

To ship a sample to the NCNR that has been in a neutron beam at another facility

If the sample has been in a neutron beam at another neutron facility and/or contains naturally occurring radioactive materials (e.g. uranium, thorium), then the radioactivity must be evaluated by the Health Physics (or Radiation Safety Office) staff at that facility BEFORE shipment. Then there are two cases:

Health Physics at that facility determines that;

- a. The sample is radioactive. In this case both facilities—NIST and the sending facility—consider the sample to be licensed radioactive material, and permission to ship must be given by the NCNR before shipment is made. Please note that **THIS TAKES TIME!** The NCNR internal procedures are given below. In order to start the procedures here we need to know:
 - i. The exact composition of the sample(s)
 - ii. Approximate weight(s)
 - iii. Activities of each radioisotope
 - iv. Whether it is a powder or solid
 - v. How the sample is contained, and
 - vi. Any special handling procedures for the sample materials.
- b. The sample has no residual activity, and so is released for unrestricted use. Please note that this must be evaluated by the Health Physics (or Radiation Safety Office) staff at the facility, NOT by you! Then the released sample (or for a sample that has never been in a neutron beam) can be shipped directly to the instrument scientist or other staff member, or you can bring the sample with you when you come to the NCNR. In this case it should not be sent to the NCNR Health Physics.

Shipping address: <Name of person>
NIST Center for Neutron Research
100 Bureau Drive
National Institute of Standards and Technology
Gaithersburg, MD 20899-6102
[phone number and email of above person]

It is essential to note that shipping regulations are separate from the regulations for the transfer of licensed radioactive material. For example, below a certain activity level (which depends on the particular isotopes involved) the sample may be classified as non-radioactive for shipping purposes, but it is still radioactive as far as the facilities are concerned and must be handled accordingly. Do not bring radioactive samples to the NCNR yourself.

Please note that shipping/receiving radioactive samples requires considerable time and effort by the personnel at both facilities. Special training is required by the regulations to prepare and handle radioactive materials packages for shipment. Please take this into

consideration when making such requests, and also allow enough time (which can take a few weeks in some situations).

Internal NCNR procedures for receiving a radioactive shipment (and with analogous efforts to ship activated samples from the NCNR):

- 1) Information about the activities, etc., as indicated in a) above, are received by us from Health Physics or equally knowledgeable persons at the shipping institute. One of the (few) trained and approved *Source Custodians* on the scientific staff at the NCNR fills out a 'radioactive material request' form with this information, signs it, and forwards it to the Group Leader.
- 2) Group Leader evaluates the need for the sample and approves proposal to receive shipment, signs request, forwards it to the NCNR Director.
- 3) NCNR director evaluates the need for the request, signs the approval to have Health Physics evaluate the request.
- 4) NCNR Health Physics receives the request and assigns personnel to evaluate the request. All sample isotopes and parameters are evaluated. Radioactive isotopes are determined whether the amounts would exceed approved limits.
- 5) NCNR Health Physics determines if the radioactivity concerns are within the scope of current operations at the NCNR, and determines safe handling and any other procedures required or restrictions on handling the radioactive isotopes in the sample(s). For example, if the sample is a powder and the activity levels are significant it may be required that the sample arrive in a sealed holder that will not be opened at the NCNR.
- 6) NCNR Health Physics recommends approving the request under the restrictions above (if any) and forwards the request to the NCNR Director for final approval.
- 7) NCNR Director evaluates the Health Physics recommendation. If request is approved, it is signed and returned to Health Physics. Health Physics then contacts the NCNR contact to inform them that the shipment has been approved for receipt. The NCNR contact notifies the shipper that the sample has been approved, the shipping facility confirms (if necessary) that the NCNR license permits receiving the sample, and is then allowed to ship the sample directly to the NCNR contact, care of NCNR Health Physics. NCNR Health Physics may also contact the sending facility directly if prior arrangements are made. The address for such shipments is:

NCNR Health Physics, Building 235/Rm A134
Attention: <*Source Custodian Name*>
NIST Center for Neutron Research
National Institute of Standards and Technology
100 Bureau Drive
Gaithersburg, MD 20899-6100
[*Phone number and email of Source Custodian*]

[Note: Information about the Source Custodian will be supplied to the shipping institution by NCNR Health Physics or the NCNR contact person.]

- 8) Upon receipt by NCNR Health Physics, shipment is checked for integrity and evaluated for activity. Upon completion, responsibility for the sample is transferred to the Source Custodian.

If approval is not received at any step in the process then the shipping request will be denied.