

## 铝中氢试验报告

- 1.我在 2015 年将所有样品从客户那里送到德国。以下是校准报告。
- 2.以下是测试结果客户觉得 H 值比实际值高太多了。它应该低于 1 ppm 我认为测试结果也不是很稳定。我们没有达成最终协议。我尽量给他们一个合理的解释，可能是因为校准标准的问题。我们认为不适合用 0.97ppm-H 钢标准测量铝样品是可能的。

ELTRA

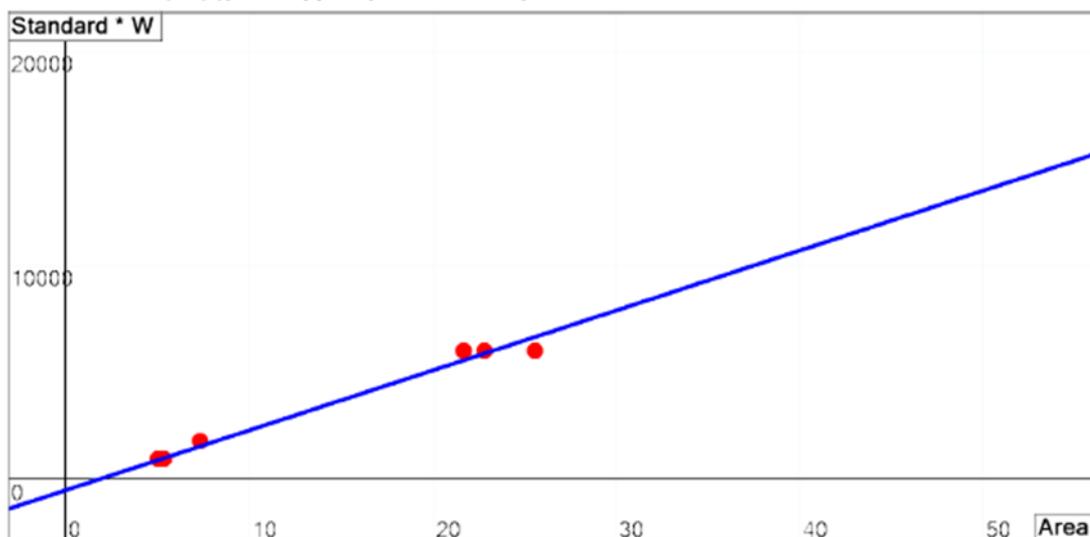
### Calibration report

Application Aluminium

17.11.2015 16:19

	Low Oxygen (1)	High Oxygen (2)	Low N/H (3)	High N/H (4)
Calibration	1.000	1.000	1.000	1.000
Blank	0.000	0.000	1.706	0.000
Base calibration	0.158	3.288	0.028	0.516

Channel: Low N/H (3), Units: ppm T, Administrator, Correlation 0.9906



Date/time	ID	Weight (mg)	Area	Result	Error	Standard	Factor
17.11.2015 10:51	6.0ppm-H	1003.2	22.833	5.890	-0.110	6	1
17.11.2015 11:06	6.0ppm-H	1004.8	25.591	6.649	0.649	6	1
17.11.2015 11:15	6.0ppm-H	1005.3	21.666	5.553	-0.447	6	1
17.11.2015 11:50	1.8ppm-H	1003.2	7.316	1.564	-0.236	1.8	10
17.11.2015 12:11	0.97ppm-H	988.5	5.017	0.937	-0.033	0.97	100
17.11.2015 12:30	0.97ppm-H	990.5	5.339	1.026	0.056	0.97	100

2. 以下是测试结果客户觉得 H 值比实际值高太多了。它应该低于 1 ppm 我认为测试结果也不是很稳定。我们没有达成最终协议。我尽量给他们一个合理的解释，可能是因为校准标准的问题。我们认为不适合用 0.97ppm-H 钢标准测量铝样品是可能的。

