



Laser based alloy analysis

from the leader in LIBS technology

Argon Purge

key to precise alloy chemistry.

Powerful Laser

Analyze all alloys, not just aluminums

PULSAR Laser Cleaning, Rastering

Blasts away surface contamination, eliminates grinding and sample prep for nearly all materials.



No X-rays or radiation regulations



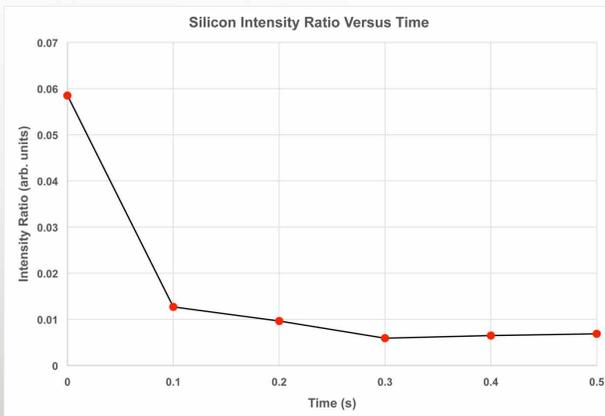
Z 200

Sci▼Apps

videos and product info
@ <http://goo.gl/58phhB>



SciAps delivers portability for argon purge. With our highly efficient Opti-purge™ design, a user replaceable canister in the handle delivers 500 tests. When not in use, the canister is sealed to the regulator, no gas is consumed. Don't need portability? Use our regulator attachment that mates to a larger belt-mounted argon canister or a standard stationary tank typical of spark OES analyzers.



Good sample surface cleaning is critical for good chemistry. For example a LIBS test from a real world alloy sample will exhibit elevated concentrations of calcium, sodium, silicon and other elements if surface dirt/contaminants are not effectively burned off. Measurements of the alloying elements will not be correct. Consider the example of a 6061 alloy. The above figure shows the silicon (Si) response before and after the Z's cleaning shots. Without aggressive cleaning shots Si and other elements would be measured several times too high, leading to grossly incorrect alloy chemistries and erroneous grade IDs. After the 0.2 s of cleaning by the Z, the Si and Mg intensity ratios have stabilized to intrinsic values for the data-taking measurement, yielding accurate chemistry results. It is typical for LIBS analyzers without "cleaning mode" to overstate the Si content by several %, unless the material is thoroughly ground. With the Z's blast cleaning technology, no grinding is necessary.



SciAps offers the most advanced laser based alloy analyzer available.

Argon Purge

The Key to Precise Alloy Chemistry.

LIBS (Laser Induced Breakdown Spectroscopy) is an optical emission technique – like spark optical emission spectroscopy (OES). LIBS uses a laser to generate the plasma rather than an electric spark. Like OES, LIBS offers precise chemistry and low limits of detection (0.01-0.1%) due to the argon purge.

Air based analysis offered by other HH LIBS, while available with the Z, only provides very basic alloy sorting. Precision and detection limits improve 10x or more with argon purge.

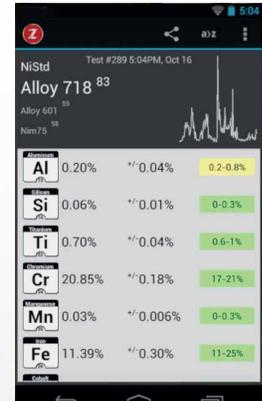
Powerful Laser

The Z handles all your alloys, not just aluminums. How? The Z fields the best laser technology. It delivers high energy to the sample (5-6 mJ/pulse, 50 Hz) in a billionth of a second to generate gigawatt power densities – the key to a good plasma even on the most refractory alloy types.

Reliable grade ID requires good chemistry ...

ARGON Z

Good chemistry requires argon and a high energy laser.



Gas canister restrictions?
The Z can be operated in air as well

Dirty Samples?

