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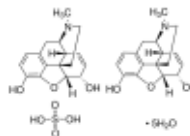
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Morphine sulfate salt pentahydrate

Product Number: M8777
Batch Number: SLBP9252V
Brand: SIGMA
CAS Number: 6211-15-0
MDL Number: MFCD00150902
Formula: C₃₄H₄₀N₂O₁₀S · 5H₂O
Formula Weight: 758.83 g/mol
Quality Release Date: 12 NOV 2015
Recommended Retest Date: NOV 2018



Test	Specification	Result
Appearance (Color)	White to Off-White	White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless to Light Yellow	Faint Yellow
Solubility (Turbidity)	Clear	Clear
100 mg/mL, H ₂ O		
Infrared Spectrum	Conforms to Structure	Conforms
Carbon	52.5 - 55.2 %	53.9 %
Nitrogen	3.4 - 4.0 %	3.7 %
Purity (TLC)	≥ 98 %	100 %

Rodney Burbach, Manager
 Analytical Services
 St. Louis, Missouri 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.