

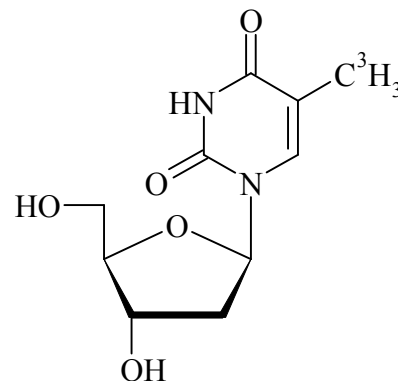
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## THYMIDINE, [METHYL-<sup>3</sup>H]-

Product Number: NET027Z

### LOT SPECIFIC INFORMATION

Lot Number:	201809
Specific Activity:	84.1 Ci/mmol
	3111.7 GBq/mmol
Production Date:	21 Aug 2018



M.W. 242  
C<sub>10</sub>H<sub>14</sub>N<sub>2</sub>O<sub>5</sub>

### SPECIFIC ACTIVITY RANGE DESIGNATION AND PACKAGING:

NET-027:	6.7 Ci/mmol; aqueous solution, steri-packaged, at 1.0 mCi/ml (37 MBq/ml).
NET-027A:	2.0 Ci/mmol; aqueous solution, steri-packaged, at 1.0 mCi/ml (37 MBq/ml).
NET-027X:	20 Ci/mmol; aqueous solution, steri-packaged, at 1.0 mCi/ml (37 MBq/ml).
NET-027E:	20 Ci/mmol; ethanol: water solution, 7:3, at 1.0 mCi/ml (37 MBq/ml).
NET-027L:	23-27 Ci/mmol; Water:Ethanol(9:1), steri-packaged at 1.0 mCi/ml (37 MBq/ml).
NET-027W:	40-60 Ci/mmol; Water:Ethanol(98:2), steri-packaged at 1.0 mCi/ml (37 MBq/ml)
<b>NET-027Z:</b>	<b>70-90 Ci/mmol; aqueous solution, steri-packaged, at 1.0 mCi/ml (37 MBq/ml).</b>

### STABILITY AND STORAGE RECOMMENDATIONS:

- Thymidine, [methyl-<sup>3</sup>H]- at specific activities of less than 10 Curies/millimole is moderately stable (initially 1% decomposition per month) when stored in aqueous solution at refrigerated temperatures (5°C).
- Aqueous solutions of thymidine, [methyl-<sup>3</sup>H]- shipped from our stock are stored no longer than six weeks. WE RECOMMEND THAT AQUEOUS SOLUTIONS OF THYMIDINE, [METHYL-<sup>3</sup>H]- BE USED WITHIN ONE MONTH OF RECEIPT.
- We have demonstrated that storage in 70% ethanol solution at -20°C markedly decreases the formation of radioactive impurities to an initial rate of 2% in 6 months. A 70% ethanol solution is recommended as a solvent if the material is to be stored longer than one month.

**RADIOCHEMICAL PURITY:** This product was initially found to be greater than 97% when determined using the following method. The rate of decomposition can accelerate. Purity should be checked every month:

High pressure liquid chromatography on a Zorbax ODS column using the following mobile phase:  
water : formic acid (conc.) : acetonitrile, (95:5:0.5).

Paper chromatography on Whatman No. 1 using the following solvent system:  
ethyl acetate : formic acid (conc.) : water, (60:5:35), (descending) (1)

Levels of radiochemical impurities found co-chromatographing with authentic standards were as follows:  
Less than 0.5% Thymine. Less than 0.5% Thymine riboside.

**CHEMICAL PURITY:** Determined by ultraviolet spectrophotometry at pH 7.0. Values observed fall into the published range of absorbency ratios for thymidine. (2)

### **SPECIAL INFORMATION:**

- To remove the 70% ethanol solvent from stored material, an aliquot or the entire sample can be taken to dryness by directing a gentle stream of inert gas (nitrogen) over the surface of the solution. The temperature of the solution should not be allowed to exceed 22°C during the drying process, and the compound should not be permitted to remain in the solid state any longer than necessary.
- If aqueous solutions of thymidine are stored frozen (-20°C), care should be taken to protect the material from U.V. light during the thawing process to prevent possible dimerization.
- When [methyl-<sup>3</sup>H]thymidine is incorporated into cellular DNA and undergoes radiolytic decomposition, [<sup>3</sup>H]5-hydroxymethyl-2'-deoxyuridine (HMdU) is formed (3). The formation of HMdU through transmutation of [methyl-<sup>3</sup>H]thymidine occurs at the rate of β-decay, which is 0.017% per day. The transmutation product is not volatile.

### **REFERENCES:**

1. K. Fink, R. E. Cline, and R. M. Fink, *Anal. Chem.*, 35, 389 (1963).
2. Specifications and Criteria for Biochemical Compounds, Third Edition (ISBN 0-309-01917-6), National Academy of Sciences - National Research Council, Washington, D.C. 1972.
3. G. W. Teebor, K. Frenkel, and M. S. Goldstein, *Proc. Natl. Acad. Sci. USA*, 81, 318 (1984).

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