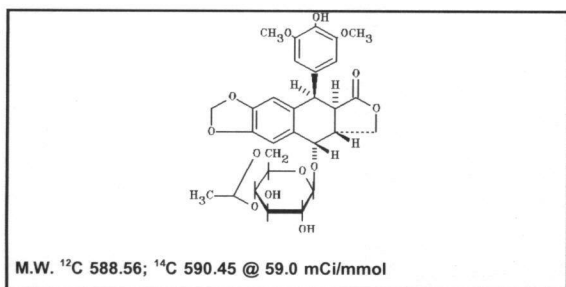




## Product Data Sheet

**MC-2035**

**Etoposide, [ethylidene-1-<sup>14</sup>C]-**



**Lot #:** 645-163-059-A-20090825-DC

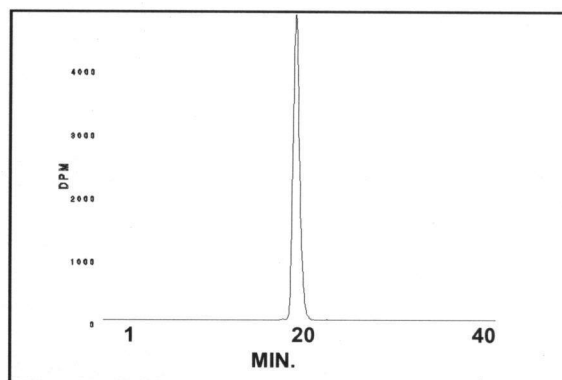
**Specific Activity:** 59.0 mCi/mmol

**Concentration:** 0.1 mCi/ml; 1.0 mg/ml

**Packaged in:** Ethanol solution

**Date of Analysis:** August 26, 2009

**Radiochemical Purity:** 99.7%



HPLC ANALYSIS LOT 645-163-059-A-20090825-DC  
File Name: intk1144 Date and Time: 8/26/2009 11:27:22 A  
Unit 20 Radio

Peak #	Area %	Time	Area
1	0.22	18.34330	49.46706
2	99.78	19.64670	22530.63484
Totals	100.00		22580.10190

**Stability and Storage Recommendation:** The rate of decomposition is approximately 1%/month for the first six months after purification when stored at -80°C.

**Product Warranty:** Stated on the reverse side of this Product Data Sheet.

**Caution:** Not For Use In Humans Or Clinical Diagnosis. This product is intended for investigational or manufacturing use only. It is pharmaceutically unrefined and is not intended for use in humans. Responsibility for its use in humans, as a diagnostic reagent, and compliance with federal laws rests solely with the purchaser.

**MC-2035**

**Etoposide, [ethylidene-1-<sup>14</sup>C]-**

**Lot 645-163-059-A-20090825-DC**

**A) All chromatograms were run using the HPLC method described on the Product Data Sheet.**

**Concentrations and volumes:**

Standard solution concentration was 0.5 mg/mL.

**Etoposide, [ethylidene-1-<sup>14</sup>C]-** concentration was 27.0 µCi/mL.

Volume of standard alone injection was 4.0 µL

Volume of **Etoposide, [ethylidene-1-<sup>14</sup>C]-** alone injection was 4.0 µL.

Co-injection solution consisted of 2.0 µL **Etoposide, [ethylidene-1-<sup>14</sup>C]-** + 2.0 µL standard.

Volume of co-injection was 4.0 µL.

Volume of blank injection was 4.0 µL.

