STATING "RATED FOR 60 PSIG AT 140°F").