

# Radionuclides

Research Use Only. Not for use in diagnostic procedures.



Product Number: NEZ013

## LOT SPECIFIC INFORMATION

|                      |                |
|----------------------|----------------|
| Calibration Date     | 19-Jul-2019    |
| Lot Number           | 18M403C        |
| Specific Activity    | 21.94 mCi/mg   |
|                      | 811.74 MBq/mg  |
| Concentration        | 48.07 mCi/mL   |
|                      | 1778.51 MBq/mL |
| Radionuclidic Purity | 99.9 %         |

Values given are all as of Calibration Date.

**PACKAGING:** Solvent is Water

**SPECIFIC ACTIVITY RANGE:** Calculated as Ca.

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

**CONTAMINANTS:** 1.85E-01 Ca-47, 3.09E-02 Sc-47, 4.13E-01 Fe-59, 1.70E-03 Co-60, 2.72E-02 Zn-65  
As of 07-Feb-2019

## PHYSICAL PROPERTIES:

|                           |              |
|---------------------------|--------------|
| Decay Mode                | Beta Decay   |
| Half Life                 | 163 Days     |
| Maximum beta energy       | 0.257 MeV    |
| Maximum beta range in Air | 48cm (19 in) |

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

|                                 |                                      |
|---------------------------------|--------------------------------------|
| Derived Air Concentration (DAC) | $4 \times 10^{-7}$ $\mu\text{Ci/mL}$ |
| Annual Limit on Intake (ALI)    | $8 \times 10^2$ $\mu\text{Ci}$       |

## 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    | 5    | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 45   |
|------|------|------|------|------|------|------|------|------|------|------|
| 0    | 1.00 | .979 | .958 | .938 | .918 | .899 | .880 | .862 | .844 | .826 |
| 50   | .808 | .791 | .775 | .758 | .743 | .727 | .712 | .697 | .682 | .668 |
| 100  | .654 | .640 | .626 | .613 | .600 | .588 | .575 | .563 | .551 | .540 |
| 150  | .528 | .517 | .506 | .496 | .485 | .475 | .465 | .455 | .446 | .436 |
| 200  | .427 | .418 | .409 | .401 | .392 | .384 | .376 | .368 | .360 | .353 |
| 250  | .345 | .338 | .331 | .324 | .317 | .311 | .304 | .298 | .291 | .285 |
| 300  | .279 | .273 | .268 | .262 | .257 | .251 | .246 | .241 | .236 | .231 |
| 350  | .226 | .221 | .216 | .212 | .207 | .203 | .199 | .195 | .191 | .186 |

## HAZARD INFORMATION:

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

1. Designate area for handling  $^{45}\text{Ca}$  and clearly label all containers.
2. Prohibit eating, drinking, smoking, and mouth pipetting in room where  $^{45}\text{Ca}$  is handled.
3. Use transfer pipets, spill trays and absorbent coverings to confine contamination.
4. Handle  $^{45}\text{Ca}$  compounds which are potentially volatile or in powder form in ventilated enclosures.
5. Sample exhausted effluent and room air by continuously drawing a known volume through membrane filters.
6. Wear disposable lab coat, gloves and wrist guards for secondary protection.
7. Select gloves appropriate for chemicals handled.
8. Maintain contamination control by regularly monitoring and promptly decontaminating gloves and surfaces.
9. Use pancake or end- window Geiger-Mueller detectors or liquid scintillation counters to detect  $^{45}\text{Ca}$  contamination.
10. Submit periodic urine samples for bioassay to determine uptake by personnel.
11. Isolate waste in clearly labeled containers and dispose of according to approved guidelines.
12. Establish surface contamination, air concentration and bioassay action levels below regulatory limits. Investigate and correct any causes that may threaten these levels to be exceeded.
13. On completing an operation, secure all  $^{45}\text{Ca}$ , remove and dispose of protective clothing and coverings, monitor and decontaminate self and surfaces, wash hands and monitor them again.

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