



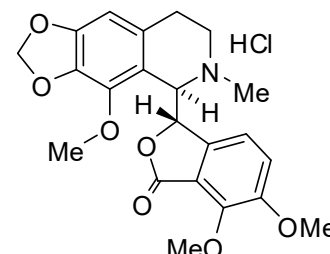
REFERENCE MATERIAL PRODUCT INFORMATION SHEET

NMIA D791b: Noscapine hydrochloride

Report ID: D791b.2026.02 (Bottled 171005)

Chemical Formula: $C_{22}H_{23}NO_7 \cdot HCl$

Molecular Weight: 449.9 (HCl), 413.4 (base) g/mol



Property value

Batch No.	CAS No.	Purity estimate
17-D-05	912-60-7	93.6 ± 0.9%

The uncertainty has been calculated according to ISO 33405 and is stated at the 95% confidence limit ($k = 2$).

IUPAC name: (3S)-6,7-Dimethoxy-3-[(5R)-4-methoxy-6-methyl-5,6,7,8-tetrahydro[1,3]dioxolo[4,5-g]isoquinolin-5-yl]-2-benzofuran-1(3H)-one hydrochloride hydrate.

Expiration of certification: The property values are valid till 12 May 2031, five years from the date of re-certification provided the **unopened** material is handled and stored in accordance with the recommendations below. The material as issued in the unopened container and stored as recommended below should be suitable for use beyond this date, subject to confirmation of batch stability from the issuing body. The expiry date/shelf life does not apply to sample bottles that have been opened. In such cases it is recommended that the end-user conduct their own in-house stability trials. The material will be re-tested periodically to ensure that the property values are still valid. In the event a product fails the stability trial, notification will be sent to all impacted customers.

Description: White powder sourced from an external supplier and certified for identity and purity by NMI Australia. Packaged in amber glass bottles with a septum and crimped aluminium cap or screw top cap.

Intended use: This reference material is recommended for qualitative analysis only and is not intended for use as a calibrator. The material does not have certified reference material status as metrological traceability of the stated purity value to the SI unit for mass (kg) has not been established.

Instructions for use: Equilibrate the bottled material to room temperature before opening.

Recommended storage: When not in use this material should be stored at or below 25 °C in a closed container in a dry, dark area.

Stability: This material has demonstrated stability over a minimum period of five years. The measurement uncertainty at the 95% confidence interval includes a stability component which has been estimated from annual stability trials. The long-term stability of the compound in solution has not been examined.

Homogeneity assessment: The homogeneity of the material was assessed using purity assay by HPLC with UV detection on ten randomly selected 1-2 mg sub samples of the material. The material was judged to be sufficiently homogeneous at this level of sampling as the variation in analysis results between samples was not significantly different at a 95% confidence level from that observed on repeat analysis of the same sample.

Safety: Treat as a hazardous substance. Use appropriate work practices when handling to avoid skin or eye contact, ingestion or inhalation of dust. Refer to the provided safety data sheet.

S. R. Davies

Dr Stephen R. Davies,
Team Leader,
Chemical Reference Materials, NMI.
21 July 2026

This report supersedes any issued prior to 21 July 2026.

NATA Accreditation No. 198 / Corporate Site No. 14214.

Legal notice: Terms and Conditions associated with the provision of this reference material can be found on the NMIA website.

Characterisation Report:

The identity was confirmed by a range of spectroscopic techniques, NMR, IR and MS. The purity value was obtained by mass balance from a combination of traditional analytical techniques, including HPLC with UV detection, thermogravimetric analysis, Karl Fischer analysis and ¹H NMR spectroscopy. The purity value is calculated as per Equation 1.

$$\text{Purity} = (100 \% - I_{\text{ORG}}) \times (100 \% - I_{\text{VOL}} - I_{\text{NVR}}) \quad \text{Equation 1}$$

I_{ORG} = Organic impurities of related structure, I_{VOL} = volatile impurities, I_{NVR} = non-volatile residue.

Supporting evidence is provided by elemental microanalysis.

