**Antarctic Meteorite Sample Request Form**

Please take these steps to ensure a smooth request process:

1) **Read** the instructions

2) **Look** at the example form

3) **Fill** out all relevant fields, especially if you have collaborators

4) **Delete** the instructions and sample form before saving your final version

4) **Return** the form (preferably as email attachment) to: JSC-ARES-MeteoriteRequest@nasa.gov

If necessary, the form can be mailed to:

Kevin Righter, Antarctic Meteorite Curator

Mailcode XI2

NASA Johnson Space Center

2101 NASA Parkway

Houston, Texas, 77058

**Instructions**

Requests for meteorites are considered by the Antarctic Meteorite Allocation Panel (AMAP) a sub-committee of the Astromaterials Allocation Review Board (AARB) that reports to NASA, and the Smithsonian Institution. AMAP makes every effort to provide samples for legitimate scientific study in a timely way. In considering requests, however, AMAP needs certain basic information.

**Explanation**

1) **Name of requester**: We ask that one person be made responsible for the samples, even when several people work on a project. If the requester has not completed an undergraduate or graduate degree, he or she should also obtain the signature of his/her research advisor; the advisor will become responsible for the secure handling of the samples.

2) **Professional title**: Indicate here how you would like your mail to be addressed. Examples of professional titles are Mr., Ms., Dr., Prof.

8) **Meteorite**: List in this column the names of all meteorites requested.

9) **Classification**: List in this column the type of each meteorite requested. Much experience shows that this information serves as a helpful check of consistency that avoids confusion and delay. You can obtain a complete listing of Antarctic meteorites at the web site below:

 <http://curator.jsc.nasa.gov/antmet/us_clctn.cfm>

10) **Form**: Indicate in this column the form in which you would like to have the sample. We list below three examples of forms often requested along with the abbreviations for them used at the Meteorite Processing Laboratory. AMAP also considers requests for non-standard preparations (See item 11, below).

 **Chip (CP)** - A fragment up to 5 g in mass

**Polished thin section** (TS) - Polished thin sections are typically 30 μm thick, vary in area, and are mounted on glass with epoxy (Buehler EpoxiCure 2 at this time).

**Polished thick section** (THK TS) – Polished thin sections can range in size typically from 50-150 microns, specify the thickness needed.

11) **Number of samples** - List in this column the number of samples requested from each meteorite.

12) **List the maximum amount of sample** you or your consortium members would like (ideally) for analysis or study.

13) **List the minimum amount of sample** you or your consortium members could use to complete a measurement for your study.

14) **Remarks and notes**: In this column

a) use the footnote 19 to indicate that special considerations apply to sample preparation and explain under item (19);

b) use the footnote 20 to indicate that the measurements are destructive or partially destructive and explain under item (20).

c) include any other information that you think AMAP will need to process your request.

15) **Title of study**: Give a brief title of your study (in ten words or less).

16) **Purpose of study**: In a short paragraph, explain the purpose of your work. If you are requesting meteorites from the US Antarctic Meteorite collection for the first time it would be helpful to include a line or two describing your background and to send along one reprint or other document relevant to the proposed work.

17) **Planned measurements**: Indicate the instrumental methods to be used (e.g., optical microscopy, electron microprobe, ion microprobe, SEM, TEM, spectroscopy, NMR, Mossbauer, XRF), who will do the analyses, and where the measurements will be made. If this is a consortium study, please make sure that any samples requested independently by your collaborators are for other distinct purposes (i.e., AMAP will not approve samples for a consortium that have also been requested separately by consortium members).

18) **Reasons for choosing the particular samples requested**: For a significant fraction of requests, AMAP finds that samples different from the ones requested would be better suited to the stated purposes of the investigator. When the investigator explains the sample selection criteria, AMAP is in a better position to use its detailed knowledge of the meteorite collection to fill the requests in a satisfactory way. For example, it may be possible to provide a chip from a large-mass member of a pairing group but not one from a small-mass member of that same pairing group.

19) **Sample mass required**: Give a detailed explanation for the mass required for analysis by you or your consortium, and give a breakdown of the mass required for each technique being used. Any differences between amount needed and amount requested must be explained in detail.