## ELTRA® ELEMENTAL ANALYZERS

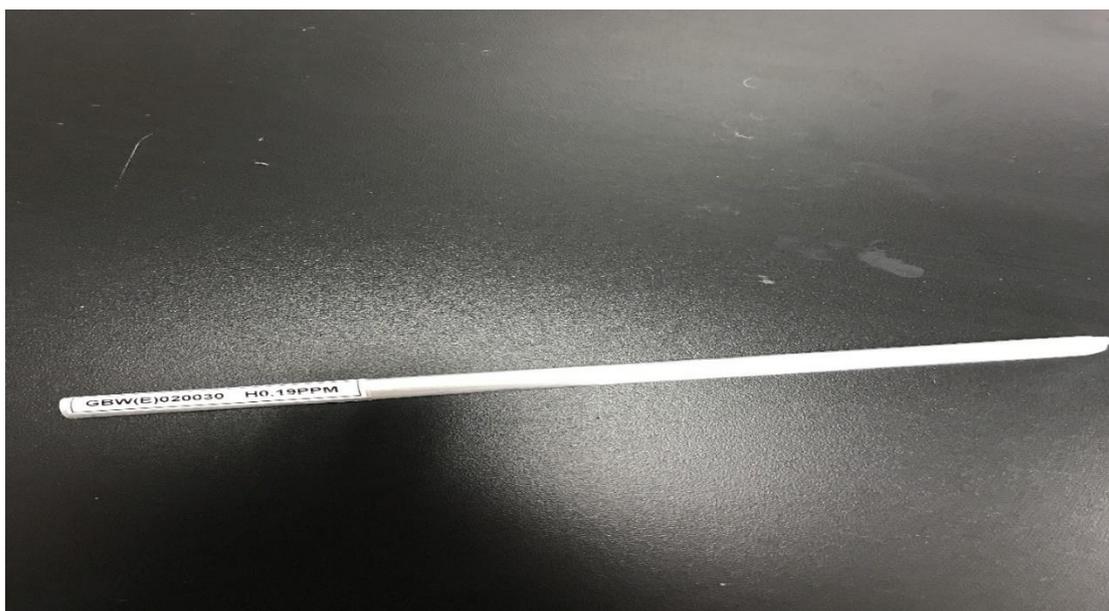
Report made by LHM software (c) ELTRA GmbH. Date/Time: 19.11.2015 11:51. Page: 1

Date / Time	Sample ID	Oxygen	Nitrogen	Hydrogen	Channels	Weight	Time	Application
17.11.2015 14:55	Aluminium Test Samples	1.581 ppm	---	2.224 ppm	H 1 / 3	1043.9	90	Aluminium
17.11.2015 15:04	Aluminium Test Samples	3.197 ppm	---	3.386 ppm	H 1 / 3	734.3	89	Aluminium
17.11.2015 15:14	Aluminium Test Samples	0.617 ppm	---	3.592 ppm	H 1 / 3	790.3	91	Aluminium
17.11.2015 15:59	Aluminium Test Samples	4.331 ppm	---	5.851 ppm	H 1 / 3	607.9	89	Aluminium
17.11.2015 16:14	Aluminium Samples	7.661 ppm	---	8.649 ppm	H 1 / 3	380.8	89	Aluminium
Average:		0.00035		0.00047				
Deviation:		0.00027		0.00025				
		78.86985 %		53.77527 %				

