



National Technical Systems  
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June 16, 2016

**Valhalla Scientific Inc.**  
12127 Kirkham Road  
Poway, California 92064

**Purchase Order Number: D22589**

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- A. TEST: Explosive Atmosphere
- B. TEST ITEM: One (1) Digital Igniter Tester  
P/N ALPHA4314  
S/N 65-1360
- C. SPECIFICATIONS:
1. MIL-STD-810G, Method 511.5, Procedure I
  2. ANSI NCSL Z540-1
  3. ISO 17025:2005

D. RESULTS:

This is to certify that the Digital Igniter Tester was subjected to the Explosive Atmosphere Test in accordance with the above specifications.

Visual examination showed no evidence of physical damage resulting from the test. The Digital Igniter Tester was returned to Valhalla Scientific Inc. for post tests and final evaluation.

Test data, an equipment list, and photographs are attached.

R.M. "Rick" Clemens,  
Preparer

Cathy Rumble,  
Quality Coordinator

John Guzman,  
Program Manager



## EXPLOSIVE ATMOSPHERE

CUSTOMER:	Valhalla Scientific	MJO:	PR049443
TEST ITEM:	Digital Igniter Tester	DATE:	6/14/16
PART NUMBER:	Alpha4314	S/N:	65-1360
SPECIFICATION:	MIL-STD-810G	PARA.	511.5

## TEST DESCRIPTION

The Explosive Atmosphere Test was repeated at test altitudes of:

Test Altitude	Chamber Temp (°C)	Specimen Temp (°C)	Wall Temp (°C)	Specimen Operation	Results
46K	49.7	46.3	46	Normal	OK
43K	49.7	46.3	46.1	Normal	OK
40K	48.6	46.3	46.1	Normal	OK
36K	49.7	46.3	46.2	Normal	OK
6.6K	49.9	47.1	47.6	Normal	OK
5K	49	47.1	46.8	Normal	OK
3.3K	49.6	47.1	47.3	Normal	OK
Site	49.7	47.4	47.8	Normal	OK

REMARKS: NO ANOMALIES

## CALCULATION:

Chamber Volume (ft <sup>3</sup> )	Pressure (PSIA)	Temperature (°C)	Temperature (°R)	Specific Gravity of Hexane	Volume 95% Hexane (mL)
26.14	2.04	50	581.7	0.673	20
26.14	2.35	50	581.7	0.673	23
26.14	2.72	50	581.7	0.673	27
26.14	3.30	50	581.7	0.673	33
26.14	11.6	50	581.7	0.673	116
26.14	12.2	50	581.7	0.673	122
26.14	12.9	50	581.7	0.673	129
26.14	14.7	50	581.7	0.673	147

## FORMULA:

$$\text{Volume of 95\% n-hexane (ml)} = (150.41) \left[ \frac{(\text{net chamber vol (ft}^3\text{)}) \times (\text{chamber pressure (psia)})}{(\text{chamber temp (R)}) \times (\text{specific gravity of n-hexane})} \right]$$

