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AMS standards

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Dear AMS Colleagues:

I have prepared a quantity of ^{10}Be , ^{26}Al , ^{36}Cl , and ^{41}Ca AMS standards [1-4]. These standards have been evaluated by several AMS laboratories and are currently being used as primary standards at many AMS labs such as the Lawrence Livermore National Laboratory (CAMS), Purdue University (PRIME), the University of Tokyo (MALT), and others.

In anticipation of an increased demand for AMS standards, we prepared sets of AMS standards for AMS community. The price of each standard material, below, is only a nominal fee in order to recover the labor and material cost for preparation and distribution of the standard.

A description of each standard set is given below with references [1-4].

Each bottle of solution should be sufficient to prepare a few hundred cathodes, giving at least 1,000 cathodes from the dilution set for any single nuclide. Each set of standards consists of 4 to 6 solutions with different isotopic ratios. This allows calibration for different purposes over a wide range of isotopic ratios.

1. Price (including Federal Express shipping charge, excluding the customs):
\$3,400 (USD) per nuclide (in solution)
or
\$12,000 (USD) for ^{10}Be after conversion to BeO .
\$9,000 (USD) for ^{26}Al or ^{41}Ca after conversion to Al_2O_3 , or CaF_2 .
\$7,000 (USD) for ^{36}Cl after conversion to AgCl .
2. Availability: One week after receipt of order for solution or one month after receipt of order for solid materials. Invoice will be dispatched on the date of delivery of the standard materials.
3. Full payment must be made to the Regents of the University of California within thirty (30) days of the date of invoice.

If you are interested in any standards, please send an e-mail to me at the address below. The University will contact with you with payment details. The Space Sciences Laboratory at the University of California, Berkeley will accept either a purchase order from your institute or a check (payable to Regents of the University of California).

Contact for order or question:

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University of California, Berkeley
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Contact for payment:

Ms. Ivy Lai, Financial Services Manager
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The isotopic ratios are described in references [1-4] and labeled on each set of standards.

¹⁰Be: 6 standards. HCl solution. See reference [3]*.

¹⁰Be/Be: 2.71×10^{-11} , 8.56×10^{-12} , 6.32×10^{-12} , 2.85×10^{-12} , 9.72×10^{-13} , and 5.35×10^{-13}
150-270 mg Be/solution bottle

* Note new calibration values and new half-life of ¹⁰Be (1.36×10^6 yr) [3]

²⁶Al: 6 standards. HCl solution. See reference [2].

²⁶Al/Al (based on ²⁶Al half-life of 7.05×10^5 yr):
 7.44×10^{-11} , 3.10×10^{-11} , 1.07×10^{-11} , 4.69×10^{-12} , 1.82×10^{-12} , and 4.99×10^{-13}
260-900 mg Al/solution bottle

³⁶Cl: 4 standards. H₂O solution. See reference [4].

³⁶Cl/Cl (based on ³⁶Cl half-life of 3.01×10^5 yr):
 1.00×10^{-11} , 5.00×10^{-12} , 1.60×10^{-12} , and 5.00×10^{-13}
~1300 mg Cl/solution bottle

⁴¹Ca: 6 standards. HNO₃ solution. See reference [1].

⁴¹Ca/Ca: 9.29×10^{-9} , 1.16×10^{-10} , 9.76×10^{-12} , 5.14×10^{-12} , 1.10×10^{-12} , and 5.88×10^{-13}
~650 mg Ca/solution bottle

References:

- [1] K. Nishiizumi, M. W. Caffee, D. J. DePaolo, Preparation of ⁴¹Ca AMS standards, Nucl. Instrum. Methods Phys. Res. B172 (2000) 399-403.
- [2] K. Nishiizumi, Preparation of ²⁶Al AMS Standards, Nucl. Instrum. Methods Phys. Res. B223-224 (2003) 388-392.
- [3] K. Nishiizumi, M. Imamura, M. W. Caffee, J. R. Southon, R. C. Finkel, J. McAninch, Absolute Calibration of ¹⁰Be AMS Standards, Nucl. Instrum. Methods Phys. Res. B258 (2007) 403-413.
- [4] P. Sharma, P. W. Kubik, U. Fehn, H. E. Gove, K. Nishiizumi, D. Elmore, Development of ³⁶Cl standards for AMS, Nucl. Instrum. Methods Phys. Res. B52 (1990) 410-415.