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Certificate of Analysis

Product Name:

Nalbuphine hydrochloride hydrate - ≥98% (HPLC)

Product Number:

N4396

Batch Number:

MKCC5199

Brand:

SIGMA

Formula:

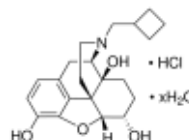
C₂₁H₂₇NO₄ · HCl · xH₂O

Formula Weight:

393.90 g/mol

Quality Release Date:

28 FEB 2017



Test	Specification	Result
Appearance (Color)	White to Light Yellow	White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless to Faint Yellow	Very Faint Yellow
Solubility (Turbidity)	Clear to Very Slightly Hazy	Very Slightly Hazy
50 mg/mL, H ₂ O		
Proton NMR Spectrum	Conforms to Structure	Conforms
Water (by Karl Fischer)	2.2 - 9.9 %	4.3 %
Carbon (anhydrous)	62.7 - 65.3 %	64.2 %
Purity (HPLC)	≥ 98 %	100 %
Recommended Retest Period	-----	-----
4 Years		

Michael Grady, Manager

Quality Control

Milwaukee, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.