

The Lincoln Electric Company  
 22801 St. Clair Avenue  
 Cleveland OH 44117



**Toughness Verification Test**

This is to state that the product indicated was tested according to the procedures shown. Mechanical properties and chemical analysis of the weld deposit were as shown.

**Innershield NR-233**

**I1989**

Diameter (in.): 0.072	Current Type & Polarity: DC-	Volts: 22	Shielding Gas: Not Applicable
Code: 4W21KX		WFS (ipm): 220	Flow Rate (cfh): Not Applicable
Position: 1G	PHT (°F): 72	Amps: 320	
Thickness (in.): 0.75	INT (°F): 200	Avg HI (kJ/in): 29.6	
		CTWD (in): 0.875	

This product satisfies the requirements of FEMA 353, Appendix D after exposure for 8 weeks at 80°F, 80%RH.

**Charpy V-notch Test Results**

Temp. (°F)	Energy (ft-lbf)
0	39
	36
	35
70	66
	65
	63

**Tensile Test Results**

Aging	UTS (ksi)	YP (ksi)	YS (ksi)	EL (%)
48HRS @ 220F	88.4	76.2	71.4	25

**Chemical Test Results**

C	S	Mn	Si	P	Al	Ni
0.170	<0.003	0.58	0.19	0.012	0.63	0.02

*Michael J. Morlock* Oct. 20, 2005

Michael J. Morlock, Certification Supervisor

*David A. Fink* 21 Oct 2005

David A. Fink, Manager, Compliance Engineering,  
 Consumable R&D

*This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of The Lincoln Electric Company affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.*