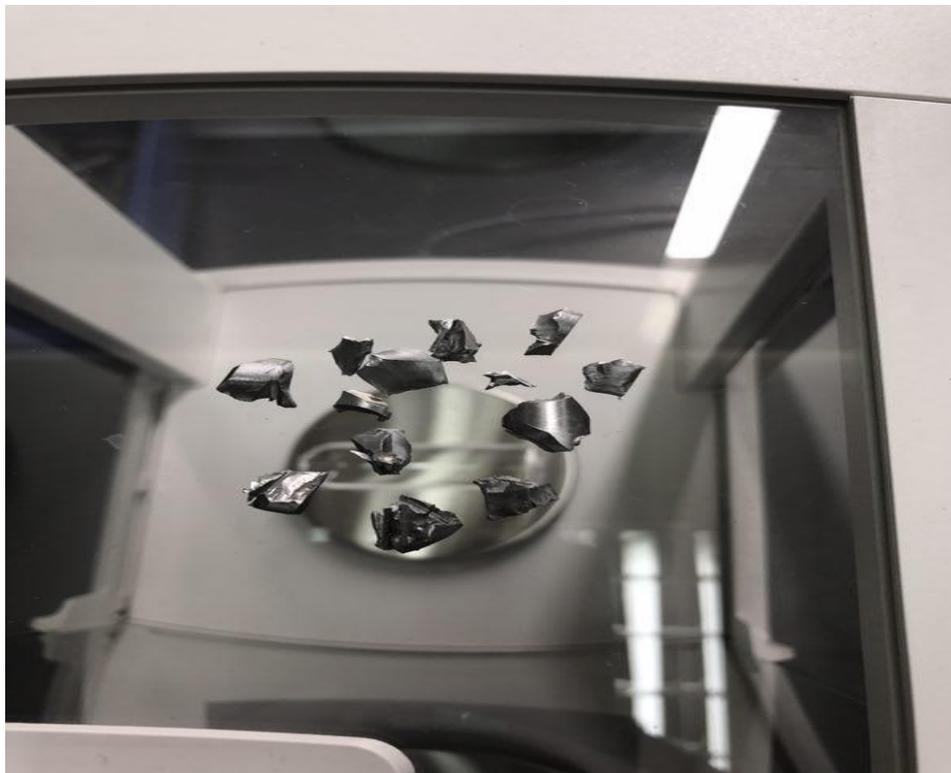
Date / Time	Sample ID	Oxygen	Nitrogen	Hydrogen	Channels	Weight	Time	Application
17.11.2015 16:14	Aluminium Samples	7.661 ppm	---	8.649 ppm	H 1 / 3	380.8	89	Aluminium
17.11.2015 16:46	E1347 Aluminium Samples	9.387 ppm	---	11.565 ppm	H 1 / 3	486.0	87	Aluminium
17.11.2015 16:53	E1347 Aluminium Samples	5.859 ppm	---	8.528 ppm	H 1 / 3	535.3	87	Aluminium
17.11.2015 16:59	E1347 Aluminium Samples	18.170 ppm	---	11.830 ppm	H 1 / 3	489.3	85	Aluminium
17.11.2015 17:06	E1347 Aluminium Samples	5.835 ppm	---	9.562 ppm	H 1 / 3	563.7	86	Aluminium
Average:		0.00094		0.00100				
Deviation:		0.00051		0.00016				
		54.65333 %		15.75008 %				

3. 今年 4 月。我们买了一个铝标准来测量氢含量。

GBW (E) 020030 H 0.19ppm (标准购自北京航空材料研究所)



4. 标准品被切割成许多小块，用丙酮清洗。



5. 我们使用以下应用方法



**Applications**

- H Steel Copy 用于多点
- H Steel Copy
- H Steel
- H Titanium
- H 铝**
- New Ti
- O Copper Copy
- O Copper
- ON in AL Michael
- ON in Al
- ON in Steel -h
- ON Steel Copy Ar
- ON Steel Copy
- ON Steel
- ON Ti-钛
- 钨粉ON

