Iron - 55

$^{55}Fe_{26}$

Half life: 2.68 years
Specific activity: 8.98E+13 Bq.g^{-1}

Risk group: 3
Risk colour: Yellow

Main emissions (keV)								
	Gamma or X		Beta (Emax)		Electrons		Alpha	
	E	%	E	%	E	%	E	%
E1	6	25			5	61		
E2	7	3						
E3								
% omitted		< 1				< 1		

Exemption levels	
Quantity (Bq)	1E+06
Concentration (Bq.g^{-1})	1E+04

Transport (TBq)	
IAEA ST1 A_1 value	4E+1
IAEA ST1 A_2 value	4E+1

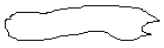
EXTERNAL EXPOSURE (mSv.h^{-1}) for an activity of 1 MBq or 1 MBq.m^{-2} (as appropriate)

Point source (30 cm)

Betas, electrons (skin dose): 0.00E+0

Gammas, X rays (deep tissue dose): 0.00E+0

Infinite plane source



Betas, electrons (skin)

10 cm	0.0E+00
1 m	0.0E+00

Photons (skin)

10 cm	0.0E+00
1 m	0.0E+00

Photons (deep dose)

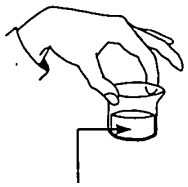
10 cm	0.0E+00
1 m	0.0E+00

10 ml glass vial

100 cm

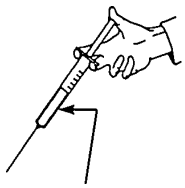
?

Contact with 50 ml glass beaker



?

Contact with 5 ml plastic syringe



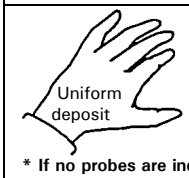
?

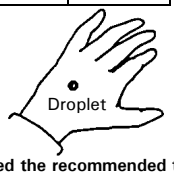
? indicates that insufficient information is available for reliable calculations to be made.

CONTAMINATION

Contamination skin dose (mSv.h^{-1})

Uniform deposit (1kBq.cm^{-2})	1.62E-2
0.05 ml droplet (1 kBq)	?





Detection

Recommended probes*	
Alpha	
Beta	
Gamma	
X rays	+

Derived limits (Bq.cm^{-2})

Removable contamination: 7E+2

Fixed contamination: 7E+4

* 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	< 1
Plastic	< 1

Gamma and X rays (half and tenth value thickness)

	½	1/10
Lead	< 1	< 1
Steel	< 1	< 1

INTERNAL EXPOSURE FOR WORKERS

COMMITTED EFFECTIVE DOSE PER UNIT INTAKE (Sv.Bq^{-1})

Ingestion	f_1	
All compounds	0.100	3.3E-10

Inhalation		1 µm	5 µm
All unspec. compounds	F	7.7E-10	9.2E-10
Oxid., hydrox. & halid.	M	3.7E-10	3.3E-10
	S		

Highest dose organ: Spleen **20 mSv ALI$_{ingestion}$**: 6.1E+07 (Bq) **20 mSv ALI$_{inhalation}$**: 2.2E+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
All compounds except below	0.01	7E+06	7E+07	2E+07	2E+08	5E+09
Oxid., hydroxid. & halog.	0.01	2E+07	2E+08	5E+07	5E+08	5E+09