

# Heat Treatment Services—Batch Type for Equipment Used in the Petroleum and Natural Gas Industry

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, [standards@api.org](mailto:standards@api.org).

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## Introduction

Changes from the First Edition to the Second Edition:

This standard is the result of updating the requirements from API 20H, First Edition. This revision is developed based on input from the technical experts on the API 20H Task Group. The Second Edition moves this standard to a higher level of service for the petroleum and natural gas industry.

Highlights of significant changes between the First and Second Edition, include:

- Removal of typical examples of materials for each processing class listed in Table 1.
- Addition of Quality Management System (QMS) requirements for the heat treatment supplier.
- Removal of Responsibilities and Duties section, considering new QMS requirements.
- Removal of Personnel Training Requirements section, considering new QMS requirements.
- Separation of HSL-1, HSL-2, and HSL-3 furnace survey and calibration requirements for improved clarity.
- Alignment of HSL-1 and HSL-2 instrumentation accuracy and calibration requirements with API 6A.
- Removal of Annex A; migrated contents into Heat Treatment Facility Capability section.
- Record retention changed.
- Allowance for part stacking under specific conditions.
- Improved clarity of Heat Treatment Quench Requirements section.
- Addition of Heat Treatment of Production Parts section.
- Improved clarity of Manufacturing Process Specification (MPS) section for each HSL.
- Improved clarity of Requirements for Heat Treatment Certificate section.

# Heat Treatment Services—Batch Type for Equipment Used in the Petroleum and Natural Gas Industry

## 1 Scope

### 1.1 Purpose

This standard identifies requirements for heat treatment supplier qualification, processing, identification and traceability, and documentation of heat treatment services for use in the petroleum and natural gas industries when referenced by an applicable equipment specification.

### 1.2 Applicability

The requirements of this standard apply to batch heat treatment operations that establish or affect the final mechanical properties and include stress relief operations. This standard applies to carbon steel, low-alloy steel, stainless steel, and nickel-base alloys. Case hardening, induction hardening, and flame hardening are not covered by this standard.

NOTE This standard does not limit the responsibility of any manufacturer of commercial products using batch heat treating services and manufactured to an API standard from its responsibility for compliance with all applicable requirements of that API standard.

### 1.3 Heat Treatment Specification Levels (HSLs)

This standard establishes the requirements for three heat treatment specification levels (HSLs). These HSL designations define different levels of heat treatment technical, quality, and qualification requirements.

## 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 Q1, *Specification for Quality Management System Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry*

ISO 9001 <sup>1</sup>, *Quality Management Systems — Requirements*

SAE AMS2750 <sup>2</sup>, *Pyrometry*

## 3 Terms, Definitions, Acronyms, and Abbreviations

For purposes of this standard, the following terms, definitions, acronyms, and abbreviations apply.

### 3.1 Terms and Definitions

#### 3.1.1

##### **acceptance criteria**

Defined limits placed on characteristics of materials, processes, products, or services.

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<sup>1</sup> International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, [www.iso.org](http://www.iso.org).

<sup>2</sup> SAE International, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096, [www.sae.org](http://www.sae.org).