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An American National Standard



Recommended Practices for Safe Oxyfuel Gas Cutting Torch Operation



American Welding Society



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Recommended Practices **for Safe Oxyfuel Gas** **Cutting Torch Operation**

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Prepared by the
American Welding Society (AWS) C4 Committee on Oxyfuel Gas Welding and Cutting

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

These recommended practices for oxyfuel gas cutting include the latest procedures to be used in conjunction with oxyfuel gas cutting equipment and the latest safety recommendations. Complete lists of equipment are available from individual manufacturers.



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Recommended Practices for Safe Oxyfuel Gas Cutting Torch Operation

1. Scope

This standard describes the equipment, procedures and safe practices for the oxyfuel cutting of steel. It is for the operators of both hand and machine torches and is recommended for management personnel associated with the oxyfuel cutting process.

Oxyfuel gas cutting is a process whereby a metal (usually an iron base alloy) is heated to its kindling temperature (well below the melting point) by an oxyfuel gas flame and then burned rapidly by a regulated jet of oxygen. A cutting torch is used for this operation.

This standard makes use of both U.S. Customary Units and the International System of Units (SI). The latter are shown within brackets ([]) or in appropriate columns in tables and figures. The measurements may not be exact equivalents; therefore, each system must be used independently.

Although many references are made to safe practices throughout this standard, it is strongly recommended that operators become thoroughly familiar with all aspects of safe operation. Safety and health information is available from various sources, including, but not limited to, ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, and applicable federal, state, and local regulations.

2. Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this AWS standard. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.

ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*,¹

AWS F4.1, *Recommended Safe Practices for Preparation for Welding and Cutting of Containers and Piping*;² and

AWS A3.0, *Standard Welding Terms and Definitions, Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying*.²

3. Terms and Definitions

AWS A3.0, *Standard Welding Terms and Definitions, Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying*, provides the basis for terms and definitions used herein. However, the following terms and definitions are included to accommodate usage specific to this document.

backfire. The momentary return of the flame into the torch that is usually signaled by a popping sound. The flame may either extinguish or reignite at the end of the tip.

flashback. The return of the flame through the torch and into the hose and/or regulator. It may also reach the cylinder. This event is caused by the oxygen and fuel mixing in one side of the oxyfuel system and subsequently being ignited

¹ ANSI Z49.1 is published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

² AWS documents are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.