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SANTA BARBARA • SANTA CRUZ

Tel: (925) 376-8133
E-Mail: kuni@berkeley.edu
http://Chosmochem.ssl.berkeley.edu

SPACE SCIENCES LABORATORY
7 Gauss Way
Berkeley, CA 94720-7450
FAX: (510) 643-7629
http://www.ssl.berkeley.edu/

AMS Standard Reference Materials (rev. 10/3/2022)

Dear AMS Colleagues:

We have prepared a quantity of ^{10}Be, ^{26}Al, ^{36}Cl, and ^{41}Ca AMS Standard Reference Materials (SRM) [1-5]. These standards have been evaluated by several AMS laboratories and are currently being used as primary normalization standards in most AMS laboratories worldwide.

In anticipation of an increased demand for AMS standards, we prepared sets of AMS Standard Reference Materials for AMS community. A description of each standard set is given below with references [1-5]. 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 different isotopic ratios. This allows calibration for different purposes over a wide range of isotopic ratios. 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.

1. Price for a set of different concentrations of one nuclide:
   $3,400 (USD) in solution for a set of any nuclide
   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. Above amounts are excluding FedEx shipping charge, the customs, or any imported tax.
3. Availability: One week after receipt of order for solution or one month (in general) after receipt of order for solid materials.
4. Invoice will be dispatched on the date of delivery of the standard materials.
5. Full payment must be made to the University of California within thirty (30) days of the date of invoice.
6. We certify that the pricing offered does not exceed selling prices to other customers for the same or substantially similar items and/or services for comparable quantities under similar terms and conditions.

If you are interested in any standards, please send an e-mail to me with name of nuclide and form (solution or solid). I will send you quotation that indicate price, availability, and payment method.

Space Sciences Laboratory at the University of California, Berkeley will accept either a purchase order from your institute or a check (payable to the University of California, Regent).

Contact for order or question:

Dr. Kunihiko Nishiizumi
Space Sciences Laboratory
7 Gauss Way
University of California, Berkeley
CA 94720-7450, USA

Email: kuni@berkeley.edu, Phone: +1 (925) 376-8133

The preparation of each standard material is described in references.

^{10}Be: 6 standards. HNO_3 solution. See reference [3, 5].
^{10}Be/Be: 2.50×10^{-11}, 1.50×10^{-11}, 7.52×10^{-12}, 2.51×10^{-12}, 5.02×10^{-13}, and 1.01×10^{-13}
90-700 mg Be/bottle

^{26}Al: 6 standards. HCl solution. See reference [2, 5].
^{26}Al/Al (based on ^{26}Al half-life of 7.05×10^{5} yr):
5.00×10^{-11}, 1.50×10^{-11}, 7.50×10^{-12}, 2.50×10^{-12}, 5.01×10^{-13}, and 1.51×10^{-13}
170-750 mg Al/bottle

^{36}Cl: 4 standards. H_2O solution. See reference [4].
^{36}Cl/Cl (based on ^{36}Cl 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/bottle

^{41}Ca: 6 standards. HNO_3 solution. See reference [1].
^{41}Ca/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/bottle

References:

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3. Nishiizumi, K., Imamura, M., Caffee, M.W., Southon, J.R., Finkel, R.C., and McAninch, J., *Absolute calibration of ^{10}Be AMS standards.* Nuclear Instruments & Methods in Physics Research, **B258**: 403-413, 2007.
4. Sharma, P., Kubik, P.W., Fehn, U., Gove, H.E., Nishiizumi, K., and Elmore, D., *Development of ^{36}Cl standards for AMS.* Nuclear Instruments and Methods in Physics Research, **B52**: 410-415, 1990.
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