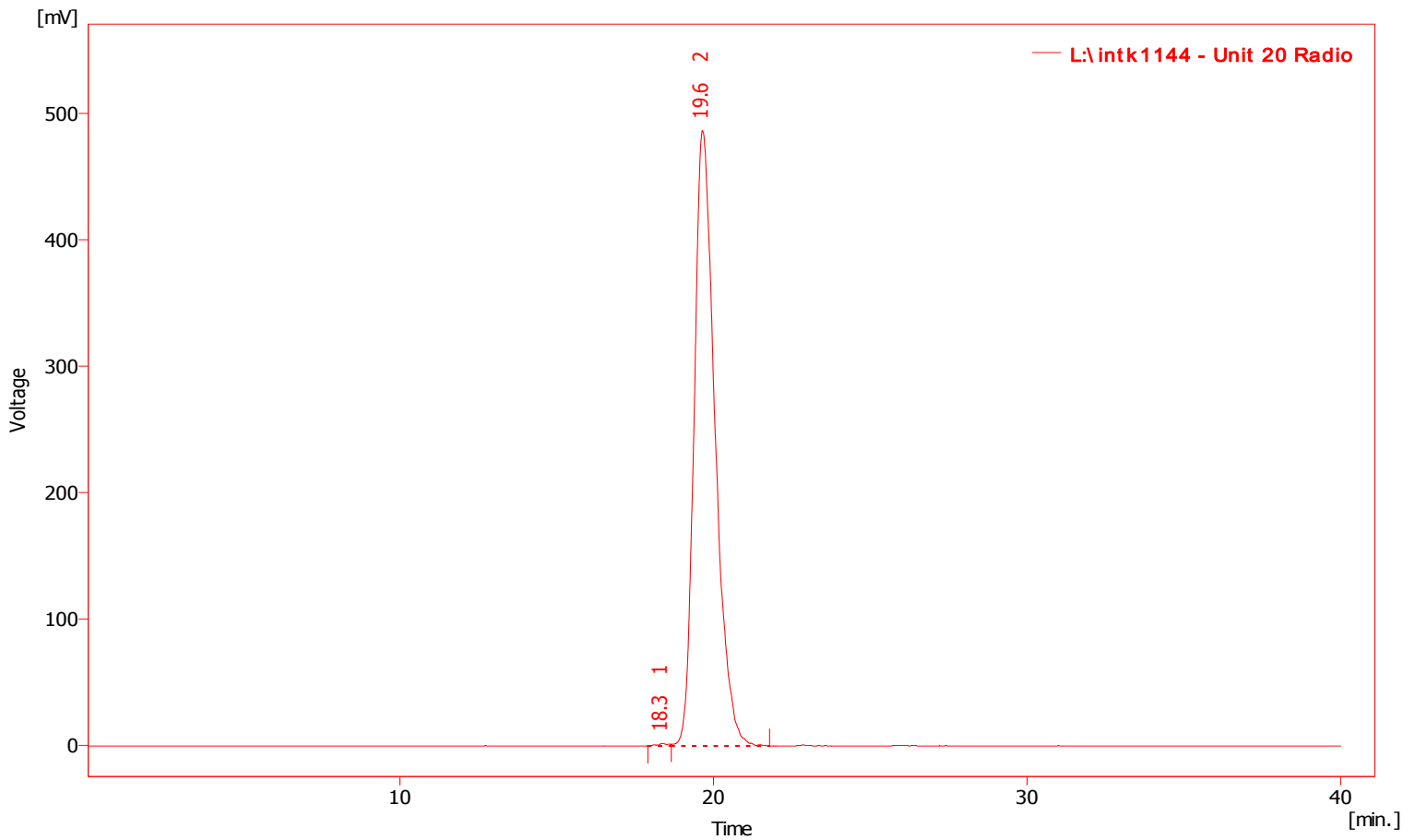
**B) Mass spectrometry - Positive mode**

**C) NMR**

**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

Chromatogram Info:

File Name	: L:\intk1144	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 10:47:23 AM	Acquired Date	: 8/26/2009 11:27:22 AM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: Radiochemical trace of 14C material alone	Modified	: 2/11/2014 4:11 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: Radiochemical
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