Superior Laser Technology
Bring on your dirtiest scrap



The Z eliminates sample surface effects that plague other handheld LIBS instruments. With the Z, you rarely have to grind a sample prior to analysis. The Z's laser method fires at 50 Hz (50 pulses/second) on a single location to burn away sample contamination and dirt over a 0.2 s period, then collects spectral data for 0.3 s for chemical analysis. The laser optics then rasters automatically to repeat this process for several more locations. The result is precise, repeatable chemistry after 1-2 seconds of testing. The Z's patented combination of sample "cleaning" and rastering eliminates variability from dirt or surface contamination. Rastering averages out localized (50 um) effects from grain boundaries or inclusions.

Today's world of alloy analysis requires precise chemistry in order to accurately ID the many alloy grades that may only differ by small concentrations of a few alloying elements.

videos and product info
@ <http://goo.gl/58phhB>

Aluminum Alloys

Plus all the others too

Why settle for a LIBS analyzer that ONLY does aluminum alloys?

The SciAps Z, with its breakthrough argon purge and high energy laser, provides repeatable analytical results across all alloy bases.



Aluminum Alloys

Sort the most common grades, **6061**, **6063** and **1100** in a few seconds. Other technologies require 30 seconds or more each to reliably sort these three grades.

Cast Alloys?

The Z burns through surface materials without any grinding, for fast, accurate Si analysis. Cast Al alloys are notoriously difficult to grind without biasing Si results.

Finer Grade Identifications

Only achievable with the precision and speed of the Z! Quickly identify common **2024** from **2014** grades.

Instantly analyze and ID between wrought series like **3003/ 3005/ 3105** with precise chemistry and no sample prep.

Zirconium

Z measures low concentrations better than any other handheld. Measure the low concentration of Zr in **7050** to confidently ID **7050** from **7075**.

Grade Name	Mg Min	Mg Max	Si Min	Si Max	Cr Min	Cr Max	Cu Min	Cu Max
1100	None		0.00	0.75	0.00	0.00	0.05	0.20
6061	0.80	1.20	0.40	0.80	0.04	0.35	0.15	0.40
6063	0.45	0.90	0.20	0.60	0.00	0.10	0.00	0.10

2014	0.20	0.80	0.20	1.20	0.00	0.10	3.50	5.00
2024	1.20	1.80	0.00	0.50	0.00	0.00	3.80	4.90

Grade Name	Mg Min	Mg Max	Si Min	Si Max	Mn Min	Mn Max	Zn Min	Zn Max	Zr Min	Zr Max
3003	0.00	0.00	0.00	0.60	1.00	1.50	0.00	0.15	0.00	0.00
3005	0.20	0.60	0.00	0.60	1.00	1.50	0.00	0.25	0.00	0.00
3105	0.20	0.80	0.00	0.60	0.30	0.70	0.00	0.40	0.00	0.00

319	0.00	0.10	5.50	6.50	0.00	0.50	0.00	1.00	0.00	0.00
333	0.05	0.50	8.00	10.00	0.05	0.50	0.00	3.00	0.00	0.00
356	0.20	0.45	6.50	7.50	0.00	0.35	0.00	0.35	0.00	0.00
380	0.00	0.10	7.50	9.50	0.00	0.50	0.00	3.00	0.00	0.00

7050	1.90	2.60	0.00	0.12	0.00	0.10	5.70	6.70	0.08	0.15
7075	2.10	2.90	0.00	0.40	0.00	0.30	5.10	6.10	0.00	0.00

High Temperature Alloys

The Z also analyzes a full range of high temperature alloys, red metals and specialty alloys. Because of the argon purge and our proprietary laser technology, we deliver proven performance for even the most demanding superalloys.

Testing the most demanding alloys requires the premier LIBS technology.



Analyze Elements that X-ray can't



The Z analyzes lithium and boron in aluminum alloys, and boron in nickel alloys or other materials. Other laser analyzers can't measure lithium because the emissions are outside their spectrometer range.



