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

LINCOLN® ELECTRIC

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
Code: 4W21KX
Position: 1G
Thickness (in.): 0.75

Current Type & Polarity: DC-
PHT (°F): 72
INT (°F): 200

Volts: 22
WFS (ipm): 220
Amps: 320
Avg HI (kJ/in): 29.6
CTWD (in): 0.875

Shielding Gas: Not Applicable
Flow Rate (cfh): Not Applicable

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.

Fema Cert No.: FM-1002533 Rev A