**Application: H 铝**

Description

**Settings**

<b>General</b>	<b>Leakcheck</b>	<b>High N/H</b>
Furnace mode: OH	Minimum pressure [bar]: 0.3	Enable: <input checked="" type="checkbox"/>
Use argon: <input type="checkbox"/>	Maximum leakage [bar]: 0.04	Minimum time [s]: 70
Catalyst [°C]: 450	<b>Gas calibration</b>	Maximum time [s]: 70
Furnace cooling [°C]: 40 50	Purging [s]: 5	Integration delay [s]: 15
Standby flow [l/h]: 5	Depressurizing [s]: 2	Comparator factor [%]: 0.2
<b>Outgassing</b>	Weight [mg]: 400	Peak max [V]: 8
Time [s]: 30	<b>Low Oxygen</b>	Linearity: 99999
Power [W]: 0	Enable: <input checked="" type="checkbox"/>	Base calibration: 0.781018193
Flow [l/h]: 15	Minimum time [s]: 30	Calibration: 1
Second cycle: <input checked="" type="checkbox"/>	Maximum time [s]: 60	Blank: 0
Cooldown [s]: 0	Integration delay [s]: 7	
Time [s]: 30	Comparator factor [%]: 0.3	
Power [W]: 2500	Peak max [V]: 10	
Flow [l/h]: 15	Linearity: 5.097	
Third cycle: <input type="checkbox"/>	Base calibration: 0.063202623	
<b>Stabilizing</b>	Calibration: 0	
Minimum time [s]: 30	Blank: 0	
Maximum time [s]: 30	<b>High Oxygen</b>	
Power [W]: 1200	Enable: <input checked="" type="checkbox"/>	
Flow [l/h]: 41	Minimum time [s]: 30	
Stability [V]: 0	Maximum time [s]: 60	
Second cycle: <input checked="" type="checkbox"/>	Integration delay [s]: 7	
Minimum time [s]: 60	Comparator factor [%]: 0.3	
Maximum time [s]: 60	Peak max [V]: 8	
Power [W]: 1200	Linearity: 3.558	
Flow [l/h]: 27	Base calibration: 1.157535512	
Stability [V]: 0	Calibration: 1	
<b>Analyzing</b>	Blank: 0	
Power duration [s]: 45	<b>Low N/H</b>	
Power [W]: 1250	Enable: <input checked="" type="checkbox"/>	
Flow [l/h]: 27	Minimum time [s]: 65	
Open furnace: <input checked="" type="checkbox"/>	Maximum time [s]: 80	
Drift compensation: <input checked="" type="checkbox"/>	Integration delay [s]: 15	
<b>Postwaiting</b>	Comparator factor [%]: 0.2	
Time [s]: 20	Peak max [V]: 8	
Furnace clean up: <input type="checkbox"/>	Linearity: 99999	
	Base calibration: 0.036482256	
	Calibration: 0.006985133	
	Blank: 0	

Buttons: New, Save, Copy, Reload, Delete, Import, Export

6. 我们测量了几种铝标准，以找到更好的能量，



7. 用 0.19ppmH 标准校准后，该值改为 0.2ppm。



8.校准后，我们测量了三个标准样品。所有值均为 0.2ppm H。以下为试验报告。我们认为偏差很小，可以满足客户的要求。我想我们的分析仪也会测量非常低的 H 样本我们可以从这次经验分享中获得更多的信心。



### Test Report

Company: Eltra  
Operator: Jenny

Comment:

O/N concentration; Elementac ONH-p

	Date	Time	Id	Weight	Oxygen	Nitrogen	Hydrogen	Comment
1	17.04.2017	16:03:51		392.8 mg	2.8 ppmO		0.2 ppmH	
2	17.04.2017	16:11:37		486.1 mg	7.1 ppmO		0.2 ppmH	
3	17.04.2017	16:19:45		477.9 mg	-0.8 ppmO		0.2 ppmH	
				Average	3.0 ppmO		0.2 ppmH	
				Standard deviation	4.0 ppmO		0.0 ppmH	
				Relative deviation	130.3 %		16.3 %	

9.从 EZ mat 的一个客户那里得到一些铝样品。我们也不知道 H 的浓度。我们试着测量了好几次。我们也得到了 0.2ppm 的值。

10.有一个问题，我们认为如果软件能再显示一个数字就更好了。与 0.2x ppm 一样，最好向客户展示。我们找不到如何更改软件中的设置。