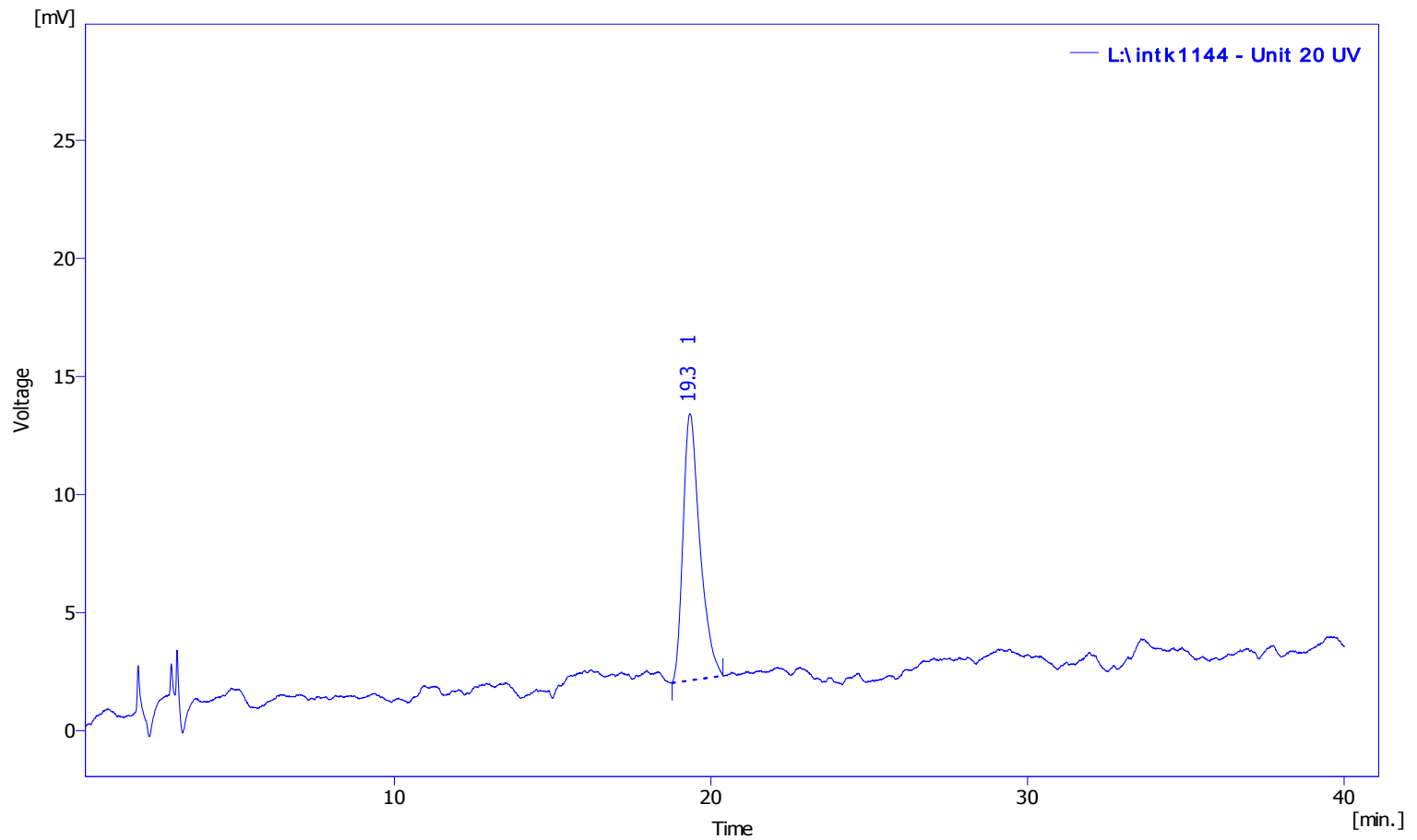
Result Table (Uncal - L:\intk1144 - Unit 20 Radio)

	Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/l [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
1		18.34	49.467	2.00	0.22	0.41	12909.19	258183.86	0.85		
2		19.65	22530.635	486.99	99.78	99.59	4405.93	88118.57	1.36		1.4
		Total	22580.102	489.00	100.00	100.00					

**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

## Chromatogram Info:

File Name	: L:\intk1144	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 10:47:23 AM	Acquired Date	: 8/26/2009 11:27:22 AM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: UV trace of 14C material alone	Modified	: 2/11/2014 4:12 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: UV 283nm
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