HPLC:	Instrument:	Shimadzu Binary pump LC-20AB, SIL-20 A HT autosampler
	Column:	Alltima C-18, 5 µm (4.6 mm x 150 mm)
	Column oven:	40 °C
	Mobile Phase:	Methanol/MilliQ water (65:35 v/v) The aqueous phase contained 0.05% v/v diethylamine
	Flow rate:	1.0 mL/min
	Detector:	Shimadzu SPD-M20A PDA operating at 209 nm
	Relative peak area of the main component:	
	Initial analysis:	Mean = 99.98%, s = 0.007% (10 sub samples in duplicate, June 2017)
	Re-analysis:	Mean = 99.96%, s = 0.001% (5 sub samples in duplicate, May 2018)
	Re-analysis:	Mean = 99.96%, s = 0.002% (5 sub samples in duplicate, June 2019)
	Re-analysis:	Mean = 99.96%, s = 0.004% (5 sub samples in duplicate, March 2022)
	Re-analysis:	Mean = 99.93%, s = 0.02% (5 sub samples in duplicate, July 2024)
	Re-analysis:	Mean = 99.92%, s = 0.004 % (5 sub samples in duplicate, May 2026)
Thermogravimetric analysis:	Non volatile residue < 0.2% mass fraction (June 2017). The volatile content (e.g. organic solvents and/or water) could not be determined by thermogravimetric analysis.	
Karl Fischer analysis:	Moisture content 2.3% mass fraction (May 2017) Moisture content 3.3% mass fraction (May 2018) Moisture content 2.7% mass fraction (May 2019) Moisture content 3.6% mass fraction (March 2022) Moisture content 3.1% mass fraction (July 2024) Moisture content 3.1% mass fraction (May 2026)	

Spectroscopic and other characterisation data

ESI-MS:	Instrument:	Micromass Quatro LC Micro
	Operation:	Positive ion mode, direct infusion at 10 μ L/min
	Ionisation:	ESI spray voltage at 3.2 kV positive ion
	EM voltage:	650 V
	Cone voltage:	45 V
	Peak:	414.1 (M+H ⁺), 436.2 (M+Na ⁺), 477.1 (M+Na ⁺ +CH ₃ CN) <i>m/z</i>
GC-MS:	Instrument:	Agilent 6890/5973
	Column:	HP-1MS, 30 m x 0.25 mm I.D. x 0.25 μ m
	Program:	250 °C (1 min), 30 °C/min to 300 °C (10 min)
	Injector:	250 °C
	Transfer line temp:	280 °C
	Carrier:	Helium, 1.0 mL/min
	Split ratio:	20/1
	The retention time of the free base is reported along with the major peaks in the mass spectrum. The latter are reported as mass/charge ratios and (in brackets) as a percentage relative to the base peak.	
	Free base (6.7 min):	220 (100), 205 (13), 193 (8), 147 (3), 119 (6) <i>m/z</i>
HS-GC-MS:	Instrument:	Agilent 6890/5973/G1888
	Column:	DB-624, 30 m x 0.25 mm I.D. x 1.4 μ m
	Program:	50 °C (5 min), 7 °C/min to 120 °C, 15 °C/min to 220 °C (8.3 min)
	Injector:	150 °C
	Transfer line temp:	280 °C
	Carrier:	Helium, 1.2 mL/min
	Split ratio:	50/1
	Solvents detected:	Propan-2-ol
TLC:	Conditions:	Kieselgel 60F ₂₅₄ . tert-Butylmethylether/diethylether/diethylamine (50/45/5) Single spot observed, R _f = 0.9. Visualisation with UV at 254 nm
IR:	Instrument:	Biorad FTS 3000 MXFT-IR
	Range:	4000-400cm ⁻¹ , KBr
	Peaks:	400, 2947, 2845, 2518, 1768, 1619, 1490, 1271, 1221, 1104, 1077, 1032, 982, 939, 889, 836 cm ⁻¹
¹ H NMR:	Instrument:	Bruker Avance III 500
	Field strength:	500 MHz
	Solvent:	D ₂ O (4.79 ppm)
	Spectral data:	δ 3.04 (5H, bs), 3.27-3.65 (5H, bm), 3.81 (3H, s), 3.88 (3H, s), 5.3 (1H, s), 5.71 (1H, s), 5.82 (1H, s), 6.06 (1H, bs), 6.46 (1H, s), 7.07 (1H, bs), 7.46 (1H, d, J = 8.1 Hz) ppm Propan-2-ol mass fraction 3.2 $\pm$ 0.5% (June 2018 – July 2024) by ¹ H NMR.
¹³ C NMR:	Instrument:	Bruker Avance III 500
	Field strength:	126 MHz
	Solvent:	D ₂ O
	Spectral data:	δ 22.2 (b), 41.2, 47.0, 56.7, 59.0, 61.1, 62.2, 78.9 (b), 101.4, 102.6, 107.0 (b), 117.0, 119.9, 120.9, 127.8, 133.7, 137.8, 139.6, 146.6, 150.2, 152.7, 168.9 ppm
Melting point:		210-213 °C
Microanalysis:	Found:	C = 57.7%; H = 5.7%; N = 2.9% (June 2017)
	Calculated:	C = 58.7%; H = 5.4%; N = 3.1% (Calculated for C ₂₂ H ₂₃ NO ₇ .HCl)
	Calculated:	C = 57.4%; H = 5.8%; N = 2.9% (Calculated for C ₂₂ H ₂₃ NO ₇ .HCl containing 2.3% water and 3.8% isopropanol)