



INDOFINE Chemical Company, Inc.

121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

Phone: (908) 359-6778 • FAX: (908) 359-1179

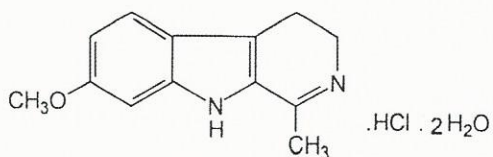
website: www.indofinechemical.com

e-mail: chemical@indofinechemical.com

CERTIFICATE OF ANALYSIS

Cat. No.: H-002

| | |
|---------------------------|--|
| <u>Product:</u> | HARMALINE HYDROCHLORIDE DIHYDRATE |
| <u>CAS Number:</u> | [6027-98-1] |
| <u>Lot No.:</u> | 1101101 |
| <u>Appearance:</u> | Yellow powder |
| <u>Molecular Formula:</u> | $C_{13}H_{14}N_2O \cdot HCl \cdot 2H_2O$ |
| <u>Molecular Weight:</u> | 286.76 |
| <u>Melting Point:</u> | 234-236°C |
| <u>Solubility:</u> | Gives a clear solution in DMSO |
| <u>TLC:</u> | Chloroform:Methanol (7:3) |
| <u>Moisture (KF):</u> | 0.27% |
| <u>Assay (HPLC):</u> | 99.67% |





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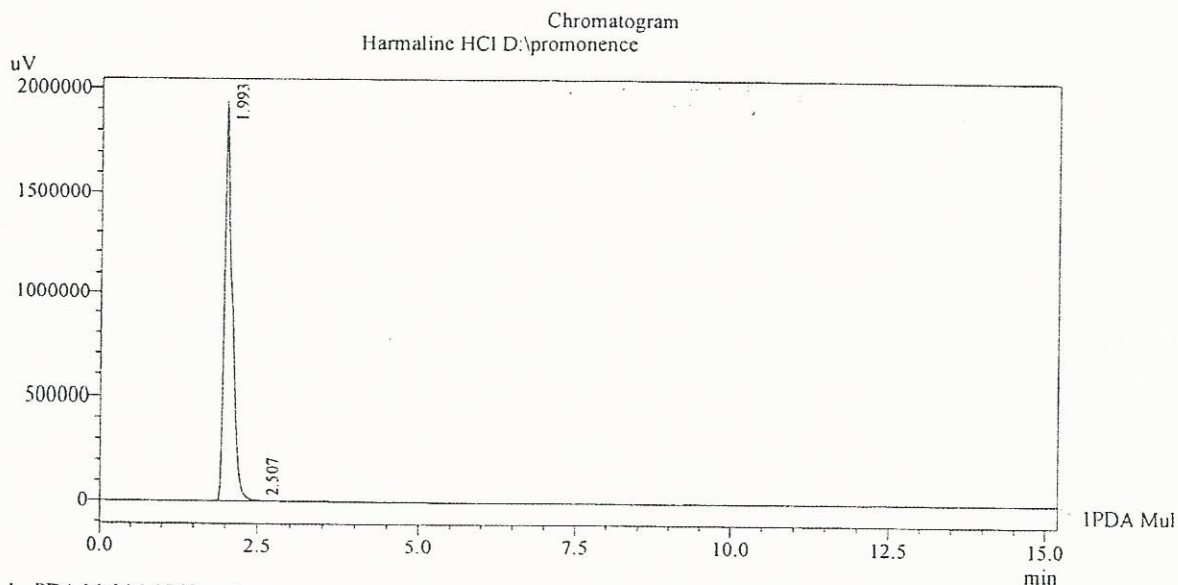
e-mail: chemical@indofinechemical.com

HPLC ANALYSIS

Acquired by : Madhuri
Sample Name : Harmaline HCl
Sample ID : 1.0kg
Injection Volume : 20 uL
Data Filename : 050111C.lcd
Method Filename : Linear Isocratic.M.lcm

Cat. No.: H-002
Product name: Harmaline Hydrochloride Dihydrate
Lot No.: 1101101

Description:
Column : Inertsil C-18, 250X4.6mm 5.0µm
Flow : 1.000ML/min.
Mobile Phase : A(20% of 0.05% of TFA) B(80% of ACN)



