



## Product Information

### Chloramphenicol

Product Number **C 7795**

Storage Temperature 2-8 °C

#### Product Description

Molecular Formula:  $C_{11}H_{12}Cl_2N_2O_5$

Molecular Weight: 323.1

CAS Number: 56-75-7

Melting point: 150.5-151.5 °C<sup>1</sup>

pK<sub>a</sub>: approximately 5.5<sup>2</sup>

Extinction coefficient: E<sup>1%</sup> = 298 (278 nm)<sup>1,3</sup>

λ<sub>max</sub>: 278 nm<sup>3</sup>

Specific rotation: +18.6° (48.6 mg/ml, ethanol, 27 °C)

This product is a broad spectrum antibiotic, which is normally used to block bacterial protein synthesis. It binds to the 50S ribosomal subunit and prevents attachment of aminoacyl tRNA to the ribosome, resulting in blocking of the peptidyl transferase step.<sup>4</sup>

This product is γ-irradiated and commonly used as a bacterial selection agent for the amplification of plasmid DNA production (10-20 μg/ml and higher).<sup>5</sup>

This product has also been shown to inhibit the inactivation of pentobarbital, codeine, dilantin, analgesic-antipyretic drugs and oral anticoagulants in veterinary studies. This leads to increased plasma levels of these drugs and longer duration of action times.<sup>6</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This product is soluble in ethanol (50 mg/ml). This product is also very soluble in butanol, acetone, and ethyl acetate; slightly soluble in water (2.5 mg/ml); and insoluble in benzene, petroleum ether, and vegetable oils.<sup>1</sup>

#### Storage/Stability

Stock solutions are made in alcohol at 10 mg/ml and then diluted with water to a final stock concentration of 1 mg/ml. The stock solution should be stored refrigerated and used within 30 days.<sup>7</sup>

Solutions of chloroamphenicol in water (0.25% = 7.7 mM) are degraded by sunlight, UV light or tungsten light at or near room temperature over a period of 96 hours.<sup>8</sup> With degradation, the solutions become more yellow and an orange-yellow precipitate forms. Chloroamphenicol did not degrade when dissolved in ethanol or benzene and stored under the same conditions.

#### References

1. The Merck Index, 11th ed., Entry# 2068.
2. Martindale The Extra Pharmacopoeia, 29th ed., p. 24.
3. Dictionary of Organic Compounds, 5th ed., Buckingham, J., Ed., Chapman and Hall (New York: 1982) **1**, p. 1047.
4. Monro, R.E., and Vazquez, D., Ribosome-catalysed peptidyl transfer: effort of some inhibitors of protein synthesis. *J. Mol. Biol.*, **28(1)**, 161-165 (1967).
5. Molecular Cloning: A Laboratory Manual, 3rd ed., Sambrook, J. F., et al., Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY: 2001).
6. Upson, S Handbook of Clinical Veterinary Pharmacology, 2nd ed., p. 590 (1985).
7. United States Pharmacopeia, **23**, p. 1693
8. Shih, I.K., Photodegradation products of chloramphenicol in aqueous solution. *J. Pharm. Sci.*, **60**, 1889-1890 (1971).

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