

PRODUCTION OF PRIMARY RADIOISOTOPES

Centro de Radiofarmácia - IPEN/CNEN-SP

Keywords: radiopharmaceuticals production; therapy and diagnostic; nuclear medicine.

Sodium iodide (^{131}I) solution

The ^{131}I is used for gamma imaging of thyroid, therapy of hyperthyreosis, therapy of thyroid cancer and metastases. The product is a solution of carrier - free iodide (^{131}I) for oral administration containing sodium hydroxide

0,005 - 0,05 without reducing agent.

Radioactive concentration : 260 - 2960 MBq/ml

Specific activity: No carrier added, =222 GBq/mg

Radiochemical purity : =95% as Na^{131}I

Radionuclidic purity : > 96%

Chemical purity: $\text{Te} < 10$ ppm

pH : 9,0 - 11,0

Storage : at room temperature

Expiry date: shown in the labels

Package Sizes: on request

Delivery: Monday, Calibration on Wednesday at 18:00

Sodium iodide (^{131}I) capsules for therapy

The ^{131}I capsules are used for: Therapy of hyperthyreosis, therapy of thyroid cancer and therapy of metastases. The product is a white gelatine capsule where sodium iodide ^{131}I solution is adsorbed on an excipient made of disodium phosphate, sodium thiosulfate and sodium bicarbonate.

Specific activity: No carrier added, =200 GBq/mg

Radiochemical purity : =95% as Na^{131}I

Radionuclidic purity : > 99%

Storage : at room temperature

Expiry date: shown in the labels

Capsule activities: 185 370 1110 1850 3700 MBq

Delivery: Monday, Calibration on Wednesday at 18:00

Chromic chloride (^{51}Cr) solution

Used for labelling of serum proteins. The product is chromic chloride (^{51}Cr) in HCl 0,01-0,02N solution, not injectable.

Radioactive concentration : 37-185 MBq/ml

Specific activity: > 1850 GBq/mg Cr

Radiochemical purity : =95%

Radionuclidic purity : =99%

pH : 1,0 - 2,0

Storage : at room temperature

Expiry date: shown in the labels

Package Sizes: on request

Delivery: Monday, Calibration on Wednesday at 12:00

Gallium (^{67}Ga) citrate injection

Diagnosis of Hodgkin's disease and detection of inflammatory process.

The product is a sterile isotonic gallium citrate solution.

Radioactive concentration : 203-240 MBq/ml

Specific activity: no carrier added,

Radiochemical purity : =92% as ^{67}Ga citrate

Radionuclidic purity : =99%

Chemical purity: $\text{Fe} < 5$ ppm; $\text{Zn} < 15$ ppm; $\text{Ni} < 3$ ppm

pH : 6,5

Storage : at room temperature

Expiry date: shown in the labels

Package Sizes: on request

Delivery: Friday, Calibration on Monday at 08:00

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Thallium (²⁰¹Tl) chloride injection

Used for heart function studies. The product is a sterile, isotonic, carrier free thallium chloride solution.

Specific activity: no carrier added, =37000 GBq/g Tl

Radioactive concentration : 92,5-129,5 MBq/ml

Radiochemical purity : =95%

Radionuclidic purity : > 95%

pH : 5,5

Storage : at room temperature

Expiry date: shown in the labels

Package Sizes: on request

Delivery: Monday, Calibration on Friday at 12:00

Phosphoric (³²P) acid solution

Diagnostic radiopharmaceutical product used in biotechnology. The product is a Phosphoric (³²P) acid in hydrochloric solution, not injectable.

Radioactive concentration : 2775 MBq/ml

Specific activity: no carrier added,

Radiochemical purity : =95% as H₃PO₄

Radionuclidic purity : =95%

pH : 1,0

Storage : at room temperature

Expiry date: shown in the labels

Package Sizes: on request

Delivery: Monday, (fortnightly) Calibration

Wednesday at 18:00

IPEN-TEC ^{99m}Tc Generator

The ^{99m}Tc is used in functional and morphological investigation: brain scintigraphy, thyroid and salivary glands scintigraphy, stomach scintigraphy, liver and spleen scintigraphy, renal scintigraphy, blood pool studies and lung scintigraphy. The IPEN-TEC ^{99m}Tc - Generator is a system which produces a sterile, isotonic and pyrogen-free solution of technetium-99m in the form of sodium pertechnetate (^{99m}TcO₄⁻).

Structure of the product: the Molybdenum-99 is absorbed on alumina: Mo-99 is fixed into alumina oxide (Al₂O₃) column in quartz glass. The Generator package contains 13 evacuated vials, 13 isotonic saline vials (volume of each vial: 6ml), 13 adhesive labels for identification and 2 bacteriostatic solution vials. Composition of the eluate: sterile and isotonic sodium

pertechnetate solution with the following characteristics:

pH 5 - 7;

Al (III) concentration < 10ppm;

⁹⁹Mo concentration < 0,1%

Storage: at room temperature (15 - 25°C)

Package Sizes: 9.25 GBq, 18.5 GBq, 27.75 GBq, 37.0 GBq, 46.25 GBq,

55.50 GBq, 74.0 GBq

Delivery: Friday, Calibration on Monday at 08:00

Sulphuric acid (³⁵S) solution

Used in metabolic investigation.

The product is a sulphuric acid (³⁵S) solution, not injectable.

Specific activity: no carrier added

Radioactive concentration : 370-1100 MBq/ml

Radiochemical purity : =95%

Radionuclidic purity : > 98%

pH : 4

Storage : at room temperature