1 PDA Multi 1 / 360nm 4nm

PeakTable

PDA Ch1 360nm 4nm

| Peak# | Ret. Time | Area | Height | Area % |
|-------|-----------|----------|---------|---------|
| 1 | 1.993 | 16091835 | 1940471 | 99.671 |
| 2 | 2.507 | 53103 | 4476 | 0.329 |
| Total | | 16144938 | 1944946 | 100.000 |



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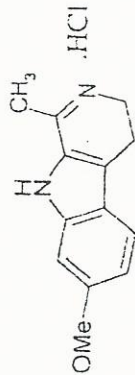
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HRML HCl 1HNMR DMSO-D6

Cat. No.: H-002

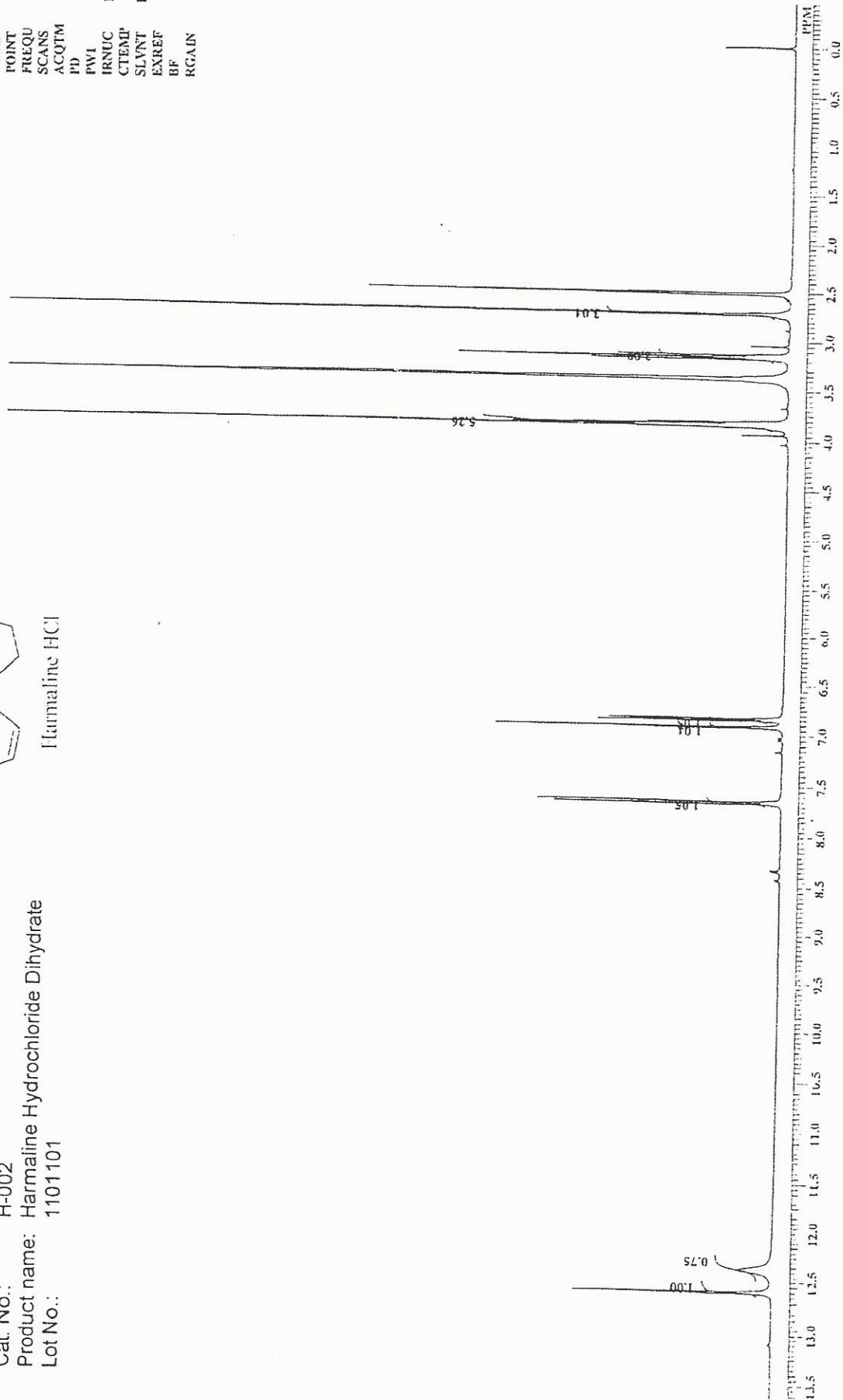
Product name: Harmaline Hydrochloride Dihydrate

