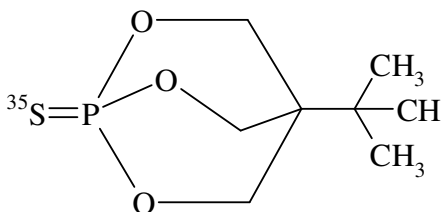


NEG-049 BUTYL BICYCLOPHOSPHOROTHIONATE, TERTIARY-[³⁵S]-

Lot Number:	0913
Specific Activity:	273 Ci/mmol
	10.1 TBq/mmol
Concentration:	74MBq/ml (2mCi/ml)
Calibration Date:	08-Oct-2013



M.W. 222.2
C₈H₁₅O₃PS

PACKAGING: Ethanol; Shipped on dry ice.

STABILITY AND STORAGE RECOMMENDATIONS:

When butyl bicyclopophosphorothionate, tertiary-[³⁵S]- is stored at -20°C in its original solvent and at its original concentration, the rate of decomposition is less than 1% for three months from date of purification. Lot to lot variation may occur, and it is advisable to check purity prior to use.

HAZARD INFORMATION: WARNING: This product contains a chemical known to the state of California to cause cancer.

RADIOCHEMICAL PURITY: This lot was initially found to be >95% when determined by the following method:

- Thin layer chromatography on Silica Gel GF using the following solvent systems:
 - chloroform
 - hexane : acetone, (7:3)
- High performance liquid chromatography on a Analytical ODS column using the following mobile phase:

Water : methanol, (1:1).

QUALITY CONTROL: The radiochemical purity of butyl bicyclopophosphorothionate, tertiary-[³⁵S]- is determined to be >95% using one of the above chromatography systems.

PREPARATIVE PROCEDURE: Butyl bicyclopophosphorothionate, tertiary-[³⁵S]- is prepared by reacting 4-*t*-butyl-2-phospha-1,3,7-trioxabicyclo[2.2.2]octane and elemental ³⁵S. It is purified by normal phase and/or reversed-phase chromatography.

REFERENCE:

D. S. Milbrath, J. L. Engel, J. G. Verkade and J. E. Casida, *Toxicology and Applied Pharmacology*, 47, 287 (1979).

SPECIAL INFORMATION:

1. Removal of solvent:
Evaporation of the solvent is best performed in vacuo, below 25°C.
2. It is possible that some volatile ^{35}S -labeled decomposition products may form during storage or use of the compound. It is therefore recommended that operations be conducted in a ventilated hood.
3. ^{35}S has a half life of 87.4 days. Its specific activity can be calculated as follows:

Decay of ^{35}S (physical half-life, 87.4 days):

DECAY FACTORS										
Days BEFORE Assay Date	0	1	2	3	4	5	6	7	8	9
30	1.269	1.279	1.289	1.299	1.309	1.320	1.330	1.341	1.352	1.362
20	1.172	1.181	1.191	1.200	1.210	1.219	1.229	1.239	1.249	1.259
10	1.083	1.091	1.100	1.109	1.117	1.135	1.135	1.144	1.153	1.163
0	1.000	1.008	1.016	1.024	1.032	1.049	1.049	1.057	1.066	1.074
Days AFTER Assay Date	0	1	2	3	4	5	6	7	8	9
0	1.000	0.992	0.984	0.976	0.969	0.961	0.954	0.946	0.939	0.931
10	0.924	0.916	0.909	0.902	0.895	0.888	0.881	0.874	0.867	0.860
20	0.853	0.847	0.840	0.833	0.827	0.820	0.814	0.807	0.801	0.795
30	0.788	0.782	0.776	0.770	0.764	0.758	0.752	0.746	0.740	0.734

The specific activity at time t (SA_t) may be calculated, using the following equation,
from the specific activity at the calibration date (SA_0) and the decay factor (f) given above.

$$\text{SA}_t = \frac{f}{1/\text{SA}_0 - (1-f)/1494}$$

4. The decay factor (f) for t days may be calculated from: $f = (0.9921)^t$.

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