20) **Special preparations**: Indicate any types of materials or special handling considerations personnel in the Meteorite Processing Lab need to be aware of in order to provide material that will meet your analytical needs. A few examples of special preparations are listed below:

 Carbon coating (CC)

 Gold coating (GC)

 Crazy Glue mount for TEM sections (CAM)

 No fusion crust

NOTE that in some cases it is beyond the capabilities of the JSC Meteorite Processing Lab to provide specimens in highly specialized forms (e.g., crushed in agate without any history of contact with metal). When in doubt, please contact the curator in advance of submitting your request.

21) **Effects on samples**: Indicate how your work will affect the samples that you have requested. Some measurements destroy samples completely; others do not destroy samples completely but may alter them in significant ways. Examples of the latter type include laser and ion microprobing, heating, coating with gold, etching, mixing powders with diluents, removing material for TEM work. Sample handling procedures should also be detailed if you intend to return portions to the MPL.

**SAMPLE** OF Antarctic Meteorite Sample Request Form

|  |  |  |  |
| --- | --- | --- | --- |
| 1a) Name of person requesting samples: | A.L. Hollol | 1b) Signature: |  |
| 2) Professional Title: | Mr. | 3) Date: | September 1, 2001 |
| 4) Institution: | Antarctic Meteorite Consortium | 5) Address | 84001 Moraine DriveWellington,New Zealand |
| 6) Telephone: | 011 64 476 88001 | 7) E-mail: | ALH@MAC.nz |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| Meteorite | Class | Form  | Number | Mass/Size | Minimum mass/size | Remarks and notes |
| ALH 81000 | CM | ChipTSTHK TS | 111 | 100 mg150 microns | 10 mg | **20** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

15) Title of study : Tin isotopic study in CM chondrites.

16) Purpose of Study/Scientific rationale (can be a few paragraphs)

As part of a doctoral thesis project, I have begun a survey of tin isotopes in meteorites to test for the possibility of isotopic fractionation of tin during aqueous processes. Small effects are seen in terrestrial samples. The comparison with extraterrestrial materials should be interesting.

17) Planned measurements

Methods - Measurements of tin isotopes are made by using a newly acquired ion microprobe here at Consortium Laboratories in Wellington (Hollol et al., 2001, J. Mass Spec., **72**, 637-645, attached). In separate, destructive experiments, we will measure the bulk tin content of the sample by ICP-MS. To make the ICP-MS measurements we collaborate with Prof. Shackleton’s group at the University of Auckland.

 Location of instruments – see above

18) Reason(s) for choosing the particular samples requested (can be a few paragraphs)

CMs are known to show signs of extensive aqueous alteration. We are aware that many Antarctic meteorites have been weathered and for this reason have selected a sample from the *most* weathered group as a kind of control. In separate studies, we will also be analyzing a recent, non-Antarctic CM fall. The CM that we have requested from the US Antarctic collection is part of a large pairing group; we would be glad to have a sample from any member of this group.

19) Basis for estimating mass requested

 Please see Hollol et al. (2001)

20) Special preparations No special preparation required.

21) Effect on sample – Ion microprobing will leave numerous pits, about 50 μm in diameter, in the section.

**Antarctic Meteorite Sample Request Form**

|  |  |  |  |
| --- | --- | --- | --- |
| 1a) Name of person requesting samples: |  | 1b) Signature: |  |
| 2) Professional Title: |  | 3) Date: |  |
| 4) Institution: |  | 5) Address |  |
| 6) Telephone: |  | 7) E-mail: |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| Meteorite | Class | Form  | Number | Mass/Size | Minimum mass/size | Remarks and notes |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

15) Title of Research

16) Purpose of Study/Scientific rationale

17) Planned measurements and collaborators

|  |  |  |  |
| --- | --- | --- | --- |
| Collaborator | Institute | Method  | Mass required |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

18) Reason(s) for choosing the particular samples requested

19) Basis for estimating mass requested

20) Special preparations

21) Effects on samples

22) Certification of research advisor (required only when requester has not yet received an undergraduate or graduate degree).

I certify that the student submitting this request has access to the laboratories required to complete the research.

|  |  |  |  |
| --- | --- | --- | --- |
| Name: |  | Signature: |  |
| Institution: |  | Address |  |
| Telephone: |  | E-mail: |  |