



THE CANADIAN
WELDING BUREAU
OFFICE OF PUBLIC SAFETY

A Guide for Certification of
Welding Consumables



A GUIDE TO **CONSUMABLE CERTIFICATION** REQUIREMENTS

Introduction: What is the CWB Office of Public Safety?

The Office of Public Safety was created to educate and advocate for both public safety and Canadian industry, while ensuring the Canadian Welding Bureau's (CWB) accreditations are maintained and executed to the highest standard.

The CWB Office of Public Safety is also a resource for the public, government and industry to better understand standards related to welding and construction – and how the effective implementation of these standards can assist industry to become more competitive, improve quality, reduce risk and maintain public safety.

What is a welding consumable?

A key component in the welding process is the welding consumable (electrode) or filler metal used in making the welded connection. Welding consumables or filler metals are metal wires or rods with or without coatings that are used (consumed) during the welding process. The welding consumable is commonly used to sustain the welding arc and to provide the filler metal required for the joint to be welded. The coating or the flux from tubular wires protects the weld metal pool from contamination, stabilizes the arc, and improves the final quality of the weld. The welding consumable is normally of the same or better chemical and mechanical properties of the materials being welded. The manufacture and certification of these welding consumables are critical processes to ensure the desired properties of the weld can consistently be made.

Why do we need certified welding consumable?

In Canada, a number of CSA product standards require welding fabricators to use welding consumables certified in accordance to CSA Standard W48 “Filler metals and allied materials for metal arc welding”.

CSA Standard W48 provides requirements for the classification and certification of welding consumables by themselves or in conjunction with gas mixtures or fluxes as applicable. The standard provides all



requirements on chemical and mechanical properties of the electrodes and acceptable manufacturing tolerances. In addition, CSA Standard W48 requires the manufacturer to implement a quality management system that provides instruction on how to manufacture, inspect, pack, store, label and ship these welding consumables.

Who provides certification to CSA Standard W48?

Unlike other standards in the world, Canada has a unique system that involves a 3rd party certification for welding consumables that is carried out by the CWB. Welding consumables certified by the CWB have undergone through periodic testing witnessed by the CWB, and the manufacturing facilities of these consumables have had ongoing independent audits of the manufacturing processes and quality management system in place.

What is required for a welding consumable to be CWB Certified?

Regardless of their location, all welding consumable manufacturers have to undergo the same certification process when their products are being used on Canadian projects that require certification of welding consumables in accordance to CSA Standard W48.

Consumable manufacturers are required to conduct periodic qualification testing witnessed by the CWB to demonstrate the product meets the requirements of the Standard. In addition, the quality system at the point of manufacture of the consumables is periodically audited by CWB to ensure that requirements of certification to CSA Standard W48 are being met.

The CWB's independent oversight of both testing and the quality management system of the manufacturer provides an added level of confidence and assurance that the welding consumables meet the minimum requirements of the standards, and thereby minimizes liability and public safety risks.

The manufacturer is required to insert the following statement on the label of the welding consumables that achieve certification: "CWB certified in accordance to CSA Standard W48".

Visit www.cwbgroup.org to search our database of CWB certified welding consumables.

Is there any Equivalent System for Certification of welding consumables?

The CWB is often asked if there is any equivalent certification program for the certification of consumables. There are no domestic or international equivalents to CSA welding consumables certification standard. Other national systems, such as that of the American Welding Society (AWS), do not include key concepts of the CSA standards such as a third party witness and independent and on-going verification. These systems are often simply a declaration of conformance by the manufacturer, rather than an independent certification.

Does CWB certification include an assessment of welding safety?

The Standards administered by the CWB do not address the safety issues associated with certification of welding consumables. The enforcement of safety regulations is normally the jurisdiction of provincial authorities. CSA Standard W117.2 addresses safety in welding and cutting and should be referenced, in addition to any applicable Provincial or Federal workplace health and safety legislation in effect.

How Can I Get More Help from CWB's Office of Public Safety?

The CWB is here to help, and can assist Welding Sales Professionals:

- Assistance with CWB welding consumable certification

Call the CWB at 1-800-844-6790 for help at any time.



Electrode classification cross-reference

CSA W48-06	CSA W48-01	Former CSA W48 series of Standards	
		SI	Imperial
Carbon and low-alloy steel SMAW electrodes	Carbon steel and low-alloy steel covered SMAW (formerly CSA W48.1 and W48.3)		
E43XX E49XX(-X) E55XX-X E62XX-X E69XX-X E76XX-X E83XX-X	E43XX E49XX(-X) E55XX-X E62XX-X E69XX-X E76XX-X E83XX-X	E410XX E480XX(-X) E550XX-X E620XX-X E690XX-X E760XX-X E830XX-X	E60XX E70XX(-X) E80XX-X E90XX-X E100XX-X E110XX-X E120XX-X
GMAW electrodes - CAN/ CSA-ISO 14341	Carbon steel GMAW (formerly CSA W48.4)		
B-G 49A SZ	ER49S-G*	ER480S-G*	ER70S-G*
B-G 49 A 3 C1 S2	ER49S-2	ER480S-2	ER70S-2
B-G 49 A 2 C1 S3	ER49S-3	ER480S-3	ER70S-3
B-G 49 A 3 C1 S4	ER49S-4	ER480S-4	ER70S-4
B-G 49 A 3 C1 S6	ER49S-6	ER480S-6	ER70S-6
B-G 49 A 3 C1 S7	ER49S-7	ER480S-7	ER70S-7
B-G 55A 5 M22 SN2	N/A	N/A	ER80S-Ni1
B-G 55P 6 M22 SN5	N/A	N/A	ER80S-Ni2
B-G 55P 7 M22 SN71	N/A	N/A	ER80S-Ni3
B-G 55A 3 C1 SN23 MT	N/A	N/A	ER80S-D2
Carbon steel FCAW electrodes	Carbon steel FCAW (formerly CSA W48.5)		
E43XT-X E49XT-X	E43XT-X E49XT-X	E410XT-X E480XT-X	E6XT-X E7XT-X
Carbon steel MCAW electrodes	Carbon steel MCAW (formerly CSA W48.5)		
E49XC-X	E49XC-X	E480XC-X	E70C-X-XX
Carbon steel SAW	Carbon steel SAW (formerly CSA W48.6)		
F43XX-EXXX F49XX-EXXX	F43XX-EXXX F49XX-EXXX	F41XX-EXXX	F60XX-EXXX F70XX-EXXX





The CWB Group
8260 Parkhill Drive
Milton, ON L9T 5V7
www.weldquality.org

1.800.844.6790 ext. 717
info@cwbgroup.org

THE OFFICE of PUBLIC SAFETY