TECHNICAL DATA SHEET

^{3}H

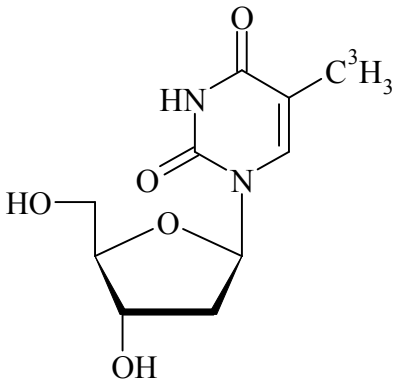
Research Use Only. Not for use in diagnostic procedures.

THYMIDINE, [METHYL-^{3}H]-

Product Number: NET027Z

LOT SPECIFIC INFORMATION

Lot Number:	201807
Specific Activity:	84.1 Ci/mmol
	3111.7 GBq/mmol
Production Date:	18 June 2018



M.W. 242
$C_{10}H_{14}N_2O_5$

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
NET-027Z:	**70-90 Ci/mmol; aqueous solution, steri-packaged, at 1.0 mCi/ml (37 MBq/ml).**

STABILITY AND STORAGE RECOMMENDATIONS:

- Thymidine, [methyl-^{3}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-^{3}H]- shipped from our stock are stored no longer than six weeks. WE RECOMMEND THAT AQUEOUS SOLUTIONS OF THYMIDINE, [METHYL-^{3}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).

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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-^{3}H]thymidine is incorporated into cellular DNA and undergoes radiolytic decomposition, [^{3}H]5-hydroxymethyl-2'-deoxyuridine (HMdU) is formed (3). The formation of HMdU through transmutation of [methyl-^{3}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.

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