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- Spectroscopy Training Class.
- Quick Quality Survey.



## ARMI Exhibiting at Conferences

- The 11th International Foundry Trade Fair (GIFA) Dusseldorf, Germany - June 12- 16
- 111th Metal Casting Congress Houston, Texas - May 16-17

ARMI will be exhibiting at these conferences to publicize the strong position it has created as a worldwide provider of reference materials. We have broadened the scope of our reference materials as well as increased the number of ARMI-produced metal Certified Reference Materials (CRMs). Reference materials for WEEE/RoHS compliancy and hydrocarbons (coal and fuel oils)

are some of the products that have shown increased market interest over the past couple of years. We have also substantially added to our mainstay metal CRMs many alloys that have wide market appeal. Visit our website for a complete list of all products and services.

These "shows" are primarily for the metals casting industry; however GIFA attracts a wider audience. GIFA is the world's largest casting exhibition and held only every 4 years. If you attend any of these conferences, please stop by our booth for a visit.

## Hard-to-Find XRF Reference Material for Sale

**Material Type**

Blast Furnace Slag  
Basic Open Hearth Slag  
Acid Open Hearth Slag  
Elec. Arc Refining Slag  
Elec. Arc Oxidizing Slag  
Elec. Arc Slag with Cr  
BOF Slag  
Basic Slag  
Blast Furnace Slag  
Electric Furnace Slag  
Basic Slag  
Blast Furnace Slag  
Dolomite  
Hawaiian Basalt  
Marine Mud  
Quartz Latite  
Glass Mountain Rhyolite

**Source**

Swedish Inst. for Met.  
Swedish Inst. for Met.  
Swedish Inst. for Met.  
Swedish Inst. for Met.  
Swedish Inst. for Met.  
Swedish Inst. for Met.  
Brammer Stds Co.  
Brammer Stds Co.  
Brammer Stds Co.  
Brammer Stds Co.  
BAS, Ltd  
BAS, Ltd  
BAS, Ltd  
USGS  
USGS  
USGS  
USGS

**Material Type**

Cody Shale  
Mica Schist  
Green River Shale  
Nepheline Syenite  
Syenite Rock  
Lujavrite  
Norite  
Calcite  
Dolomite

**Source**

USGS  
USGS  
USGS  
USGS  
CANMET  
S. Africa Bureau of Stds  
S. Africa Bureau of Stds  
IRSID  
IRSID

Also, there are two IRSID (804/S01 and 805/1) materials that are not identified by type. The certificates are in French. Both are 12% Fe, 3% Si, 35% Ca, 0.4 Al, 0.2 % Ti, 1% Mg, 7% P, 1.5% Mn, 0.1% S, and 0.5%

All of these CRMs come with Certificates of Analysis. Please call for quantity and pricing.

## Control Standards: Easy, Efficient, & Effective QA

Whether your company has one instrument at one location or many instruments at various locations, Quality Assurance can be easily obtained by using Control Standards. These reference materials are also called Check Standards or Statistical Process Control (SPC) Standards. They are all the same, just various names.

Once you have established calibration curves and the accuracy has been verified with Certified Reference Materials (CRMs), then it is time to employ Control Standards. Control standards

should be of the same type of alloy as the calibration curves that they will monitor. And, ideally the concentrations of the Control Standard should be about at the mid-range of the calibration curves. Alternatively, a couple of Control Standards (high and low concentrations) can check out the whole calibrated range. Periodically analyzed (dependent on the stability of the instrument), the Control Standard will dictate whether the analytical performance is in control.

Initially, just after calibration, the upper and



## Control Standards: Easy, Efficient, & Effective QA (Cont.)

lower control limits for the Control Standard should be established for each element. Then at some later time, just by analyzing the Control Standard, it is easy to tell whether corrective action is needed. This will not only save time, by not making unnecessary "drift corrections", it will also save money and improve accuracy. Unnecessary drift correction actually degrades accuracy!

ARMI can provide these reference materials

for one instrument or multiple instruments at different locations. We can provide just a few Control Standards -- or many to last several years. They can also be custom designed to your specifications.

We can also provide technical help to set-up and monitor this program for excellent Quality Assurance. We have helped several companies already. If there is an interest, please call for details on how to get started.

## Recently Certified Standards & New Alloys

We continually listen to our customers' requests and develop standards to meet their needs.