Lot No.: 1101101



Harmaline HCl

| | |
|--------|--------------|
| DFILE | HRML HCl.d6 |
| COMNT | HRML HCl.HNA |
| OBNUC | 1H |
| EXMOD | NON |
| OBFREQ | 399.65 MHz |
| OBSET | 124.00 kHz |
| OBFIN | 10500.00 Hz |
| POINT | 65536 |
| FREQU | 7992.01 Hz |
| SCANS | 16 |
| ACQTM | 8.2002 sec |
| PD | 3.0000 sec |
| PW1 | 5.60 usec |
| IRNUC | 1H |
| CTEMP | 24.0 c |
| SLVNT | DMSO |
| EXREF | 0.00 ppm |
| BF | 0.50 Hz |
| RGAIN | 18 |





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HRML HCl HNA
HRML HCl HNA
III
NON
399.65 MHz
124.00 KHz
10500.00 Hz
65536
7992.01 Hz
16
8.2002 sec
3.0000 sec
5.60 msec
24.0 c
DMSO
0.00 ppm
0.50 Hz
18

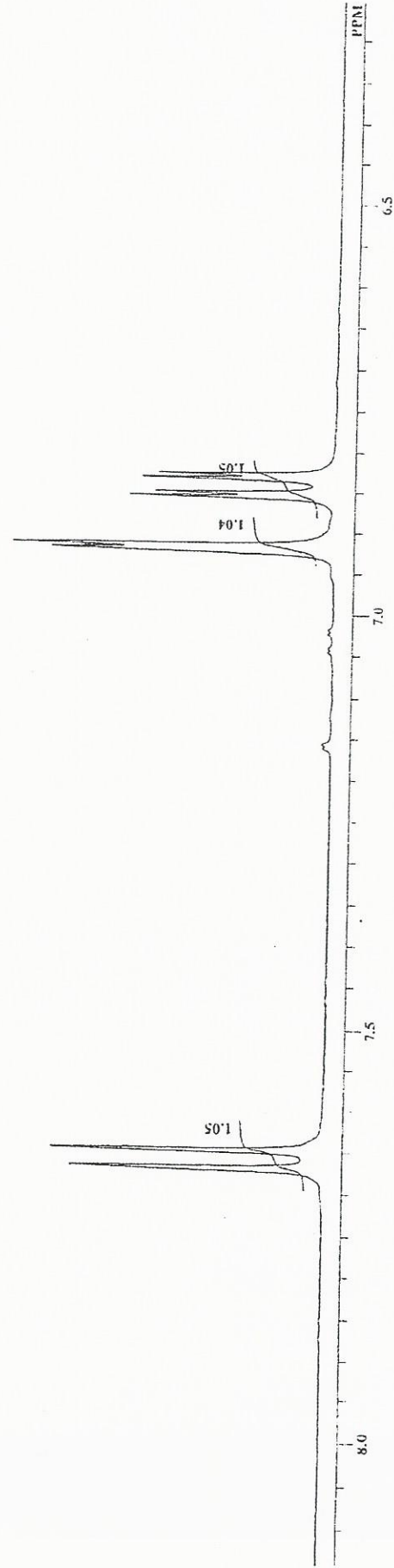
FILE
COMPT
OBRUC
EXMOD
OBFRO
OBSET
OBFIN
POINT
FREQU
SCANS
ACQTM
PD
PVI
IRNUC
CTEMP
SLVNT
EXREF
BF
RGAIN

HRML HCl HNMNR DMSO-D6

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Lot No.: 1101101

HRML HCl 1HNMR DMSO-D6

DFILE HRML HCl1h1
COMNT HRML HCl1HN1
ORNUC H1
EXMOD NON
OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBFIN 10500.00 Hz
FOINT 65536
FREQU 7992.01 Hz
SCANS 16
ACQTM 8.2002 sec
PD 3.0000 sec
PWI 5.60 usec
IRNUC H1
TEMP 24.0 c
SLVNT DMSO
EXREF 0.00 ppm
BI 0.50 Hz
RGAIN 18

