



## Certificate of Conformance to Requirements for Welding Electrode

Product Type: SubCOR 120S 5/32 60 CL  
 Classification: ECM4  
 Specifications: AWS A5.23; ASME SFA5.23  
 Diameter Tested: 3/32, 1/8"  
 Date Tested: 12/10/2014  
 Date Generated: 12/11/2014

This is to certify that the product named above and supplied on the referenced order number is of the same classification, manufacturing process, and material requirements as the material which was used for the test that was concluded on the date shown, the results of which are shown below. All tests required by the specifications shown for classification were performed at that time and the material tested met all requirements. It was manufactured and supplied by the Quality System Program of Hobart Brothers, which meets the requirements of ISO 9001, ANSI/AWS A5.01, and other specification and Military requirements, as applicable. This document supplies actual test results of non-specific inspection in conformance with the requirements of EN 10204, type 2.2 certification.

**THE STEEL USED IN THIS LOT OF MATERIAL WAS MELTED AND MANUFACTURED IN THE U.S.A.**

### Test Settings

Shielding Medium	Amps / Polarity	Volts	WFS in/min(m/min)	ESO in(mm)	Preheat F(C)	Interpass F(C)	Travel Speed in/min(cm/min)
SWX-150 (F11A10-ECM4-M4)	475 / DCEP	29	92 (2.3)	1.25 (32)	300(149)	300(149)	16 (40.6)
HN-511	400 / DCEP	28.5		1 (25)	300(149)	300(149)	15 (38.1)

### Mechanical Properties - Tensile

Shielding Medium	Ref. No.	Testing Conditions	Ult. Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elong.% in 2"
SWX-150 (F11A10-ECM4-M4)	PC3451	Aged 48 Hrs 200F	113,000 ( 779 )	106,000 ( 731 )	20
HN-511	PC4881	Aged 48 Hrs 200F	113,000 ( 779 )	102,000 ( 703 )	22

### Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
SWX-150 (F11A10-ECM4-M4)	PC3451	As Welded	-100 (-73)	46,53,47 (62,72,64)	49 ( 66 )	Charpy-V-Notch
HN-511	PC4800	As Welded	-100 (-73)	39,38,51 (53,52,69)	43 ( 58 )	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test			
PC3451	Conforms	Horizontal :	Overhead :	Vertical :	
PC4800	Conforms	Horizontal :	Overhead :	Vertical :	

### Chemical Analysis

Shielding Medium / Ref. No	C	Mn	P	S	Si	Cu	Cr	V	Ni	Mo	Al	Ti	Nb	Co	B	W	Sn	Fe	Sb	N	Mg	Zn	Be
HN-511 / CB75574	0.04	1.42	0.020	0.007	0.33	0.07	0.30	0.007	2.28	0.47	0.004												
SWX-150 (F11A10-ECM4-M4) / PC3451	0.06	1.45	0.012	0.010	0.27	0.06	0.31	0.007	2.25	0.47	0.004												

Dave Thomas, Quality Assurance Rep.

Certification and Limited Warranty - Data for the above supplied product are those obtained when welded and tested in accordance with the above specification. All tests for the above classification were satisfied. Other tests and procedures may produce different results. Hobart Brothers produces welding consumables under continuing quality assurance programs audited and approved by the American Bureau of Shipping ("ABS").