

Cobalt - 60

⁶⁰Co₂₇

Half life: 5.27 years
 Specific activity: 4.18E+13 Bq.g⁻¹


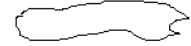



Risk group: 2
 Risk colour: Orange

Main emissions (keV)								
	Gamma or X		Beta (E _{max})		Electrons		Alpha	
	E	%	E	%	E	%	E	%
E1	1173	100	318	100				
E2	1333	100	1491	<1				
E3								
% omitted		<1		0				

Exemption levels	
Quantity (Bq)	1E+05
Concentration (Bq.g ⁻¹)	1E+01


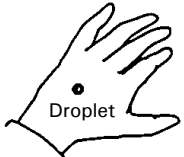
Transport (TBq)	
IAEA ST1 A ₁ value	4E-1
IAEA ST1 A ₂ value	4E-1

EXTERNAL EXPOSURE (mSv.h⁻¹) for an activity of 1 MBq or 1 MBq.m⁻² (as appropriate)

Point source (30 cm)	Infinite plane source	10 ml glass vial	Contact with 50 ml glass beaker	Contact with 5 ml plastic syringe												
 Betas, electrons (skin dose) 1.26E-2 Gammas, X rays (deep tissue dose) 3.86E-3	 Betas, electrons (skin) <table border="1"> <tr><td>10 cm</td><td>2.6E-02</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>1.6E-02</td></tr> <tr><td>1 m</td><td>1.0E-02</td></tr> </table> Photons (deep dose) <table border="1"> <tr><td>10 cm</td><td>1.5E-02</td></tr> <tr><td>1 m</td><td>9.6E-03</td></tr> </table>	10 cm	2.6E-02	1 m	0.0E+00	10 cm	1.6E-02	1 m	1.0E-02	10 cm	1.5E-02	1 m	9.6E-03	 100 cm 3.32E-4	 1.19E+0	 5.67E+0
10 cm	2.6E-02															
1 m	0.0E+00															
10 cm	1.6E-02															
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10 cm	1.5E-02															
1 m	9.6E-03															

The values above do not include Bremsstrahlung radiation.

CONTAMINATION

Contamination skin dose (mSv.h ⁻¹)		Detection		Derived limits (Bq.cm ⁻²)
Uniform deposit (1kBq.cm ⁻²)	7.84E-1	Recommended probes*		
0.05 ml droplet (1 kBq)	2.22E-1	Alpha		Fixed contamination 1E+1
 		Beta	++	
		Gamma	++	
		X rays	+	

* 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	0.4	
Plastic	0.7	
Gamma and X rays (half and tenth value thickness)		
	½	1/10
Lead	16	46
Steel	36	93

INTERNAL EXPOSURE FOR WORKERS

COMMITTED EFFECTIVE DOSE PER UNIT INTAKE (Sv.Bq⁻¹)

Ingestion	f ₁	Inhalation		
			1 µm	5 µm
All unspec. compounds	0.100	3.4E-09	F	
Oxid., hydrox. & inorg. compounds	0.050	2.5E-09	M	9.6E-09 7.1E-09
			S	2.9E-08 1.7E-08

Highest dose organ: Lungs 20 mSv ALL_{ingestion} 5.9E+06 (Bq) 20 mSv ALL_{inhalation} 6.9E+05 (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	2E+05	2E+06	5E+05	5E+06	5E+08
Other compounds	0.01	3E+05	3E+06	1E+06	1E+07	1E+09