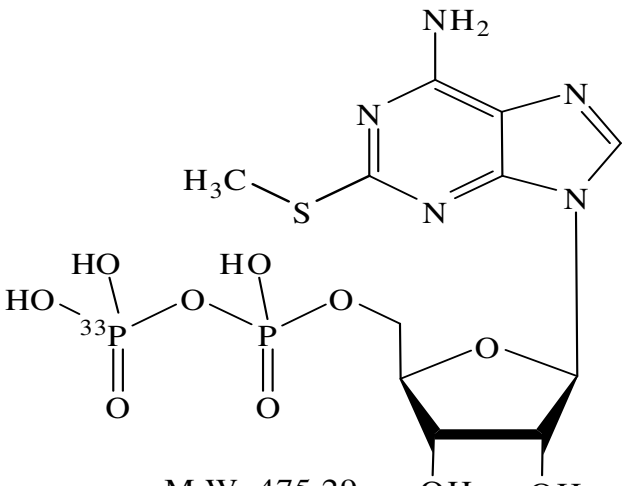
^{33}P Technical Data Certificate of Analysis

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

NEG380H 2- Methylthio Adenosine 5'-Diphosphate, [β-^{33}P]-

Lot Number:	03120	
Specific Activity:	3000	Ci/mmol
	111	TBq/mmol
Concentration:	2	mCi/ml
	74	MBq/ml
	0.67	µM
Calibration Date:	27-Mar-2010	



M.W. 475.29

$C_{11}H_{17}N_5O_{10}P^{33}PS$

PACKAGING: 2 mCi/ml (74 MBq/ml) on the Calibration Date. 10mM Tricine pH 7.6 solution The product is shipped on dry ice in a plastic container. The lead free container is non toxic and environmentally friendly.

STABILITY AND STORAGE RECOMMENDATIONS:

2- Methylthio Adenosine 5'-Diphosphate, [β-^{33}P]- should be stored at -20°C or below in its original solvent and at its original concentration. Lot to lot variation may occur, and it is advisable to check purity prior to use. This product will undergo decomposition if left at room temperature for long periods. It is recommended that the product remain on ice while in use. The product can be thawed at room temperature or quick-thawed in a 37°C water bath. Multiple thawing and freezing will not affect product purity if care is taken to minimize the time spent at room temperature. Pre-mixing and aliquoting the product is recommended if feasible.

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

QUALITY CONTROL:

Radiochemical Purity: This lot was initially found to be >99% when purified and >95% on day of shipment when determined by the following analytical HPLC method using a C-18 column. Elution is isocratic by a mixture of 70% Solvent A (20mM potassium phosphate, 20mM phosphoric acid containing 10mM tetrabutylammonium hydroxide) and Solvent B (30% methanol).

Isotopic Purity: All lots of ^{33}P are typically > 99.5% isotopically pure and may contain <0.5% ^{32}P

Biological Testing: Polynucleotide Kinase Assay

PREPARATIVE PROCEDURE: Each lot has been purified by HPLC using an anion exchange resin eluting with triethylammoniumbicarbonate. The purified nucleotide will be in the triethylammonium salt form. Consistently high quality – Synthesized, purified, diluted and packaged using state of the art automation.

SAFE HANDLING RECOMMENDATIONS:
At the sub-millicurie amounts used in most applications, ^{33}P can be manipulated without any special shielding or badge dosimetry. A radiation protection specialist should be consulted for specific applications. Whenever working with ^{33}P on the open bench, the eyes should be shielded with approved safety glasses.

DISPOSAL:
Hold for decay; specific regulations should be addressed with your radiation safety officer.

SPECIAL INFORMATION:
Visit www.perkinelmer.com/toolkit to use our online Radioactive Decay Calculator.

Specific Activity Before Calibration Date
The specific activity is specified as of the calibration date. This must be taken into consideration when calculating concentration in mass-dependent applications. The specific activity on any day prior to the calibration date can be calculated using the formula:

$$SA = \frac{SA\ cal.}{D_F + \frac{SA\ cal.\ (1-D_F)}{SA\ Theo}}$$

Specific Activity After Calibration Date
The specific activity on any day after the calibration date can be calculated using the formula:

$$SA = \frac{D_F}{\frac{1}{SA\ cal.} - \frac{(1-D_F)}{SA\ Theo}}$$

Where:
SA = Specific Activity expressed as Ci/mmol
SA cal = Specific Activity on the calibration date.
D_F = Fraction of current radioactivity that will remain on the calibration date (from the decay chart)
For example, for a date 8 days prior to the calibration date $D_F = 0.804$.
SA Theo = 5200 Ci/mmol for the theoretical specific activity of carrier free ^{33}P.

PHOSPHORUS-33 DECAY TABLE HALF LIFE= 25.4 DAYS

days	0	1	2	3	4	5	6	7	8	9
0	1.000	0.973	0.947	0.921	0.897	0.872	0.849	0.826	0.804	0.782
10	0.761	0.741	0.721	0.701	0.683	0.664	0.646	0.629	0.612	0.595
20	0.579	0.564	0.549	0.334	0.520	0.506	0.492	0.479	0.466	0.453
30	0.441	0.429	0.418	0.406	0.395	0.385	0.374	0.364	0.355	0.345
40	0.336	0.327	0.318	0.309	0.301	0.293	0.285	0.277	0.270	0.263
50	0.256	0.249	0.242	0.236	0.229	0.223	0.217	0.211	0.205	0.200
60	0.195	0.189	0.184	0.179	0.174	0.170	0.165	0.161	0.156	0.152

To use the decay table above, find the number of days in the top and left hand columns 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.

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