

Cr-51 GUIDANCE NOTES GAMMA, 0.005 MeV & 0.32 MeV (9%) T1/2 27.7d

IRR99 Requirements

HSE NOTIFICATION LEVEL: for work **10 MBq**
for inadvertent release or spill **1 TBq**
for loss or theft **100 MBq**

CONTROLLED AREA needs to be considered:
in relation to internal hazard if activity exceeds **16 GBq**
in relation to external hazard when the dose-rate exceeds 7.5 microsieverts per hour.

SUPERVISED AREA will be required if activity exceeds **100 MBq**

ANNUAL LIMIT OF INTAKE (ALI) **530 MBq**
(equivalent to dose of 20 mSv)

Special Considerations and Monitoring

Always wear gloves, and check regularly to see that they are intact, as Cr-51 contamination can be very difficult to remove from the skin.

The internal hazard from Cr-51 is low so it is the external hazard that governs the setting of controlled and supervised areas. Without adequate shielding, Cr-51 can give rise to a high background of radiation that can cause undue alarm and make monitoring for contamination extremely difficult. The maximum activity that will be permitted, therefore, in a non-designated area is 100 MBq. Up to 1 GBq may be used in a supervised area providing shielding is adequate to restrict dose-rates to less than $7.5\mu\text{Sv h}^{-1}$. (NB these large quantities are permitted because the 0.32 MeV gamma emission is only present for 9% of disintegrations.)

Adequate shielding for Cr-51 consists of lead several millimetres in thickness, the thickness depending on the activity of the source (Cr-51 HVL for lead = 1.7 mm). The stock, work and waste must all be properly shielded and strict adherence kept to the laboratory rules. Dispense stock from behind a leaded acrylic screen. It should be remembered that, irrespective of the amount of Cr-51 in use, there is the obligation to keep dose as low as reasonably practicable.

Monitoring should be performed on a regular basis to ensure that contamination is kept below 500 Bq cm^{-2} . Expected monitor responses at this level are as follows:-

	Mini 5.44A	Mini 5.44B
Counts above Bg for 500 Bq cm^{-2}	14	140

It is intended that each monitor will have advised action levels marked on it.

Dose rates can be estimated using the same monitors and the response of both to $2.5 \mu\text{Sv h}^{-1}$ is 500cps above background.