

Cobalt - 57

⁵⁷Co₂₇

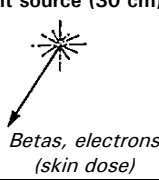
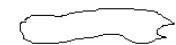
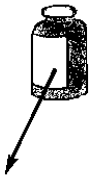


Half life: 271.8 days
 Specific activity: 3.12E+14 Bq.g⁻¹

Risk group: 3
 Risk colour: Yellow


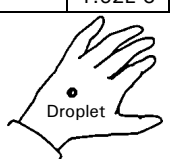
Main emissions (keV)								
	Gamma or X		Beta (E _{max})		Electrons		Alpha	
	E	%	E	%	E	%	E	%
E1	14	9			6	106		
E2	122	86			7	70		
E3	137	11						
% omitted	<1				11			

Exemption levels	
Quantity (Bq)	1E+06
Concentration (Bq.g ⁻¹)	1E+02

Transport (TBq)	
IAEA ST1 A ₁ value	1E+1
IAEA ST1 A ₂ value	1E+1

EXTERNAL EXPOSURE (mSv.h ⁻¹) for an activity of 1 MBq or 1 MBq.m ⁻² (as appropriate)																
Point source (30 cm)  Betas, electrons (skin dose) 0.00E+0 Gammas, X rays (deep tissue dose) 2.52E-4	Infinite plane source  Betas, electrons (skin) <table border="1"> <tr><td>10 cm</td><td>8.4E-06</td></tr> <tr><td>1 m</td><td>0.0E+00</td></tr> </table> Photons (skin) <table border="1"> <tr><td>10 cm</td><td>2.4E-03</td></tr> <tr><td>1 m</td><td>2.0E-03</td></tr> </table> Photons (deep dose) <table border="1"> <tr><td>10 cm</td><td>2.3E-03</td></tr> <tr><td>1 m</td><td>2.0E-03</td></tr> </table>	10 cm	8.4E-06	1 m	0.0E+00	10 cm	2.4E-03	1 m	2.0E-03	10 cm	2.3E-03	1 m	2.0E-03	10 ml glass vial  100 cm 2.17E-5	Contact with 50 ml glass beaker  7.47E-2	Contact with 5 ml plastic syringe  3.35E-1
10 cm	8.4E-06															
1 m	0.0E+00															
10 cm	2.4E-03															
1 m	2.0E-03															
10 cm	2.3E-03															
1 m	2.0E-03															

The values above do not include Bremsstrahlung radiation.

CONTAMINATION																
Contamination skin dose (mSv.h⁻¹) <table border="1"> <tr><td>Uniform deposit (1kBq.cm⁻²)</td><td>1.19E-1</td></tr> <tr><td>0.05 ml droplet (1 kBq)</td><td>1.62E-3</td></tr> </table>	Uniform deposit (1kBq.cm ⁻²)	1.19E-1	0.05 ml droplet (1 kBq)	1.62E-3	Detection <table border="1"> <tr><th colspan="2">Recommended probes*</th></tr> <tr><td>Alpha</td><td></td></tr> <tr><td>Beta</td><td></td></tr> <tr><td>Gamma</td><td>+</td></tr> <tr><td>X rays</td><td>++</td></tr> </table>	Recommended probes*		Alpha		Beta		Gamma	+	X rays	++	Derived limits (Bq.cm⁻²) Removable contamination: 2E+2 Fixed contamination: 2E+2
Uniform deposit (1kBq.cm ⁻²)	1.19E-1															
0.05 ml droplet (1 kBq)	1.62E-3															
Recommended probes*																
Alpha																
Beta																
Gamma	+															
X rays	++															
 Uniform deposit  Droplet * If no probes are indicated the recommended technique is to use a wipe test in association with a probe or liquid scintillation technique																

SHIELDING (mm)		
Betas and electrons (Total absorption)		
Glass	<0.1	
Plastic	<0.1	
Gamma and X rays (half and tenth value thickness)		
	½	1/10
Lead	<1	1
Steel	6	18

INTERNAL EXPOSURE FOR WORKERS				
COMMITTED EFFECTIVE DOSE PER UNIT INTAKE (Sv.Bq ⁻¹)				
Ingestion	f _i		Inhalation	1 µm 5 µm
All unspec. compounds	0.100	2.1E-10		F
Oxid., hydrox. & inorg. compounds	0.050	1.9E-10	All unspec. compounds	M 5.2E-10 3.9E-10
			Oxid., hydrox., halid. & nitrat.	S 9.4E-10 6.0E-10
Highest dose organ	Lungs	20 mSv A _{LI} ingestion	9.5E+07 (Bq)	20 mSv A _{LI} inhalation
				2.1E+07 (Bq)

MAXIMUM RECOMMENDED ACTIVITIES IN LOW LEVEL OR INTERMEDIATE LEVEL LABORATORIES (Bq)							
PHYSICOCHEMICAL STATE	Subject to external exposure requirements which may be more restrictive						
	Volatility factor (k)	Supervised area			Controlled area		
		Bench	Fume hood		Bench	Fume hood	Glove box
Oxid., hydroxid., halog. & nitrat.	0.01	4E+06	4E+07	1E+07	1E+08	5E+09	
Other compounds	0.01	6E+06	6E+07	2E+07	2E+08	5E+09	