

**AWS G1.6:2006**  
**An American National Standard**



# **Specification for the Qualification of Plastics Welding Inspectors for Hot Gas, Hot Gas Extrusion, and Heated Tool Butt Thermoplastic Welds**



**American Welding Society**



**AWS G1.6:2006  
An American National Standard**

**Approved by the  
American National Standards Institute  
July 6, 2006**

# **Specification for the Qualification of Plastics Welding Inspectors for Hot Gas, Hot Gas Extrusion, and Heated Tool Butt Thermoplastic Welds**

**1st Edition**

Prepared by the  
American Welding Society (AWS) G1 Committee on Joining of Plastics and Composites

Under the Direction of the  
AWS Technical Activities Committee

Approved by the  
AWS Board of Directors

## **Abstract**

This standard defines the qualification requirements of Hot Gas, Hot Gas Extrusion, and Heated Tool Butt Thermoplastic welding inspectors. The qualification requirements for visual plastics welding inspectors include experience and satisfactory completion of an examination that includes demonstrated capabilities. The examination tests the inspector's knowledge of plastics welding processes, plastics welding procedures, nondestructive examinations, destructive tests, terms, definitions, symbols, reports, safety, quality assurance, and responsibilities.



**American Welding Society**

550 N.W. LeJeune Road, Miami, FL 33126

# Table of Contents

	<b>Page No.</b>
<i>Personnel</i> .....	v
Foreword.....	vii
<b>1. Scope</b> .....	<b>1</b>
1.1 Requirements .....	1
1.2 Levels.....	1
1.3 Capabilities .....	1
1.4 Responsibility .....	1
1.5 Employer.....	1
1.6 Safety Precautions .....	1
1.7 Verb Usage .....	1
<b>2. Referenced Documents</b> .....	<b>1</b>
<b>3. Definitions</b> .....	<b>2</b>
<b>4. Levels of Qualification</b> .....	<b>2</b>
4.1 Associate Plastics Welding Inspector (APWI).....	2
4.2 Plastics Welding Inspector (PWI) .....	2
4.3 Senior Plastics Welding Inspector (SPWI).....	2
<b>5. Functions</b> .....	<b>2</b>
5.1 Duties.....	2
5.2 Capabilities .....	3
<b>6. Education and Experience Requirements</b> .....	<b>5</b>
6.1 Associate Plastics Welding Inspector .....	5
6.2 Plastics Welding Inspector .....	5
6.3 Senior Plastics Welding Inspector .....	6
6.4 Documentation.....	7
6.5 Qualifying Experience .....	7
<b>7. Examination Requirements</b> .....	<b>7</b>
7.1 Visual Requirements.....	7
7.2 Written Test Requirements .....	7
<b>8. Examination Structure and Body of Knowledge</b> .....	<b>8</b>
8.1 Examination Subjects .....	8
8.2 Examination Basis Documents .....	9
<b>9. Maintenance of Qualification</b> .....	<b>9</b>
Annex A (Informative)—Guidelines for the Preparation of Technical Inquiries .....	11

# Specification for the Qualification of Plastics Welding Inspectors for Hot Gas, Hot Gas Extrusion, and Heated Tool Butt Thermoplastic Welds

## 1. Scope

**1.1 Requirements.** This standard establishes the qualification requirements for Hot Gas, Hot Gas Extrusion, and Heated Tool Butt Thermoplastic plastics welding inspection personnel; the requirements for structuring the examination to qualify these personnel; and defines the body of knowledge for plastics welding inspectors.

**1.2 Levels.** There are three levels of qualification: Associate Plastics Welding Inspector (APWI), Plastics Welding Inspector (PWI), and Senior Plastics Welding Inspector (SPWI).

**1.3 Capabilities.** No determination is made of an individual's capabilities in applying that knowledge within a specific work environment or under actual working conditions. Qualifications for individual capabilities are outlined within this document for varying levels of welding inspectors.

**1.4 Responsibility.** It shall be the responsibility of the employer to determine that the APWI/PWI/SPWI is capable of performing the duties involved in his/her particular plastics welding inspection assignment.

**1.5 Employer.** This standard is intended to supplement the requirements of an employer, code, or other documents and shall not be construed as a preemption of the employer's responsibility for the work or for the performance of the work.

**1.6 Safety Precautions.** This document is not intended to address safety and health matters regarding plastics welding inspection personnel. Safety and health requirements are provided in MSDS sheets and OSHA recommendations as well as other safety and health standards, and federal, state, and local government regulations. This standard only covers AWS qualification requirements of the APWI/PWI/SPWI. A recommended safety reference is *Guide to the Safe Handling of Fluoropolymer Resins*.

**1.7 Verb Usage.** As used in this standard, the word *shall* denotes a requirement, the word *should* denotes a guideline, and the word *may* denotes a choice.

## 2. Referenced Documents

The following standards contain provisions which, through reference in this text, constitute provisions of this AWS standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this AWS standard are encouraged to investigate the possibility of applying the most recent editions of the documents shown below. For undated references, the latest edition of the standard referred to applies.

1. AWS A3.0, *Standard Welding Terms and Definitions*<sup>1</sup>
2. AWS B2.4, *Specification for Welding Procedure and Performance Qualification for Thermoplastics*
3. AWS G1.10:2001, *Guide for the Evaluation of Hot Gas and Heated Tool Thermoplastic Welds*
4. ASTM C 1147, *Standard Practice for Determining the Short Term Tensile Weld Strength of Chemical-Resistant Thermoplastics*<sup>2</sup>
5. EN 12814, *Testing of Welded Joints of Thermoplastic*<sup>3</sup>

<sup>1</sup> AWS standards are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

<sup>2</sup> ASTM standards are published by the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

<sup>3</sup> Available from the British Standards Institution, 389 Chiswick High Road, London W4 4AL, UK.