API Standards
For Industry, by Industry

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Standards Program Mission

Provide a forum for development of consensus-based industry standards, and technical cooperation to improve the industry’s safety performance and competitiveness.
API Standards Program

- API publishes ~700 technical standards covering all aspects of the oil and natural gas industry
- Over 7000 active volunteers representing over 50 countries
- One-third of all API standards are referenced in the U.S. regulations
API Standards Program

❖ Basis for company operations worldwide

❖ Foundation of API quality and certification programs

❖ API is accredited by the American National Standards Institute (ANSI)
  – Transparent process
  – Openness, balance, consensus, due process
  – Program audited by ANSI every five years
API Standards Committees

Committee on Standardization of Oilfield Equipment & Materials (CSOEM)
Drilling and Production Operations Subcommittee (DPOS)
Committee on Refinery Equipment (CRE)

- Midstream (Pipeline & Rail Transportation)
- Safety & Fire Protection
- Marketing

Committee on Petroleum Measurement (COPM)
API Standards Committees

- Standards committees typically meet twice a year

- Subgroups (task groups, resource groups) meet as needed to progress work, often via conference calls or web meetings

- Balance between operators, manufacturers, contractors, service companies, and consultants

- API corporate membership is not a requirement for participation on API standards committees
Requirements for Standards Committee Membership

- Be technically proficient in a discipline related to the standard
- Have the support of company management to participate
- Attend/participate in committee meetings
- Agree to work on committee business such as standards revisions and technical inquiries
Standards Development Process

- Developed using a consensus-based process (does not mean unanimity)

- Generally written for flexibility as performance-based documents

- Standards committees decide when to develop a new standard
Standards Development Process

- All standards balloting is done via the web
- All comments must be considered and the resolution documented
- One vote per company on standards ballots
- Voting rights are determined by level of participation
What is “Consensus”?

- Consensus is established when substantial agreement has been reached by directly and materially affected interests.

- Substantial agreement means more than a simple majority but not necessarily unanimity.

- Consensus requires that all views and objections be considered, and that a reasonable effort be made toward their resolution.

- API’s criteria for achieving consensus is defined as a majority of those eligible to vote shall have voted and approval by at least two-thirds of those voting, excluding abstentions.
Achieving Consensus

- Achieving consensus is the chair’s primary responsibility
- Clearly outline what needs to be decided
- Group members have an obligation to participate
- All perspectives are taken into account
Tips for Achieving Consensus in Meetings

❖ Enforce meeting etiquette (one at a time)
  – Allows a complete statement of the objection without interruption
  – “all views and objections be considered”
  – “an effort be made toward their resolution”

❖ Objections can be based on
  – Technical issues (ok)
  – Commercial issues (not ok)
  – Lack of understanding (ok)
  – Unwillingness to change (not ok)

❖ Voting to determine consensus is a last resort
  – One company, one vote
  – TG members present make the determination
  – Final document consensus determined by API ballot
Standards Development Timeline

- Formation of workgroup: (2 – 4 months)
- Develop document draft: (12 – 24 months)
- Consensus ballot: – (typically 6 weeks)
- Ballot Comment resolution: (3 – 10 months)
- API editing and legal review – document layout and initial proof – (2 months)
Standards Development Timeline

- Corrections to page proofs: (1 – 2 months)

- Total time
  - New Documents (24 – 60 months)
  - Revision (18 – 36 months)

- The most important factor is volunteer availability
Antitrust Guidelines

- No discussion or forecasting of prices for goods or services provided or received by a company
- No sharing or discussion of a company’s confidential or proprietary information
- No discussion of any company’s specific purchasing plans, merger/divestment plans, production information, inventories, or costs
- No discussion of company compliance costs unless publically available
- No agreement or discussion of the purchase or sale of goods or services
- No discussion of how individual companies intend to respond to potential market/economic scenarios or government action unless in general terms
- No disparaging remarks about specific products, vendors, services, or competitors
API Standards Format and Style
Topics

- Compliance industry standards
- Prescriptive vs. performance-based standards
- API document designations
- Expression of provisions
- Common mistakes
Why You Need to Know This

❖ Standards writer

Facilitates standards development process if documents are properly formatted at the beginning of the process

❖ Standards user

– Legal interpretation
– Regulatory compliance
– Ease of use (uniform structure, style, and terminology within a series of documents)
Compliance with Industry Standards

- All API documents are voluntary unless imposed by regulation, contract, or company procedures.

- The document type does not determine compliance.
What makes a good standard?

- Clear objective based on sound technical principles
- Reasonable and practical
- Not restrictive of technology development
- Proven engineering practices – the terms “good” or “best” practices are subjective
- Input from all stakeholders
- Addresses those issues that make a difference
- Risk-based when appropriate
Prescriptive vs. Performance-based Standards

- Prescriptive standard – typically prescribes materials, design, and construction methods without stating goals and objectives ("how")

- Performance-based standard – expresses desired characteristics of the final product, service, or activity rather than requirements for the processes to produce it ("what")
Prescriptive vs. Performance-based Standards

- API generally prefers performance-based

- Advantages
  - Allows earlier use of new technology
  - Encourages innovation
  - Goals and objectives are clearly stated
  - Development and maintenance requires less effort
Prescriptive vs. Performance-based Standards

- A mixed approach may be necessary depending on whether or not the requirements meet the goals and objectives of the standard.

