

## REQUESTING ASTEROID BENNU SAMPLES FROM THE NASA OSIRIS-REX CURATION LABORATORY

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**Introduction:** In September of 2023, the Origins, Spectral Interpretation, Resource Identification, and Security-Regolith Explorer (OSIRIS-REx) spacecraft, delivered approximately 120g of sample from the asteroid Bennu to the Earth [1]. Abundant care has been taken by the curation team at NASA Johnson Space Center (JSC) to carefully curate the returned asteroid sample and preserve its integrity and scientific value, allowing for current and future discoveries [2]. Sample types include particles and aggregates collected from the Touch-and-Go Sample Acquisition Mechanism (TAGSAM) head and associated stainless-steel contact pads as well as witness plates and other flight hardware components [3]. Twice per year, The Astromaterials Newsletter is released [4] which provides updates from the OSIRIS-REx curator along with sample request deadlines and other pertinent information. The newsletter release is accompanied by updates to the OSIRIS-REx Sample Catalog, which lists newly characterized pieces of the asteroid sample and can be found on the Astromaterials Curation-OSIRIS-REx website (<https://curator.jsc.nasa.gov/osirisrex/>). These sources of information can be used to determine which individual sample would best suit any intended research goals. The curation team at NASA JSC seeks to provide direction about how to prepare sample requests for review and clarification about the allocation process so that the most appropriate samples can be provided to allow for effective and informative analysis to further our understanding of asteroid bodies and their place in our solar system.

**Sample Request Form:** The official sample request form on the curation website, in conjunction with the checklist detailing the specific kinds of information to include, should be used to submit requests to be allocated pieces of the Bennu sample for study. The request form consists of different sections which account for all the necessary information needed for an effective review of the proposal once it has been submitted. Requestors should provide their name, affiliation, and contact information and identify the specific sample being requested along with the amount and type (e.g. chip, thin section, thick section, etc.) necessary for any planned analyses. The remainder of the request should provide an explanation of the specific research that is being planned, why the particular sample is being requested, why a particular quantity of the sample is needed, what kinds of analyses will be conducted, the effects that those analyses will have on the sample, and if any special considerations need to be taken into account while processing and allocating the requested samples. In addition, any collaborators and their roles should be listed on the form. Taking the time to provide clear and detailed explanations of the planned research and well-defined justifications for the samples to be used for such research will allow for a more comprehensive review of the request. If requestors have questions or need clarification on any part of the request process, they are very welcome to email the OSIRIS-REx Curator.

**Request Review Process and Allocations:** After the request deadline passes, all the submitted requests are carefully reviewed by the OSIRIS-REx Allocation Panel (ORAP) of the Astromaterials Allocation Review Board (AARB). Only a limited mass and number of Bennu samples can be allocated in each round as indicated in the Sample Conservation Plan [5]. The review panels are made up of experts who utilize the information in that plan and in the requests to determine if they meet the standards and necessary criteria to allow for allocation. Once all the requests have been reviewed and decisions about allocations have been finalized, the OSIRIS-REx Curator will notify each requestor with the status of their request. Possible outcomes include the request being fully approved, approved with qualifications, selectable with qualifications or denied. Any qualifications will be discussed with the Principal Investigator (PI) and selectable requests will only be allocated if time permits after the requests that were approved and approved with qualifications have been allocated. If a request is designated a status of approved or selectable, the PI will need to establish a loan agreement between their institution and NASA before any samples can be allocated. After a loan agreement is in place, the approved samples can be processed by the curation team at JSC and allocated to the PI. Typically, sample processing of all the approved requests can take as long as six months so PIs will be given estimates of when they will likely receive their samples and updated when the processing is complete, and the samples are ready for shipment. The efforts by requestors to submit well developed proposals will allow for a more efficient and thorough review process and most appropriate allocation of samples.

**References:** [1] Lauretta, D.S., et al. (2024) *Meteoritics & Planetary Science* 59:2453-2486. [2] Righter, K., et al. (2023) *Meteoritics & Planetary Science* 58(4):572-590. [3] Lunning N.G. et al. (2025) *LPSC LVI*, Abstract #1496. [4] Davidson, J. (2025) Astromaterials Newsletter 7(1): <https://ares.jsc.nasa.gov/astromaterials-newsletter/vol7-no1/astromaterials-news.cfm>. [5] Lunning, N.G, et. al. (2024) Sample Conservation Plan for the NASA OSIRIS-REx Collection: Revision A. [https://curator.jsc.nasa.gov/osirisrex/forms/OREx\\_ConservationPlan\\_20240501.pdf](https://curator.jsc.nasa.gov/osirisrex/forms/OREx_ConservationPlan_20240501.pdf)