The following list of CRMs has been certified since the last Newsletter:

### Carbon, Low-Alloy, & Tool Steels

IARM	Grade	UNS #	Cert.
41C	AISI D-2	T30402	Mar-07
46B	AISI S-1	T41901	Feb-07
183B	12L14	G12144	Mar-07

### Stainless, & High-Temp. Steels

IARM	Grade	UNS #	Cert.
17C	Nitronic 50	S20910	Mar-07
24B	Invar 36	K93601	Mar-07

### Copper, Brass, & Bronze Alloys

IARM	Grade	UNS #	Cert.
158B	CDA 815	C81500	Mar-07
226A	Envirobrass 2-1	C89520	Mar-07
227A	Envirobrass 2-2	C89520	Mar-07
228A	Envirobrass 2-3	C89520	Mar-07
236A	CDA 964	C96400	Mar-07

We also maintain a long list of re-issued and soon-to-certify materials. Please check the **Material Status** sections on our web site at: [www.armi.com](http://www.armi.com).

The following lists contain new alloys recently added to our lineup of standards, and are yet to be started/certified:

### Stainless, & High-Temp. Steels

IARM	Grade	UNS#
276A	Alloy 864	S35135
289A	AISI 301	S30100
291A	M-152	S64152
292A	LDX 2101	S32101
294A	NMS J38	N/A
295A	NMS 140	N/A
296A	NMS MDC	N/A
301A	Alloy 2507	S32750
302A	254SMO	S31254

### Carbon, Low-Alloy, & Tool Steels

IARM	Grade	UNS#
281A	AISI T-4	T12004
299A	D6-AC	K22925
304A	AISI M-1	T11301

### Nickel Alloys

IARM	Grade	UNS#
272A	Alloy 706	N09706
273A	Alloy 720	N07720
274A	Alloy 725	N07725
275A	Alloy 925	N09925
277A	Rene 77	N/A
283A	B1900	N/A
287A	Udimet 500	N07500

### Copper, Brass and Bronze Alloys

IARM	Grade	UNS#
278A	CDA 145	C14500
279A	CDA 182	C18200
284A	CDA 962	C96200
288A	CDA 963	C96300
293A	DHP Copper	N/A
298A	CDA 976	C97600

### Titanium Alloys

IARM	Grade	UNS#
261A	Ti 3-2.5	R56320
262A	Ti 7-4	R56740
269A	Ti 8-1-1	R54810
271A	Ti 5-2.5	R54520
280A	Ti 4-2-2	N/A
285A	Ti 6-2-1-1	R56210
286A	Ti 3-8-6-4-4	R58640
297A	Ti 10-2-3	R56410
300A	Ti 6-7	R56700
303A	CP Ti Grade 7	R52400

We have recently added Rene 77 and B1900 (PWA 663) alloys to our lineup, and are acquiring many more Nickel based turbine alloys.

If you have an interest in these or if you have a need for a specific standard we do not offer, please contact us.

## ILAP '07 Meeting Dates and Preliminary Agenda

It's that time of year again, ILAP '07, **July 25-27**, immediately preceding the Denver X-Ray Conference, Jul. 30 - Aug. 3. This year we will be holding the meeting in Breckenridge Colorado at the Great Divide Lodge. Room rates vary between \$99-119 per night.

### **Great Divide Lodge**

**550 Village Road**

**Breckenridge, CO 80424**

Reservations Toll-Free: **888-525-1787**

Group Code: **BC1CAYL**

We have invited speakers to come and discuss new directions of laboratory auditing, as well as the typical hurdles they experience.

We hope to get an update on LA-ICPMS and discuss Spark Ablation and Glow Discharge techniques and the complications of using these techniques in a production environment.

Numerous other things are in the works that hopefully will come to bear. If there is something you would like to discuss or hear about please let us know.



## Long Awaited CRMs Back in Stock

Alloy 556/UNS R30556, and Alloy 718/UNS N07718 are back in stock. Alloy 556 was particularly hard to procure, but with the special help of Haynes International the material was acquired.

Also Alcan 1170-AJ material is in stock. This material had been out of stock for three months. Alcan has also speculated 6261-AD & 2024-AF will be released late April, 7075-AF late May, and 5052-AK late June.

## Calibration Reference Materials for Rent

ARMI has a program to rent Certified Reference Materials (CRMs) for instrument calibration. Once calibration curves have been appropriately established, with Set-Up-Standards (SUSs) for drift correction, the calibration CRMs are not needed any more. Why not just rent them for a fraction of the cost of owning them? Many calibration materials are not specific alloys, so they are not useful for "type standardization". This is one case where it might be useful to own them, if you were going to use "type standardization" analysis for specific alloys.

The cost will be about ¼ the cost of buying them.