- Prescriptive requirements may be necessary for safety and interchangeability – e.g. thread sizes for connections, pressure testing requirements, etc.

- Prescriptive requirements should be considered when performance-based requirements lead to costly and complicated testing procedures.
Performance-based Elements

- Establish goals for the standard
- Specify assumptions about the service to be performed or condition of the equipment and its environment
- Establish objectives necessary to meet specified goals
- Establish performance criteria
- Establish verification criteria
Document Designations

❖ Specifications

❖ Standards

❖ Recommended Practices

❖ Bulletins

❖ Technical Reports
Document Designations

- **Specifications** – Documents written to facilitate communications between purchasers, manufacturers, and/or service suppliers

- **Standards** – Documents that combine elements of both specifications and recommended practices
Document Designations

- **Recommended Practices** – Documents that communicate proven industry practices; RPs may include both mandatory and non-mandatory provisions

- **Bulletins & Technical Reports** – Documents that convey technical information on a specific subject or topic and are generally issued on a one time-basis
Expression of Provisions

Only these terms shall be used!

- **shall** – indicates that a provision is mandatory
- **should** – indicates that a provision is not mandatory, but recommended as proven practice
- **may** – signifies permission and indicates a provision is optional
- **can** – used for statements of possibility or capability
Expression of Provisions

- Do not use “must” as an alternative for “shall” (this will avoid any confusion between the requirements of a document and jurisdictional regulatory obligations)

- Do not use “must” as alternative for “has to” or “have to” for statements of fact (e.g. the vapor has to be above 300 psi in order for the valve to open)
Expression of Provisions

- Avoid using vague expressions that are not truly informative and may cause the reader to make an incorrect judgment call

- Words like “very,” “excessive,” “slightly,” “approximately,” “nearly,” or “significant” are subjective and are not useful in standards
“Normative” and “Informative”

- **Normative** – those elements of a standard which always must be complied with in order to claim conformity with the standard

- **Informative** – those elements of a standard that provide additional information intended to assist in the understanding or use of the document
Common Mistakes

- Scope contains information that is unrelated to what the standard covers and/or contains requirements
- Dated vs. undated references to other standards
- Definitions contain requirements or are too lengthy
- Defined terms or abbreviations are not used in the document
- Annexes are in the wrong order
- Hanging paragraphs
Scope

- Appears at the beginning of each document and defines without ambiguity the subject of the document and the aspects covered or excluded
- Indicates the limits of applicability of the document and cannot contain “shall” or “should” statements
- The scope should be brief so that it can be used as a summary for and the API Publications Catalog
References to other Standards

- Undated references may be made to a complete document

- Dated references are references to a specific edition, indicated by the year of publication

- References to specific sections or subsections, tables, and figures of another document shall be dated

- References to withdrawn standards are permitted
Definitions

❖ Only terms used in the document can be defined

❖ Cannot contain requirements

❖ Should be a brief, self-contained description of the term in question (one sentence)

❖ Any term that is not self-explanatory or commonly known and that can be interpreted differently in multiple contexts should be defined
Annexes

- Their presence is optional
- Must be referenced at least once in the text
- Should appear in the order in which they are cited in the text
- Annexes must be identified as “informative” (FYI) or “normative” (required)
Annexes

- Normative annexes give provisions additional to those in the body of the document

- Informative annexes give additional information intended to assist the understanding or use of the document

- Informative annexes may contain optional requirements

- An annex’s normative/informative status must be made clear by the way it is referred to in the text
Hanging Paragraphs

**Incorrect**

5  Design Requirements

Design requirements are specific and unique to the product service conditions.

5.1  Pressure Ratings

Equipment shall be designed to operate at only the following maximum rated working pressures.

5.2  Temperature Ratings

Equipment shall be designed to operate in one or more of the specified temperature ratings.

**Correct**

5  Design Requirements

5.1  General

Design requirements are specific and unique to the product service conditions.

5.2  Pressure Ratings

Equipment shall be designed to operate at only the following maximum rated working pressures.

5.3  Temperature Ratings

Equipment shall be designed to operate in one or more of the specified temperature ratings.
Addenda & Errata

❖ **Errata**
- Corrects editorial mistakes or omissions
- Cannot contain new material or revisions that changes the intent of the standard
- Does not require a ballot

❖ **Addenda**
- Contains changes that either adds new material or changes the intent of the standard
- May contain editorial changes as well
- Requires a ballot
Links to More Information

- Annual API Standards Plan

- Free viewing of API standards referenced in U.S. regulations
  http://publications.api.org/

- Catalog of Publications
  http://www.api.org/products-and-services/standards/purchase

- Meetings & Training
  http://www.api.org/meetings

- API Procedures for Standards Development

- API Format and Style Manual
Questions??