TECHNICAL DATA SHEET

Radionuclides

Caution: For Laboratory Use. A product for research purposes only

$H_3{}^{32}PO_4$

Product Number: NEX053S

LOT SPECIFIC INFORMATION

Calibration Date	08-Apr-2015
Lot Number	P040815W
Specific Activity	285.6 Ci/mg
(carrier free)	10.57 TBq/mg
Concentration	150 mCi/mL
	5.55 GBq/mL
Radiochemical Purity	99.4 %
Radionuclidic Purity	99.0 %

PACKAGING: Solvent is Water (HCl free).

SPECIFIC ACTIVITY RANGE: Theoretical Carrier Free value is calculated using a half life of 14.29 days.

STORAGE CONDITIONS: Store this product at room temperature.

CONTAMINANTS: none detected

PHYSICAL PROPERTIES:

Decay Mode	Beta Decay
Half Life	14.29 Days
Maximum beta energy	1.71 MeV (100%)
Maximum beta ranges	
in air	6m (20 ft)
in glass	3.1mm
in Lucite	6.7mm
in tissue	8mm

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

Derived Air Concentration (DAC)	$2x10^{-7}$ µCi/mL
Annual Limit on Intake (ALI)	$4x10^{2}$ µCi

PerkinElmer®

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	1.00	.953	.908	.865	.824	.785	.748	.712	.679	.646
10	.616	.587	.559	.532	.507	.483	.460	.439	.418	.398
20	.379	.361	.344	.328	.312	.298	.284	.270	.257	.245
30	.234	.223	.212	.202	.192	.183	.175	.166	.158	.151

HAZARD INFORMATION:

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

1. Designate area for handling ^{32}P, clearly label all containers.
2. Store ^{32}P behind lead shielding.
3. Wear extremity and whole body dosimeters while handling mCi (37 MBq) quantities.
4. Handle millicuirie (37 MBq) quantities of ^{32}P behind 1-cm (0.375-in.)-thick Lucite® shielding. Where necessary, increase shielding by attaching 3-mm to 6-mm (0.125-in. to 0.25-in.)-thick lead sheets to the outside of the Lucite® to reduce secondary radiation.
5. Do not work over open containers.
6. Practice routine operations to improve dexterity and speed before using ^{32}P.
7. Avoid skin exposure by using tools to indirectly handle unshielded sources and potentially contaminated vessels.
8. Prohibit eating, drinking, smoking and mouth pipetting in room where ^{32}P is handled.
9. Use transfer pipettes, spill trays and absorbent coverings to confine contamination.
10. Handle potentially volatile chemical forms in ventilated enclosures.
11. If airborne activity is suspected, sample exhausted effluent and room air by continuously drawing a known volume through membrane filters.
12. Use lab coat, wrist guards and disposable gloves for secondary protection.
13. Regularly monitor and promptly decontaminate gloves and surfaces to maintain contamination and exposure control.
14. Use pancake or end-window Geiger-Mueller detectors, NaI (T1) detector or liquid scintillation counter to detect ^{32}P.
15. Submit urine samples for bioassay from two hours to seven days after handling ^{32}P to indicate uptake by personnel.
16. Isolate waste in clearly labeled shielded containers and hold for decay.
17. Establish surface contamination, air concentration and urinalysis action levels below regulatory limits. Investigate and correct causes that may threaten these levels to be exceeded.
18. On completing an operation, secure all ^{32}P; remove protective clothing; dispose of protective coverings; monitor and decontaminate self and surfaces; wash hands and monitor them again.
19. The dose rate at the mouth of an open combi-vial containing 1 mCi (37 MBq) of ^{32}P in 1 mL of liquid is roughly 22 rem/hr (260 mSv/hr). Since this dose rate will not be attenuated significantly by air, shielding materials should be placed between the source and personnel to absorb most of the radiation. The best shield for a ^{32}P source is a material like Lucite® 1 cm (0.375 in) thick, or other plastic that will absorb the beta particles while generating little secondary radiation. For millicurie (37 MBq) amounts of ^{32}P, thin, high-density shielding, such as lead 3-6 mm (0.125-0.25 in) thick, should be added to the exterior of the Lucite® shield to absorb the more penetrating secondary radiation.
20. A high local dose can be received if the radioactive material is touched and allowed to remain on the skin or gloves. Both the hands and face can receive a considerable dose of radiation near an open container of ^{32}P, particularly if the radioactivity is in a concentrated form. Therefore, never work over an open container of ^{32}P.

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