Ru-106 Ophthalmic Plaques

Long Lifetime
Ru-106/Rh-106 has a half life of 374 days and emits beta radiation with a maximum energy of 3.54 MeV. Therefore the plaque can be used multiple times within one year. The dose absorbed in tissue decreases after 7 mm to one tenth of its initial value. This steep dose fall-off protects sensitive structures and renders best treatment results for tumours with a height of up to 5 mm.

NIST Traceble Dosimetry
All plaques come with an extended calibration certificate. The certified reference dose rate is traceable to the National Institute of Standards and Technology, USA (NIST). The nominal value of the absorbed dose rate to water for every plaque type, newly defined as the dose rate at the reference point (at the plaque axis 2 mm from the surface), is 80 mGy/min corresponding to appr. 120 mGy/min (12 rad/min) on the surface.

Thin Plaque Design
The Ru-106/Rh-106 is encapsulated within pure silver sheets with a total thickness of only 1 mm. This allows very comfortable handling for the ophthalmologist. The applicator requires no assembly, only sterilization before usage. The plaque's surface is polished metal. All plaques are spherically shaped with a radius of 12 to 14 mm and have special eyelets to be sutured to the sklera.

The radiation window on the concave side is an 0.1 mm silverfoil. The backing acts as radiation shield. It absorbs approximately 95% of the beta radiation.

Accessories
- Dummy plaques: inactive plaques from acrylic glass or pure silver to help to position the plaque and the sutures.
- Diaphanoscope: fibre optic light source to illuminate the eyeball and make the tumour visible as a dark spot or shade on the eyeball. This helps to properly position the plaque above the tumour.
- Safety Container: for shielded steam sterilization and transport of eye plaques in your clinic.
- Plaque Simulator Software: to simulate eye plaque brachytherapy (Ru-106, I-125, Pd-103 and Ir-192 with BEBIG, COMS, ROPES, USC and custom made plaques).

BEBIG Ruthenium-106 ophthalmic plaques are used for treatment of uveal melanoma, retinoblastoma, melanoma of the iris and other special applications for more than 30 years now. The plaques consist of a thin film of Ru-106, a beta emitter, encapsulated in pure silver.

Figure 1: Scheme of a Ru-106 Ophthalmic Plaque

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Eckert & Ziegler
BEBIG
**Ru-106 Ophthalmic Plaques**

The available types are given in the table on the right. The geometric shapes of the applicators are outlined in figure 2.

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter D mm</th>
<th>Height h mm</th>
<th>Radius R mm</th>
<th>Number of eyes</th>
<th>Angle between eyes</th>
<th>Order code for active plaques</th>
<th>Order code for acrylic dummies</th>
<th>Order code for silver dummies</th>
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<tr>
<td>CCZ</td>
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<td>2.3</td>
<td>12</td>
<td>2</td>
<td>180°</td>
<td>Ru6.A01</td>
<td>ACD.A21</td>
<td>AGD.A21</td>
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<td>2.3</td>
<td>12</td>
<td>3</td>
<td>120°</td>
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<td>8.0</td>
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*) Active diameter for CXS: 7.7 mm

On request plaques are produced with a slot on the convex side to hold a suturing belt.

Used plaques, for which the lifetime of 1 year has expired, can be returned to BEBIG for a fee.

**Application**

For different applications there are 16 plaque types available, shown in figure 2.

- **Uveal and choroidal melanomas:** CCA, CCB, CCC, CCD and CGD
- **Retinoblastoma:** CCX, CCY, CCZ and CXS
- **Ciliary body melanomas or melanomas close to the iris:** CIA, CIB, CIB-2
- **Tumours close to the optical nerve:** COB, COD, COE and COC

This Information is not sufficient for a safe and secure handling of the product. Please refer to the Instructions for Use.

**Eckert & Ziegler**

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