All we would need to know is the matrix and the concentration ranges of the elements to be analyzed and we will choose the best CRMs available for that analytical task.

We will even provide a quote for doing the on-site calibration if there is an interest. We have many years of experience to make sure the correct analytical conditions are used along with appropriate corrections for matrix effects and spectral interferences. At the time of the calibration, instrument operators can also be trained on proper analytical technique.

## Spectroscopy 101 — May 30th, 2007

We will be holding our very popular 1-day class on the fundamentals of Optical Emission (OE) at our facilities in Golden, Colorado on May 30th, 2007. Topics to be addressed will include: technique theory, spectrometer theory, calibration, sample preparation, accuracy determination, results reporting, routine quality control, trouble shooting, maintenance, and much, much more!

These classes are aimed at instrument operators and laboratory supervisors. Practical experience is emphasized, with an initial overview of theory to provide a firm foundation. You will be turned into

an "OE Expert" in just one day!

We can hold this school on other dates as well. Please specify a different date that would meet your schedule and we will try to accommodate your request. We prefer to hold the schools on Tuesdays. Monday and Wednesday would be travel days.

We can also hold the class at your facilities on a date of your choosing. It is less expensive if there are more than 2 attendees because of travel cost.

Please contact us for additional information, possible different dates or to register.

## DC Arc Instrumentation for Trace Analysis

Although Thermo Elemental discontinued their AtomComp 2000 in 2005, another company has successfully installed several DC Arc instruments with a new source and stand combination. We can now offer a D.C. Arc solid-state spectrometer that is coupled with the improved features of this new

computer-controlled source and stand. This combination makes an even better instrument.

**If you need ultra sensitivity for trace determinations of powders, metal chips, or microsamples give us a call. We can help!**

## Opportunities: Custom Reference Materials

ARMI is taking all requests for CRMs, Statistical Process Control (SPC) and Set-Up-Standards (SUSs) that are special or are not market available. If there is a broad enough industry need for specific alloy CRMs we will definitely try to order the material and send it through our rigorous certification process.

Control Standards (SPC) can be made to your specification if ordered in large enough quantities.

(See Control Standards Article – Cover Page.)

SUSs can also be custom designed to meet your calibrated ranges for most alloys. If they are common enough to be of general interest or if ordered in large enough quantities we can get these made relatively quickly. Certification is not necessary. They only need to be tested for homogeneity.

Give us the specifics and see what we can do.

## WEEE & RoHS Reference Materials

ARMI has WEEE /RoHS reference materials for Solder, Copper and Aluminum. We also have these reference materials in PVC, PE and Glasses for XRF

analysis. A WEEE/RoHS brochure, that details the specifics, can be viewed and printed from our website. Or, we would be happy to send you one.

**Analytical Reference Materials International**

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Golden, CO 80401  
USA

Ph: (303) 216-2621  
Fax: (303) 216-2649  
armi@armi.com  
www.armi.com

*The ARMI -  
"Garage Sale"*

**ARMI has the following  
used equipment for sale:**

***LAST ONE!!***

A LAPMASTER Bench-Top lapping machine. This is compact enough to fit on a standard workbench and is very cost effective for producing superb surfaces. This machine will enable you to achieve a high standard of flatness and polish to a mirror-like finish on a continuous basis.

If you need further information or would like to make an offer, please contact us.



*The Leader in Application-Specific Certified Reference Materials.*

# FAX-O-GRAM

Please indicate your needs. When finished please FAX this form back to us at (303) 216-2649

**Catalog Type:**

- ARMI **General** Catalog
- ALCAN **Aluminum** Catalog
- Meinhard **Glass Products** Catalog

**Customer Classification:**

- Foundry / Producer / General Industry
- Commercial Lab
- Academia
- Other — (Please list in comments area)

**Please Respond:**

- I **need** your current catalog.
- I **need** information on ISO 17025 compliancy.
- I **need** information on Proficiency Testing (PT).

**Method of Analysis:**

- OE Spectroscopy
- XRF Spectroscopy
- ICP / ICPMS
- Other — (Please list in comments area)

- Please **contact** me.
- Please **leave** me alone.

Comments:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone \_\_\_\_\_ E-mail Address \_\_\_\_\_

ANALYTICAL REFERENCE MATERIALS INTERNATIONAL

**ISO 9000 Quick Quality Survey**

(Please write additional comments in block provided above. Thank You!)

- Product Quality:**  Excellent  Good  Fair  Poor
- Service Quality:**  Excellent  Good  Fair  Poor

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