

Ru-106 Ophthalmic Plaques

Product Information

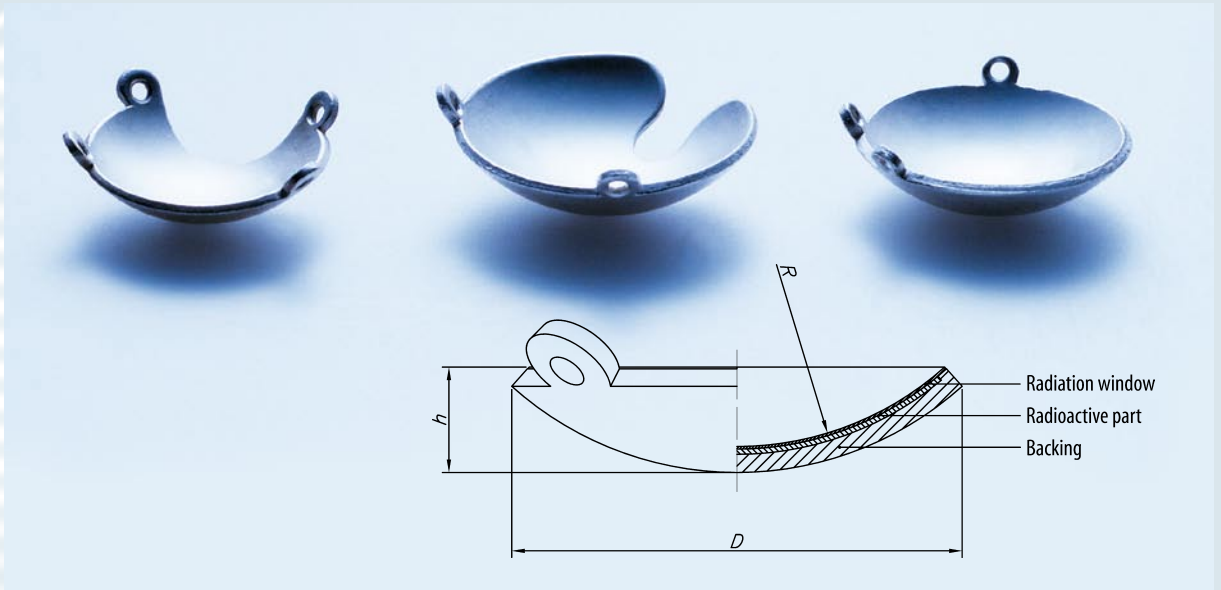


Figure 1:
Scheme of a Ru-106
Ophthalmic Plaque

IBt 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.

■ 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 Traceable 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 2mm 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 eye ball 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 IBt Bebig, COMS, ROPES, USC and custom made plaques).

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

Type	Diameter D mm	Height h mm	Radius R mm	Number of eyes	Angle between eyes	Order code for active plaques	Order code for acrylic dummies	Order code for silver-dummies
CCZ	11.6	2.3	12	2	180°	Ru6.A01	ACD.A21	AGD.A21
CCY	11.6	2.3	12	3	120°	Ru6.A02	ACD.A22	AGD.A22
CCX	11.6	2.3	12	2	90°	Ru6.A03	ACD.A23	AGD.A23
CXS	11.6*	2.3	12	2	90°	Ru6.A033	ACD.A23	AGD.A23
CCA	15.3	3.3	12	2	90°	Ru6.A04	ACD.A24	AGD.A24
CCD	17.9	4.3	12	2	90°	Ru6.A05	ACD.A25	AGD.A25
CCB	20.2	5.4	12	2	90°	Ru6.A06	ACD.A26	AGD.A26
CGD	22.3	6.1	13	3	90°/45°	Ru6.A07	ACD.A27	AGD.A27
CCC	24.8	8.0	13	2	90°	Ru6.A08	ACD.A28	AGD.A28
COB	19.8	5.2	12	2	90°	Ru6.A09	ACD.A29	AGD.A29
COD	25.4	7.5	14	2	90°	Ru6.A10	ACD.A30	AGD.A30
COE	19.8	5.2	12	2	90°	Ru6.A11	ACD.A31	AGD.A31
COC	25.4	7.5	14	2	90°	Ru6.A12	ACD.A32	AGD.A32
CIA	15.3	3.3	12	2	180°	Ru6.A13	ACD.A33	AGD.A33
CIB	20.2	5.4	12	2	180°	Ru6.A14	ACD.A34	AGD.A34
CIB-2	20.2	5.4	12	4	120°/60°	Ru6.A15	ACD.A35	AGD.A35

*) Active diameter for CXS: 7.7 mm

Figure 2: 16 types of Ru-106 ophthalmic plaques. The radioactive area is marked hatched.

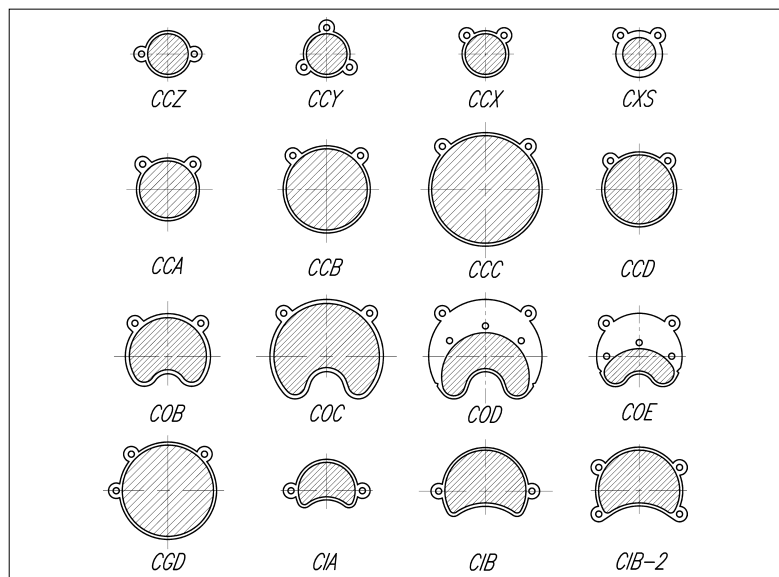
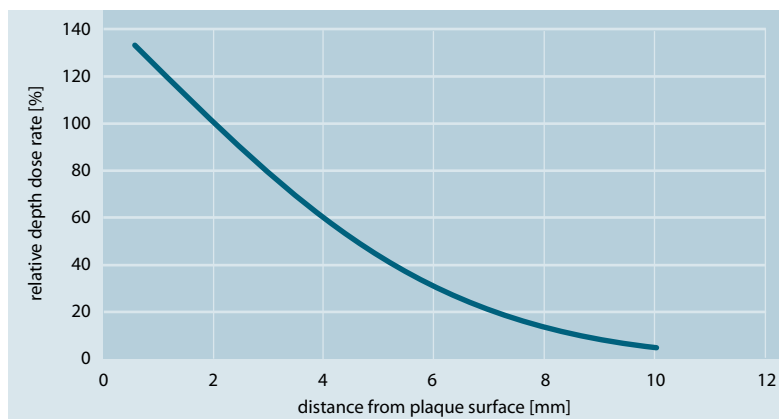


Figure 3: Typical relative depth dose of a CCB plaque



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

Used plaques, for which the life time of 1 year has expired, can be returned to IBt 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.

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