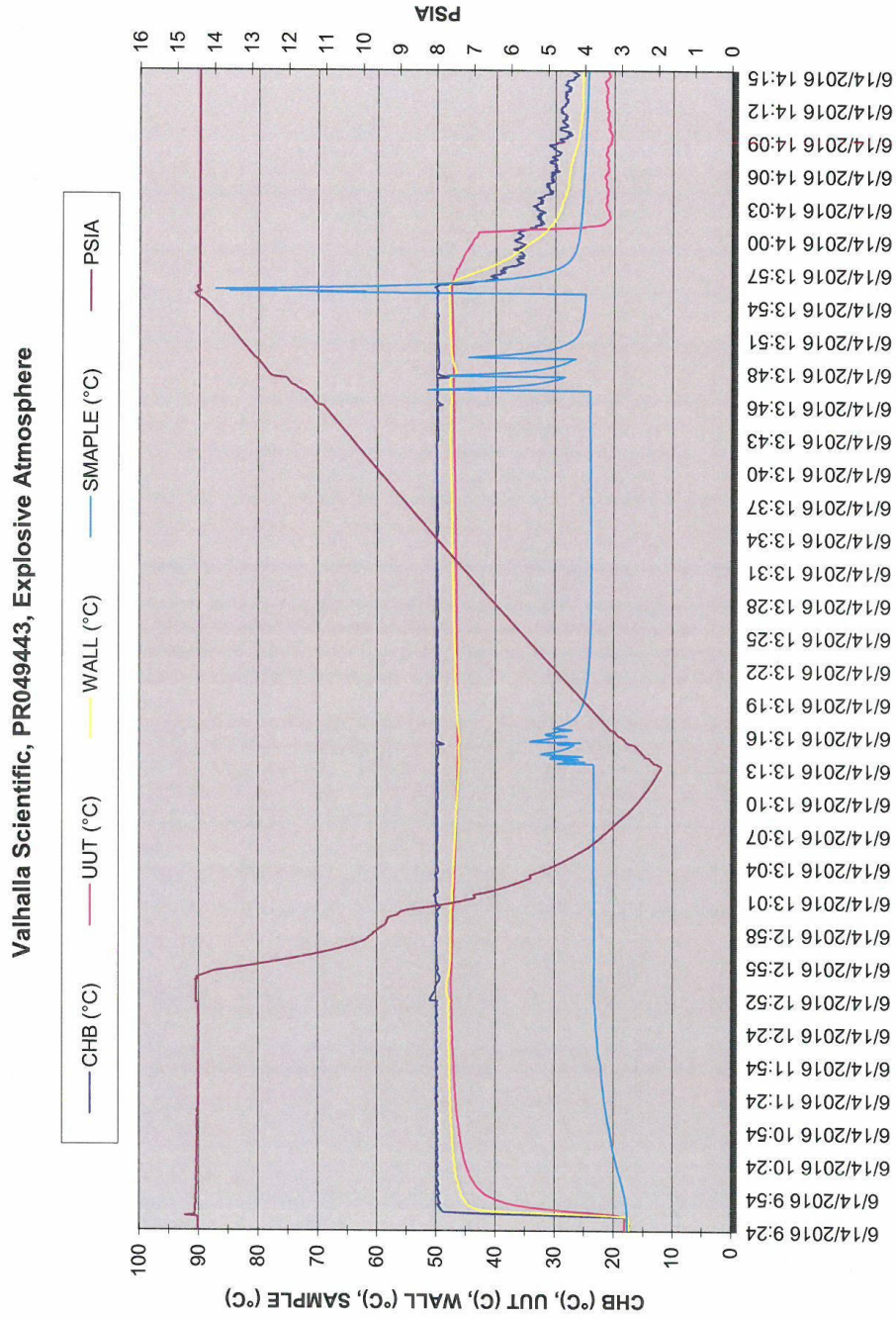
TESTED BY: Heng Tieng

ENGINEER: John Guzman

DATE: 6/14/16

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Test Report No. PR049443

### EXPLOSIVE ATMOSPHERE EQUIPMENT LIST

Client: Valhalla Scientific PR No.: PR049443 Start Date: 6/14/2016 End Date: 06/14/16

Control No.	Equipment	Manufacturer	Model No.	Serial No.	Accuracy	Range	Calibration	
							Cycle	Cal. Due
FL0579	Chamber (Explosive Atmosphere)	Harris Products	NONE	1471	± 2.2° C	-67° to 177° C	No Calibration Required	N/A
FL6935	Meter (Data Logger)	Fluke	2625A	6281500	MFG	300V	12 Months	6/2/2017
FL8578	Transducer (Pressure)	Omega Engineering	PX209-030A5V	609611	± 0.5%	0 to 30 psia	12 Months	1/19/2017





**Test Item Identification**  
**P/N ALPHA4314, S/N 65-1360**



**Explosive Atmosphere  
Setup**

End of Report