

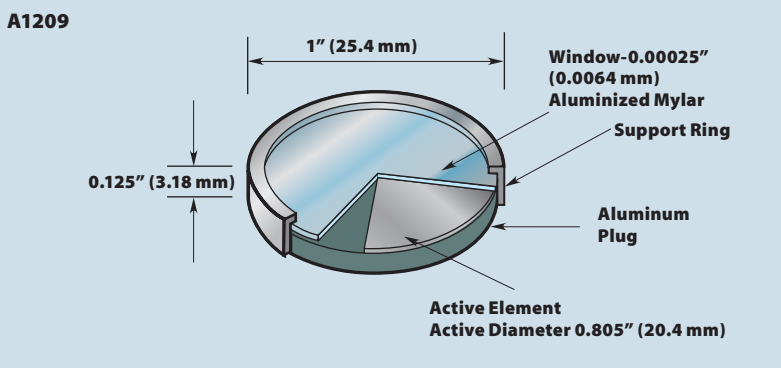
# Beta Particle Standards

## Beta Particle Standards—Type A

The active material is uniformly distributed over the surface of a 0.937" (23.8 mm) diameter foil and sealed in an aluminum mounting ring under a 0.9 mg/cm<sup>2</sup> aluminized Mylar window for most nuclides. The active diameter of the source is 0.805" (20.4 mm). Special absorbers may be included under the window to filter undesirable low energy radiation. This configuration is most useful for determining efficiencies of G.M. and windowless counters used for beta assaying evaporated liquid samples. The overall source diameter is 1" (25.4 mm) and 0.125" (3.18 mm) thick.



**Figure 42-A: Type A-1 Disk**



### Overall Dimensions

Overall Diameter	Active Diameter	Height
1"	0.805"	0.125"
25.4 mm	20.4 mm	3.18 mm

Nature of Active Deposit	Available Activities
Evaporated Salts on 0.010" Stainless Steel	5 nCi -100 nCi (185 Bq - 3.7 kBq)

Exceptions
Bi-210 : 10 nCi - 100 nCi (370 Bq - 3.7 kBq)
Sr-90 : 2.5 nCi - 100 nCi (92.5 Bq - 3.7 kBq)

## Beta Particle Standards—Type A

Catalog Number	Nuclide	Half-Life	Substrate	Significant Beta Energies (E <sub>max</sub> keV)	Window
BF-210-A	Bismuth-210 (Pb-210 parent)	22.3 y	Stainless Steel	1160	6.9 mg/cm <sup>2</sup> Aluminum
BF-014-A	Carbon-14	5730 y	Polymeric Membrane	156	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-137-A	Cesium-137	30.17 y	Stainless Steel	1175	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-036-A	Chlorine-36	3.01 x 10 <sup>5</sup> y	Stainless Steel	1142	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-060-A	Cobalt-60	5.272 y	Stainless Steel	1491	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-068-A	Germanium-68 (1)	270.8 d	Stainless Steel	2921 (β <sup>+</sup> )	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-147-A	Promethium-147	2.6234 y	Stainless Steel	225	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-106-A	Ruthenium-106/Rhodium-106	1.020 y	Stainless Steel	39, 3540	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-032-A	Silicon-32/Phosphorus-32 (2)	104 y	Stainless Steel	225, 1710	13.7 mg/cm <sup>2</sup> Aluminum
BF-022-A	Sodium-22	950.8 d	Stainless Steel	2842 (β <sup>+</sup> )	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-090-A	Strontium-90/Yttrium-90 (3)	28.5 y	Stainless Steel	546, 2282	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-099-A	Technetium-99	2.13 x 10 <sup>5</sup> y	Stainless Steel	294	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-204-A	Thallium-204	3.78 y	Stainless Steel	763	0.9 mg/cm <sup>2</sup> Aluminized Mylar
BF-113-A	Tin-113	115.1 d	Platinum Foil or Pt/Clad Ni	392	0.9 mg/cm <sup>2</sup> Aluminized Mylar

1) Positron emission from Ga-68.

2) This long-lived P-32 standard is the beta emitting P-32 daughter of the long-lived Si-32 parent. The standard mounting for this source is the A capsule with a 0.002" (0.051 mm) Al window. This window will absorb more than 60% of the Si-32 225 keV betas and less than 5% of the P-32 betas. Standards are prepared with the P-32 in equilibrium with the parent Si-32.

3) See page 41 regarding Sr-90 sources.