

⁵¹Cr chloride



1. Indications

⁵¹Cr Chromium chloride is not an approved product in the Netherlands.
Hypoproteinaemia caused by protein loss enteropathy (PLE). A wide range of gastrointestinal disorders such as ulcers, tumours and lymphatic circulatory disorders can cause PLE.

2. Preparation

Test solution:

⁵¹Cr Chromium chloride 15 MBq in 100 ml sterile NaCl 0,9% solution.

Dose:

Syringe with 1,2 MBq test solution (8 ml).

Standard solution:

Add 2 ml test solution to 20 ml chromium-chloride solution 0,1 M in a 100 ml volumetric flask. Make up to 100 ml with distilled water. The volumetric flask contains 25% of the dose (= 0,3 MBq) of the dose to be injected.

3. Quality control

US Pharmacopeia 2016

Radionuclidic purity

Gammaray spectrum is not significantly different than of ⁵¹Cr Chromium (photopeak at 0,320 MeV)

Radiochemical purity

Examine by ascending paper chromatography.

Application: place a volume of about 20.000 counts per min at 25 mm one end of a 25x300 mm chromatographic strip. Mobile phase is Ammonia: Alcohol: Water (25:50:125).

Begin the development immediately and develop for 2,5 h.

Air-dry the chromatogram and determine the radioactivity distribution.

Chromic ions remain on the starting line (Rf=0).

Limit $\geq 90\%$ Chromium ⁵¹Cr³⁺

4. Interactions

No interaction studies have been performed.

5. Adverse reactions

No adverse reactions have been reported.

6. Biodistribution & pharmacokinetics

Following intravenous administration of ⁵¹Cr chromium chloride, it binds to plasma proteins (especially to transferrin). Elimination is primarily via the kidney.

The fraction of recovered ⁵¹Cr in a 4-day stool is normally less than 0,7% of the administered activity (3-4 MBq). In protein losing enteropathy 2-40% of the administered activity may be recovered in the stool.

When given orally, less than 1% is absorbed.

7. Stability

See package insert.

8. Literature

- Chromium 51 handling precautions. Perkin Elmer 2011.
- Cook GJR et al. Clinical Nuclear Medicine fourth edition 1998.
- Truven Health Analytics. Micromedex 2016.