

# Radionuclides

Research Use Only. Not for use in diagnostic procedures.

**Na<sup>125</sup>I**

**Product Number: NEZ033H**

## LOT SPECIFIC INFORMATION

|                      |               |
|----------------------|---------------|
| Calibration Date     | 04-Sep-2019   |
| Lot Number           | I090419H      |
| Specific Activity    | 17.4 Ci/mg    |
| (carrier free)       | 643.8 GBq/mg  |
| Concentration        | 339.90 mCi/mL |
|                      | 12.58 GBq/mL  |
| Radiochemical Purity | 98.0 %        |
| Radionuclidic Purity | 99.95 %       |

**PACKAGING:** Solvent is 0.1M NaOH (pH 12-14).12

**SPECIFIC ACTIVITY RANGE:** Theoretical Carrier Free value is calculated using a half life of 60.14 days.

**STORAGE CONDITIONS:** Store this product at room temperature.

**CONTAMINANTS:** < 0.04% I-126.

## PHYSICAL PROPERTIES:

|                        |                    |
|------------------------|--------------------|
| Decay Mode             | Electron Capture   |
| Half Life              | 60.14 Days         |
| Principal Gamma Photon | 0.035 (6.5%) MeV   |
| K <sub>α</sub> X-ray   | 0.027 (112.5%) MeV |
| K <sub>β</sub> X-ray   | 0.031 (25.4%) MeV  |

**Occupational Limits** (based on most restrictive intake category: 10 CFR 20 U.S.NRC Regulations)

|                                 |                           |
|---------------------------------|---------------------------|
| Derived Air Concentration (DAC) | 3x10 <sup>-8</sup> μCi/mL |
| Annual Limit on Intake (ALI)    | 40 μCi                    |

## DECAY CHART:

To use the decay table find the number of days in the top row and left hand column of the chart then find the corresponding decay factor. To obtain a precalibration number, divide by the decay factor. For a postcalibration number multiply by the decay factor.

| Days | 0      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0    | 1.0000 | 0.9885 | 0.9772 | 0.9660 | 0.9549 | 0.9440 | 0.9332 | 0.9225 | 0.9119 | 0.9015 |
| 10   | 0.8911 | 0.8809 | 0.8708 | 0.8609 | 0.8510 | 0.8412 | 0.8316 | 0.8221 | 0.8126 | 0.8033 |
| 20   | 0.7941 | 0.7850 | 0.7760 | 0.7671 | 0.7583 | 0.7497 | 0.7411 | 0.7326 | 0.7242 | 0.7159 |
| 30   | 0.7077 | 0.6996 | 0.6916 | 0.6836 | 0.6758 | 0.6680 | 0.6604 | 0.6528 | 0.6453 | 0.6379 |

## HAZARD INFORMATION:

WARNING: this product contains a chemical known to the state of California to cause cancer.

1. Designate area for handling  $^{125}\text{I}$ , clearly label all containers.
2. Store millicurie (37 MBq) quantities of  $^{125}\text{I}$  in containers surrounded by 3-mm (0.125-in.)-thick lead.
3. Wear extremity and whole body dosimeters while handling 10 mCi (370 MBq) quantities of  $^{125}\text{I}$ .
4. Use shielding to minimize exposure while handling  $^{125}\text{I}$ .
5. Use tools to indirectly handle unshielded multi-millicurie (37 MBq) sources and potentially contaminated vessels.
6. Prohibit eating, drinking, smoking and mouth pipetting in room where  $^{125}\text{I}$  is handled.
7. Use transfer pipettes, spill trays and absorbent coverings to confine contamination.
8. Handle potentially volatile compounds in ventilated enclosures.
9. Handle millicurie (37 MBq) quantities in closed systems vented through activated charcoal traps.
10. Sample exhausted effluent by continuously drawing a known quantity of air through cartridges containing activated charcoal.
11. Wear disposable lab coat, wrist guards and gloves for secondary protection.
12. Select gloves appropriate for chemicals handled..
13. Maintain contamination and exposure control by regularly monitoring and promptly decontaminating gloves and surfaces.
14. Use NaI(Tl) detector or liquid scintillation counter to detect  $^{125}\text{I}$ .
15. Submit urine sample for bioassay from 4 to 48 hours after handling  $^{125}\text{I}$  to indicate uptake by personnel.
16. Monitor thyroid periodically with a NaI(Tl) detector to determine thyroid dose.
17. Isolate waste in sealed, clearly labeled containers. Store in ventilated enclosure. Consider holding for decay or dispose according to approved guidelines.
18. Establish surface contamination, air concentration, urinalysis and thyroid burden action levels below regulatory limits. Investigate and correct any causes that may threaten these levels to be exceeded.
19. On completing an operation, secure all  $^{125}\text{I}$ , remove and dispose of protective clothing and coverings; monitor and decontaminate self and surfaces; wash hands and monitor them again.
20. Store  $\text{Na}^{125}\text{I}$  solutions at room temperature because freezing results in subsequent volatilization of radionuclide. Avoid acidic solutions to minimize volatilization. Some radioiodine compounds may penetrate gloves and skin. Therefore, these compounds should be handled indirectly by using tools and wearing two pairs of gloves. The outer layer of gloves should be changed frequently and whenever they are suspected to be contaminated.

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