

LA-UR-12-22637

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Title: ISO and US Standards for Thermal Cutting and Joint Preparation (U)

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Intended for: 65th Annual Assembly & International Conference of the International Institute of Welding, 2012-07-09 (Denver, Colorado, United States)



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# **ISO and US Standards for Thermal Cutting and Joint Preparation (U)**

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**IIW Commission I Annual Meeting**

**Denver, CO**

**July 16, 2012**

# Outline

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- **Types of standards covered**
- **General compatibility**
- **Places for shared use**
- **Summary**

# Standards Covered

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## Types of standards covered

- Safety
- Terminology
- Joint Preparation
- Equipment and Materials

# Safety Standards, Specifications, and Information

## ■ ISO Standards

- ISO 15011-2: CO, CO<sub>2</sub>, NO, NO<sub>2</sub> Monitoring
- ISO 15011-4: Fume Data Sheets
- ISO 15011-5: Thermal Degradation of Organics

## ■ US Standards

- Z49.1: General Safety Standard
- F1.1: Airborne Particulate
- F1.2: Fume Generation Determination
- F1.5: CO, CO<sub>2</sub>, NO, NO<sub>2</sub> and Other Gas Monitoring
- C4.2/C4.2M: Recommended Practices for Safe Oxyfuel Cutting
- Several Guides and Data Books that Provide Information to Safety Personnel

## ■ Places for shared use

- There is definite cross-over between the fume generation and evolved gases standards
- Some of the Data Books Could be Used as Callouts in Standards and Specifications

# Terminology Standards and Specifications

## ■ ISO Standards

- ISO 4063: General Process Nomenclature
- ISO 17658: Terminology for Cut Imperfections – Oxyfuel, Laser, and Plasma
- ISO 17659: Multilingual Terms
- ISO 25901: Vocabulary for Welding and Related Processes

## ■ US Standards

- A3.0M/A3.0: Standard Terms and Definitions

## ■ Places for shared use

- There is definite cross-over between all of the ISO documents, except 17659, and the one US document, however, the US document is a very broad standard covering all processes

# Joint Preparation Standards and Specifications

## ■ ISO Standards

- ISO 9013: Classification of Thermal Cuts
- ISO 9692-1 through 4: Joint Preparation for Various Arc Welding Processes
- ISO 17652: Thermal Cutting Test Standard

## ■ US Standards

- C4.1 SET: Criteria to Describe Oxygen Cut Surfaces
- C4.6M: Classification of Thermal Cuts
- C5.3: Air Carbon Arc Gouging and Cutting
- C7.2: Laser Beam Cutting
- F4.1: Preparation of Containers and Piping for Cutting

## ■ Places for shared use

- ISO 9013 and C4.6M are shared documents. The others have areas of overlap, except for ISO 17652, which doesn't have a US equivalent

# Equipment and Materials Standards and Specifications

## ■ ISO Standards

- ISO 6848 MOD: Tungsten-based Electrodes for Cutting
- ISO 8206: Acceptance Test for Oxygen Cutting Machines
- ISO 7289: Quick Action Couplings for Gas Cutting Machines
- ISO 9539: Construction Materials for Gas Cutting Machines
- ISO 7291/ISO 2503: Pressure Regulators for Gas Cutting Machines
- ISO 12170: Thermoplastic Hoses for Gas Cutting Machines
- ISO 8207: Hose Assemblies for Gas Cutting Machines
- ISO 14114/ISO 15615: Acetylene Manifolds for Gas Cutting Machines
- ISO 5171: Pressure Gauges for Gas Cutting Machines
- ISO 3253: Hose Connections for Gas Cutting Machines
- ISO 3821: Rubber Hoses for Gas Cutting Machines
- ISO 5172: Blowpipes for Gas Cutting
- ISO 5175: Safety Devices for Gases Used with Gas Cutting Machines

# Equipment and Materials Standards and Specifications

## ■ US Standards

- C5.10M/C5.10: Shielding Gases for Cutting
- A5.12M/A5.12: Tungsten-based Electrodes for Cutting

## ■ Places for shared use

- A5.12M/A5.12 and ISO 6848 MOD are shared documents, but overlap is not good in this category.

# Summary

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- There is a lot of shared space between AWS and ISO documents
- Several areas use the same specifications and standards, especially true in process materials
- Equipment is one area with very little overlap