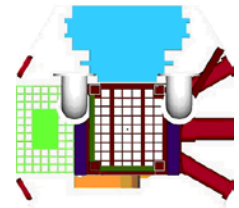




Pinanski Building  
One University Avenue  
Lowell, Massachusetts 01854  
tel: 978.934.3366  
fax: 978.934.4067  
url: [www.uml.edu/radlab](http://www.uml.edu/radlab)



## RADIATION LABORATORY

### Rabbit and In-core Samples

#### Pneumatic (Rabbit) Sample System

The pneumatic sample systems allow for the rapid movement of small experimental samples from remotely located sample station to a terminus located at mid-point flux external to the reactor core.

A timer system permits automated return of samples for irradiation times of 2 seconds to 20 minutes.

Maximum sample dimensions are 3.8 cm by 12.5 cm and mass of less than 300grams. Typically samples are placed in 7 dram polyethylene sample vials having dimensions 1-inch inside diameter by 2-inch long.

Average neutron fluences of  $5.3E12$  n/cm<sup>2</sup>-sec thermal and  $2.5E12$  n/cm<sup>2</sup>-sec fast are attainable.

#### In-core Sample system

Samples for in-core irradiation are placed in 7 dram polyethylene sample vials having dimensions 1-inch inside diameter by 2-inch long.

The sample vial is then inserted into an aluminum irradiation tube referred to as a bayonet.

The bayonet containing the sample is manually inserted into a reactor core receptacle referred to as a radiation basket. The radiation baskets are located adjacent to the reactor core fuel.

Three radiation baskets are available in the front of the core. One radiation basket is located in the center core flux trap.

Maximum neutron fluences available in the center core basket are  $2.47 E 13$  n/cm<sup>2</sup>-sec thermal and  $2.47 E 13$  n/cm<sup>2</sup>-sec fast.

Maximum neutron fluences available in the core front baskets are  $1.27 E 13$  n/cm<sup>2</sup>-sec thermal and  $8.18 E 12$  n/cm<sup>2</sup>-sec fast. Fast neutron irradiation costs are as follows: