

**AWS B2.4:2006**  
**An American National Standard**



# **Specification for Welding Procedure and Performance Qualification for Thermoplastics**



**American Welding Society**



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**An American National Standard**

**Approved by the**  
**American National Standards Institute**  
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**Specification for**  
**Welding Procedure and**  
**Performance Qualification**  
**for Thermoplastics**

**1st Edition**

Prepared by the  
American Welding Society (AWS) B2 Committee on Welding 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 welding procedure specifications, welders, and welding operators for manual, semiautomatic, mechanized, and automatic welding. The welding processes included are electrofusion, hot gas, socket fusion, butt contact fusion, infrared, extrusion welding, and flow fusion welding. Base materials, filler materials, qualification variables, and testing requirements are also included.



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# Specification for Welding Procedure and Performance Qualification for Thermoplastics

## 1. Scope and General Provisions

**1.1 Scope.** This standard provides requirements for qualification for welding thermoplastic materials. It addresses requirements for procedure and performance qualifications. This standard is intended for use where referenced by product or fabrication code, specification, contract document, or internal documents such as quality control or quality assurance manuals. The requirements imposed by the Referencing Document supersede the requirements of this standard.

This standard is intended for use with the following thermoplastic welding processes:

Socket Fusion Welding (SFW)

Butt Contact Welding (BCW)

Flow Fusion Welding (FFW)

Electrofusion Welding (EFW)

Infrared Welding (IRW)

Hot Gas Welding (HGW)

Speed Welding (WZ)

Fan Welding (WF)

Extrusion Welding (EXW)

This standard is intended for use with new construction but may be applicable for retrofit, reconstruction, or repair procedures. Thermoplastic applications that are bonded to backing materials are not addressed in this standard.

This standard makes use of sole use of U.S. Customary Units. Approximate mathematical equivalents in the International System of Units (SI) are provided for comparison in parentheses ( ) or in appropriate columns in tables and figures.

## 1.2 Responsibilities

**1.2.1** Employers shall be responsible for the welding performed by their organization, including the use of the general provisions of this standard, the use of qualified welding procedures, the use of qualified welders, and the use of qualified welding operators.

**1.2.2** It is the employer's responsibility to assure that Welding Procedure Specifications (WPSs) meet all requirements of the Referencing Document.

**1.3 Effective Date.** When not otherwise specified by the Referencing Document, the edition of this 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, and
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.

## 1.4 Safety Precautions

**1.4.1** All welding, whether for qualification purposes or production work, poses safety and health concerns and may involve hazardous materials, operations, or equipment. This specification does not purport to address all safety issues associated with welding.

**1.4.2** It is the responsibility of the employer to establish appropriate safety and health practices and to determine the applicability of any regulatory limitations prior to welding.

**1.4.3** The requirements of ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, plus the cautionary notes contained in the Material Safety Data Sheets