

# *World leader in the production and supply of radiochemicals*



*NTP radiochemical despatch facilities*



*Iodine-131 diagnostic and therapeutic products*

## Iodine-131

As part of its commitment to improving the diagnosis and treatment of illness through the provision of quality radiochemical and radiopharmaceutical products, NTP Radioisotopes SOC Ltd produces and distributes a range of radiochemical products.

This includes the extraction and purification of Iodine-131 (I-131), during the Molybdenum-99 (Mo-99) process, to yield a top quality product for sale to customers in bulk quantities. I-131 is widely used for therapeutic and diagnostic purposes in nuclear medical procedures. As a supplier of fission I-131, NTP has the unique advantage of controlling the entire production and marketing cycle – from direct fuel and target sourcing, to irradiation and radiochemical production, dispensing, global-scale distribution and waste management.

## Critical components of radiochemical production operations – on one site

- A 20 MW Oak Ridge-type 'swimming pool' reactor (SAFARI-1), which is operated by highly skilled and experienced personnel, and has an exemplary record since 1965
- The SAFARI-1 reactor operates on fully low enriched (LEU) fuel and targets with a U-235 content of less than 20% – conforming to International Safeguards requirements
- A hot cell complex, equipped to safely produce and handle materials with high levels of radioactivity
- Chemical processes for the extraction and purification of fission isotopes
- An adequate supply of Types A and B(U) transport containers – designed, manufactured and licensed by NTP
- Independent and accredited radio-analytical facilities
- A licensed, operational site for waste disposal
- Back-up supply agreements with other major radiochemical producers
- Special arrangements and stand-by options with major airlines serving all continents
- Sophisticated marketing and distribution systems and ISO 9001:2008 certified operations
- Highly qualified and motivated production and marketing team
- NTP production facilities are ISO 9001:2008 certified

## Benefits to NTP customers

NTP's radiochemical customers benefit from its cost-effective, world-class operations, receiving top quality products at competitive prices, which are supplied with an unmatched degree of reliability. Customer satisfaction is important to NTP and every effort is made to ensure that individual requirements are met and close and effective communication is maintained at all times.



SAFARI-1 reactor core vessel and rigs for irradiation procedures

## Quality and safety

- ISO 9001:2008
- Current Good Manufacturing Practice (cGMP)
- IAEA safeguards
- National Nuclear Regulator compliance
- Environmental Management System (ISO 14000 guidelines)
- Impeccable safety and environmental record
- Audited by USFDA, TGA and SAMCC

## Product specifications

Decay mode	( $\beta$ , $\gamma$ )
Half-life period	8.04 days
Energy decay (max)	364 keV
Chemical form	Na I in solution
Chemical formulation	0.05 M NaOH (Sodium Hydroxide) 0.001 M Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> (Sodium Thiosulphate) or any other suitable reducing agent and/or a buffer solution as specified by the client.
Specific activity	> 222 GBq/mg of iodine
Activity concentration	>1 Ci/ml solution (negotiable)
Radionuclidic purity	<sup>131</sup> I ≥ 99.9% <sup>95</sup> Nb : <sup>131</sup> I ≤ 10 <sup>-3</sup> <sup>95</sup> Zr : <sup>131</sup> I ≤ 10 <sup>-3</sup> <sup>132</sup> I : <sup>131</sup> I ≤ 10 <sup>-3</sup> <sup>133</sup> I : <sup>131</sup> I ≤ 10 <sup>-3</sup>
Radiochemical purity	Iodide ≥ 95% (Typically 99–100%)
Containment	Glass vial with rubber septum
Shipment	Type A- or Type B(U)-container



Radiochemical production line in the NTP hot cell complex

**NTP**  
Actively enhancing life



NTP Radioisotopes SOC Ltd

Road R104  
Pelindaba  
Pretoria, South Africa

PO Box 582  
Pretoria 0001  
South Africa  
www.ntp.co.za

**T** +27 12 305 5115  
**F** +27 12 305 5960  
**E** marketing@ntp.co.za

