### L-Thyroxine

**Item No. 14116**

**CAS Registry No.:** 51-48-9  
**Formal Name:** O-(4-hydroxy-3,5-diiodophenyl)-3,5-diiodo-L-tyrosine  
**Synonyms:** Levothyroxine, L-T\textsubscript{4}, NSC 36397  
**MF:** C\textsubscript{15}H\textsubscript{11}I\textsubscript{4}NO\textsubscript{4}  
**FW:** 776.9  
**Purity:** ≥98%  
**UV/Vis.:** \( \lambda_{\text{max}}: 212, 225, 292 \text{ nm} \)  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥2 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

L-Thyroxine is supplied as a crystalline solid. A stock solution may be made by dissolving the L-thyroxine in the solvent of choice. L-Thyroxine is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of L-thyroxine in these solvents is approximately 2.5 and 0.14 mg/ml, respectively.

L-Thyroxine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, L-thyroxine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. L-Thyroxine has a solubility of approximately 0.5 mg/ml in a 1:5 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

L-Thyroxine is a synthetic form of the thyroid hormone thyroxine.\textsuperscript{1-3} In vivo, L-thyroxine (0.9 and 2.7 μg) inhibits synthesis and release of thyrotropin induced by thyrotropin-releasing hormone (Item No. 22917) from the anterior pituitary in mice.\textsuperscript{1} It also reverses decreases in levels of circulating thymic serum factor (FTS) and the number of T rosette-forming cells in an old age-induced mouse model of hypothyroidism.\textsuperscript{2,3} Formulations containing L-thyroxine have been used in the treatment of hypothyroidism.

### References