AWS B2.3/B2.3M:2018
An American National Standard

Specification for Soldering Procedure and Performance Qualification

American Welding Society®

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An American National Standard

Approved by the
American National Standards Institute
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Specification for Soldering Procedure and Performance Qualification

3rd Edition

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Prepared by the
American Welding Society (AWS) B2 Committee on Procedure and Performance Qualification

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification provides the requirements for qualification of soldering procedure specifications, solderers, and soldering operators for manual, mechanized, and automatic soldering. The soldering processes included are torch soldering, furnace soldering, induction soldering, resistance soldering, dip soldering, iron soldering, and infrared soldering. Base metals, soldering filler metals, soldering fluxes, soldering atmospheres, and soldering joint clearances are also included.

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Foreword

This foreword is not part of this standard but is included for informational purposes only.

The AWS B2 Committee on Procedure and Performance Qualification was formed in 1979. The first edition of B2.1, *Specification for Welding Procedure and Performance Qualification*, was published in 1984. This standard introduced the concept of Standard Welding Procedure Specifications (SWPSs) in addition to a set of rules for qualifying welding procedures, welders, and welding operators. The B2 Committee has published seventy-four SWPSs, B2.2/B2.2M, *Standard for Brazing Procedure and Performance Qualification*, B2.4/B2.4M, *Specification for Welding Procedure and Performance Qualification for Thermoplastics*, and most recently B2.3/B2.3M, *Specification for Soldering Procedure and Performance Qualification*.

This is the third edition of AWS B2.3/B2.3M, *Specification for Soldering and Performance Qualification*. This standard originated in the B2E Subcommittee on Soldering Qualification. The B2E Subcommittee was formed in 2000 in order to explicitly address the unique requirements of soldering procedure and soldering performance qualification outside the spectrum of B2.1/B2.1M, *Specification for Welding Procedure and Performance Qualification*.

NOTE: The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the standards developer.

A vertical line in the margin or underlined text in clauses, tables, or figures indicates an editorial or technical change from the 2012 edition.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS B2 Committee on Procedure and Performance Qualification, American Welding Society, 8669 NW 36 St, # 130, Miami, FL 33166.

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1. General Requirements

1.1 Scope. This specification provides the requirements for qualification of soldering procedure specifications. This specification also provides requirements for the performance qualification of solderers and soldering operators and is intended for use where referenced by a product standard or contract document. This specification is not applicable to the soldering of electrical or electronic components, including connections and terminations.

Employers shall be responsible for the soldering done by their organization, including the use of qualified soldering procedures, qualified solderers, and qualified soldering operators. It is the Employer's responsibility to assure that soldering procedure specifications meet any additional requirements of the Referencing Document. Each Employer shall maintain the applicable soldering procedure specifications, soldering procedure qualification records, and soldering performance qualification records.

When not otherwise specified by the Referencing Document, the edition of the specification to be used should be established in accordance with the following:

(1) Editions may be used at any time after the effective date of issue.

(2) Latest edition of this document should be used for new contracts.

(3) Editions established by contract date may be used during the entire term of the contract, or the provisions of later editions may be used when agreed upon by the contracting parties.

This document is intended primarily for use with the following soldering processes:

(1) Torch soldering (TS)

(2) Furnace soldering (FS)

(3) Induction soldering (IS)

(4) Resistance soldering (RS)

(5) Dip soldering (DS)

(6) Iron soldering (INS)

(7) Infrared soldering (IRS)

1.1.1 Base Metals. The grouping of base metals by Base Metal Number (BM No.) in Table B.1 has been made on the basis of metallurgical compatibility, chemical composition, and solderability to decrease the number of required soldering qualifications. The grouping does not imply that base metals may be indiscriminately substituted within the same BM No. without consideration of their applicability. For some materials or combinations of materials, additional tests may be required by the procuring activity or the design engineer.

Base metals are identified by their ASTM,[1] ABS,[2] or UNS[3] designations. Cross reference specifications, listed in the Unified Numbering System for Metals and Alloys opposite a given UNS No., are included in the same BM No. group as the given UNS Number.

[1] ASTM—American Society for Testing and Materials.
[2] ABS—American Bureau of Shipping.
[3] UNS—Unified Numbering System.