1. Target Preparation

Target preparation is divided into two parts:

a. Preparation of the inner irradiation capsule

After preparing the raw material, it will be placed in the inner irradiation capsule which will be closed, welded and tested.

b. Preparation of the outer irradiation capsule

The inner capsule is placed in the outer irradiation capsule, which will be welded and tested then transferred to the irradiation location in the reactor core.

2. Irradiation

The capsule is mounted in the specified reactor irradiation core rig for irradiation. The irradiation time depends on the thermal neutron flux and target properties (thermal neutron capture cross section and decay half-life).

The figure below shows the in- and out-core and outer irradiation locations:

IRO: Ir-192
IR12: I-131
IR14: Mo/Tc-99

Other locations in the core can be used for future RI production (with various irradiation times).

3. Processing

The irradiated capsule is transferred to the hot cell for preparing the RI product in final form.

This process in the hot cell consists of cutting, dissolving, distilling and dispensing.

RIPF Capability and RI Market Demand

<table>
<thead>
<tr>
<th>Isotope</th>
<th>Isotope production capacity (Ci/year)</th>
<th>Hot cell handling capacity (Ci/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99Mo/99mTc</td>
<td>240</td>
<td>1000</td>
</tr>
<tr>
<td>131I</td>
<td>960</td>
<td>2000</td>
</tr>
<tr>
<td>192Ir</td>
<td>48000</td>
<td>100,000</td>
</tr>
</tbody>
</table>

Five local companies are working in import and export of medical radioisotopes.

Imported Isotopes/year (2015)

<table>
<thead>
<tr>
<th>Isotope</th>
<th>Activity (Ci)</th>
<th>Number of sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>99Mo/99mTc</td>
<td>306</td>
<td>400</td>
</tr>
<tr>
<td>131I</td>
<td>234</td>
<td>2267</td>
</tr>
<tr>
<td>192Ir</td>
<td>500</td>
<td>15</td>
</tr>
</tbody>
</table>

Product Quality

Our product complies with the GMP and the international standard requirements and specs, including:

- Radioactivity measurement
- Chemical purity
- Radionuclide purity
- pH measurement
- Sterility of product ampules
- Color transparency
- Expiry and shelf life
- Packaging and labeling
- Dose calibration

Why Us

- competitive price
- Shorter delivery time
- Selective activity available upon customer's request

Local Stakeholders/Customer

- Royal Medical Services
- Ministry of Health
- King Hussein Cancer Center
- King Abdullah University Hospital
- Jordan University Hospital
- Jordanian Universities
- Energy & Minerals Regulatory Commission (EMRC)
- Jordan Food & Drug Administration
- Jordan Standards and Metrology Department

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