SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834

ACCREDITED
Calibration Laboratory
Certificate #0972-01

Certificate of Calibration

Cost Center / Customer: DIV20 / DON BANNON
Mail Stop: B51
Manufacturer/Model: TEMPCO / TYPE K
Description: THERMOCOUPLE
Serial Number: 17091
Asset Number: 017091
Procedure: TEMPERATURE PROBES - 5 JUN 06

Work Order: 303095912
Date Issued: 4-Aug-2010
Date Calibrated: 4-Aug-2010
*** Date Due :** 4-Aug-2011
**** Results:** FOUND-LEFT
Temperature: 74.0 °F
Humidity: 50 %RH
Barometer: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Data type found in this certificate or attached measurement report must be interpreted as: Found-left - adjustment and/or repair was not performed, As-found - data is before unit is adjusted and/or repaired, As-left - data is after adjusted and/or repaired was performed. The customer has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance.

Measurement uncertainty calculated in accordance with the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM), for a confidence level of approximately 95 percent using a coverage factor of $k=2$.

Remarks: CAL 0 ° TO 100 °C

Standards Used

Asset #	Manufacturer	Model	Description	Cal Date	Due Date
009137	HART SCIENTIFIC	1575	SUPER THERMOMETER	26-Jun-2010	26-Dec-2010
013908	HART SCIENTIFIC	5628	SPRT	17-Feb-2010	17-Feb-2011
015240	HART SCIENTIFIC	2566	TC SCANNER, 12-CHANNEL MODULE	16-Dec-2009	16-Dec-2010

Walt Hill
Laboratory Manager

Mark Romero
Metrology Technician

m:\A2LA OCT_08.rpt

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303095912	Mfr.	Tempco	Technician:	Mark Romero
Asset No.	017091	Model	Type K	Type Data:	Found-left
Serial No.	17091	Type.	Thermocouple Probe	Cal Date:	4-Aug-10
Remarks:					

Function/Range	Test Point	TI Reading	Difference	+/- Limit	+/- Uncertainty	Result	% Limit
Temperature	°C	°C	°C	°C	°C		
	0.141	0.065	-0.076	2.2	0.5	Pass	3%
	20.099	19.807	-0.292	2.2	0.5	Pass	13%
	40.070	39.663	-0.407	2.2	0.5	Pass	19%
	60.012	59.535	-0.477	2.2	0.5	Pass	22%
	80.009	79.476	-0.533	2.2	0.5	Pass	24%
	100.053	99.555	-0.498	2.2	0.5	Pass	23%

END OF REPORT