Find those beryllium copper alloys guaranteed! The Z measures beryllium in all materials and is most often used for copper alloys.



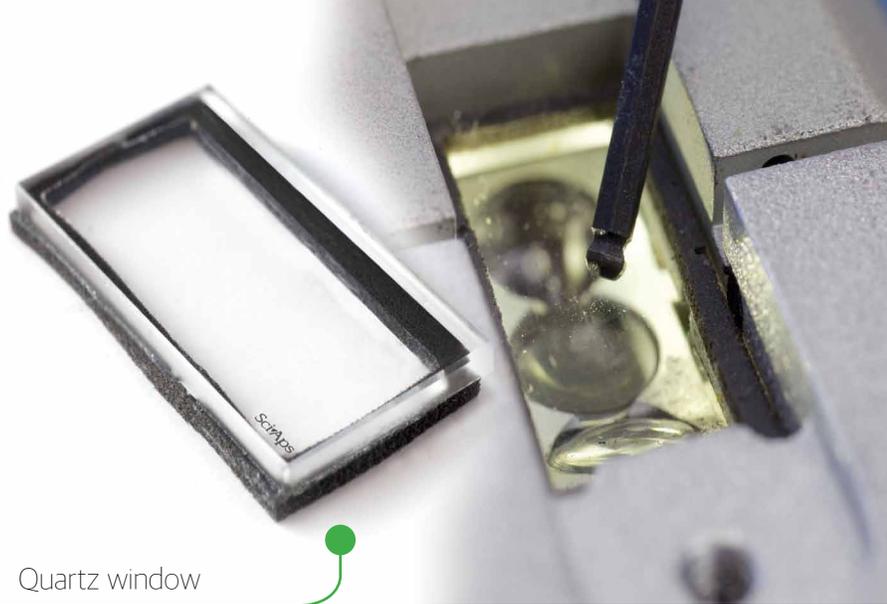
Selenium analysis is critical for many lead-free copper alloys in use today. When comparing laser analyzers, look for selenium measurement capability. The best Se lines are in the 191 nm range, outside the range of most other LIBS analyzers. And especially in the < 200 nm spectral region, argon purge is essential for accurate results.



Go ahead, poke away!

Turnings, fingers, tools, it doesn't matter. You'll never break a detector. No hazardous X-rays to worry about. The Z costs a fraction to own, operate compared to X-ray. Why? There's no detectors or tubes to break. Lasers are inherently more resilient to shock than x-ray tubes. We make our own lasers and spectrometers and we repair them at the component level if they're broken.

Your Days of Expensive Detector and Tube Repairs are over.



Quartz window

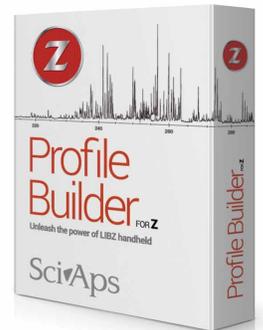
Intuitive Data Management, Reporting and Sharing Z is Google-Powered!

Built on the Android Platform, users experience easy, intuitive operation with wireless, Bluetooth and GPS capabilities allowing seamless connectivity to any Android device or PC. This makes sharing and reporting data easier than ever with a hand held analytical device. Android's easy updates of on-board software eliminates the legacy upgrade difficulties inherent in proprietary platforms. Print single page PDFs or testing data to your WiFi or wired printer, share data with your computing platform. **It if runs on Android, it runs on the Z!**



Tune and Customize your Calibrations with Profile Builder

SciAps Profile Builder (PB) frees you from factory locked calibrations. With PB, users may add new elements, expand calibration curves and add type calibrations. Any analytical feature you're accustomed to from an OES is available, or can be added.



Connectivity & Productivity

Belt mounted printer. Instantly and wirelessly print labels after a test with a single screen tap. Labels include time, date stamp, alloy ID, and chemistry.



Metprep LTD
1 Falklands Close,
Charter Ave,
Coventry
CV4 8AU

www.metprep.co.uk

