

Testing of Oilfield Elastomers

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Testing of Oilfield Elastomers

1 Scope

This recommended practice describes practices for the evaluation of elastomeric seal materials and seal designs for the oil and gas industry for wellhead and tree applications. It can also serve as a general guideline for elastomer materials or elastomer seal members used for other applications, which have similar material and application issues.

It is the intent of this document to provide an overview of testing criteria, environments, evaluation procedures, and guidelines for methods used to evaluate elastomeric seal materials and members.

It is not within the scope of this document to offer any correlation between the data obtained from a screening test and the actual service performance of the seal member.

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Specification 6A, *Specification for Wellhead and Tree Equipment*

API Standard 20L, *Qualification of Polymeric Seal Manufacturers for Use in the Petroleum and Natural Gas Industries*

ASTM D395, *Standard Test Methods for Rubber Property—Compression Set*

ASTM D412, *Standard Test Methods for Rubber Properties in Tension*

ASTM D471, *Standard Test Method for Rubber Property—Effect of Liquids*

ASTM D1414, *Standard Test Methods for Rubber O-rings*

ASTM D1415, *Standard Test Method for Rubber Property—International Hardness*

ASTM D2240, *Standard Test Method for Rubber Property—Durometer Hardness*

ASTM D4483, *Standard Practice for Evaluating Precision for Test Method Standards in the Rubber and Carbon Black Manufacturing Industries*

ISO 23936-2, *Petroleum, Petrochemical and Natural Gas Industries—Non-metallic Materials in Contact with Media Related to Oil and Gas Production—Part 2: Elastomers*

3 Terms, Definitions, Acronyms, Abbreviations, and Symbols

3.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

anti-extrusion device

Plastic, metal, wire, rings, packings, and other devices used to block the extrusion of the elastomer seal.