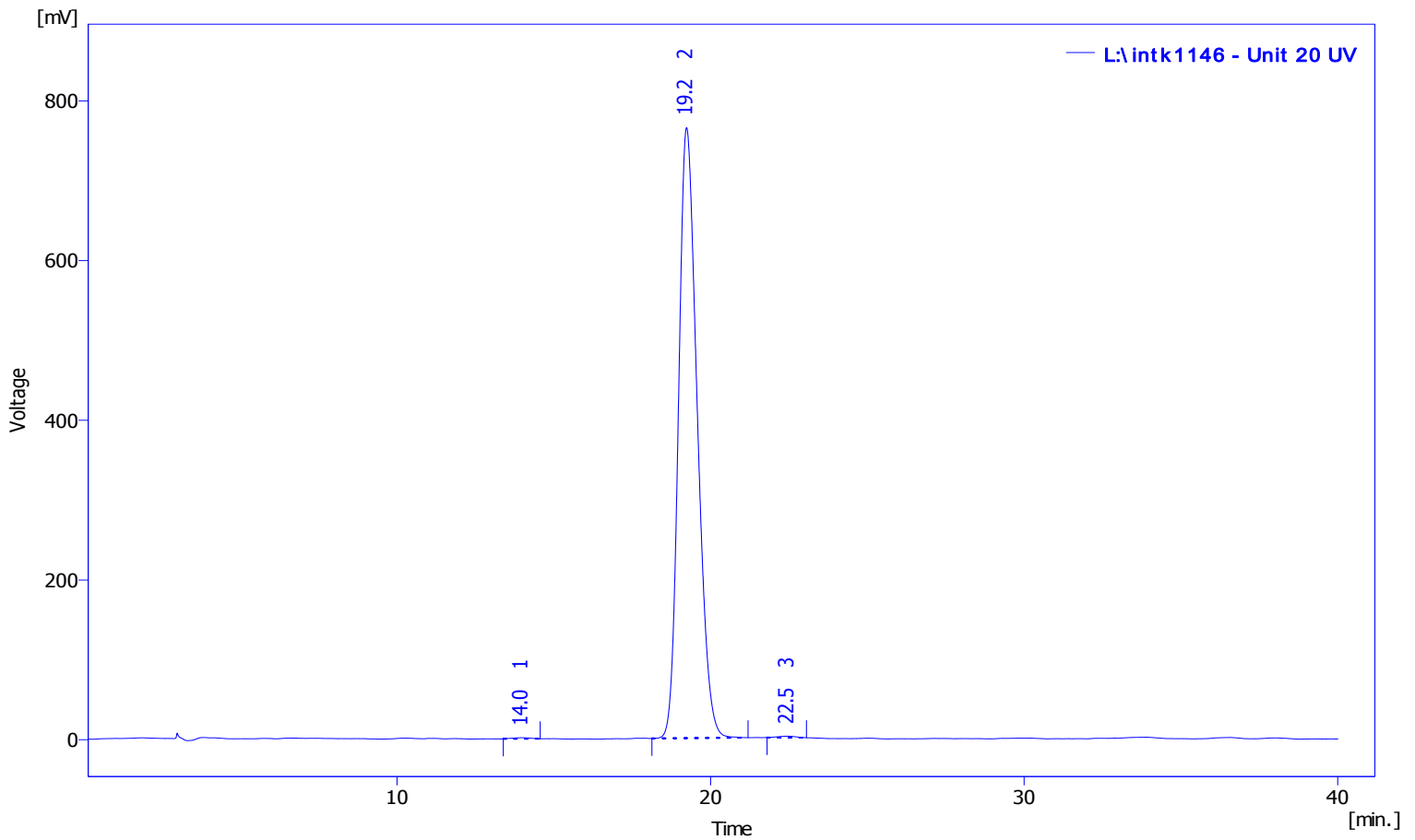
Result Table (Uncal - L:\intk1144 - Unit 20 UV)

	Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/l [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
1		19.33	419.401	11.30	100.00	100.00	6525.18	130503.55	1.44		
		Total	419.401	11.30	100.00	100.00					

**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

Chromatogram Info:

File Name	: L:\intk1146	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 1:33:18 PM	Acquired Date	: 8/26/2009 2:13:16 PM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: UV trace of standard alone	Modified	: 2/11/2014 4:04 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: UV 283nm
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



Result Table (Uncal - L:\intk1146 - Unit 20 UV)

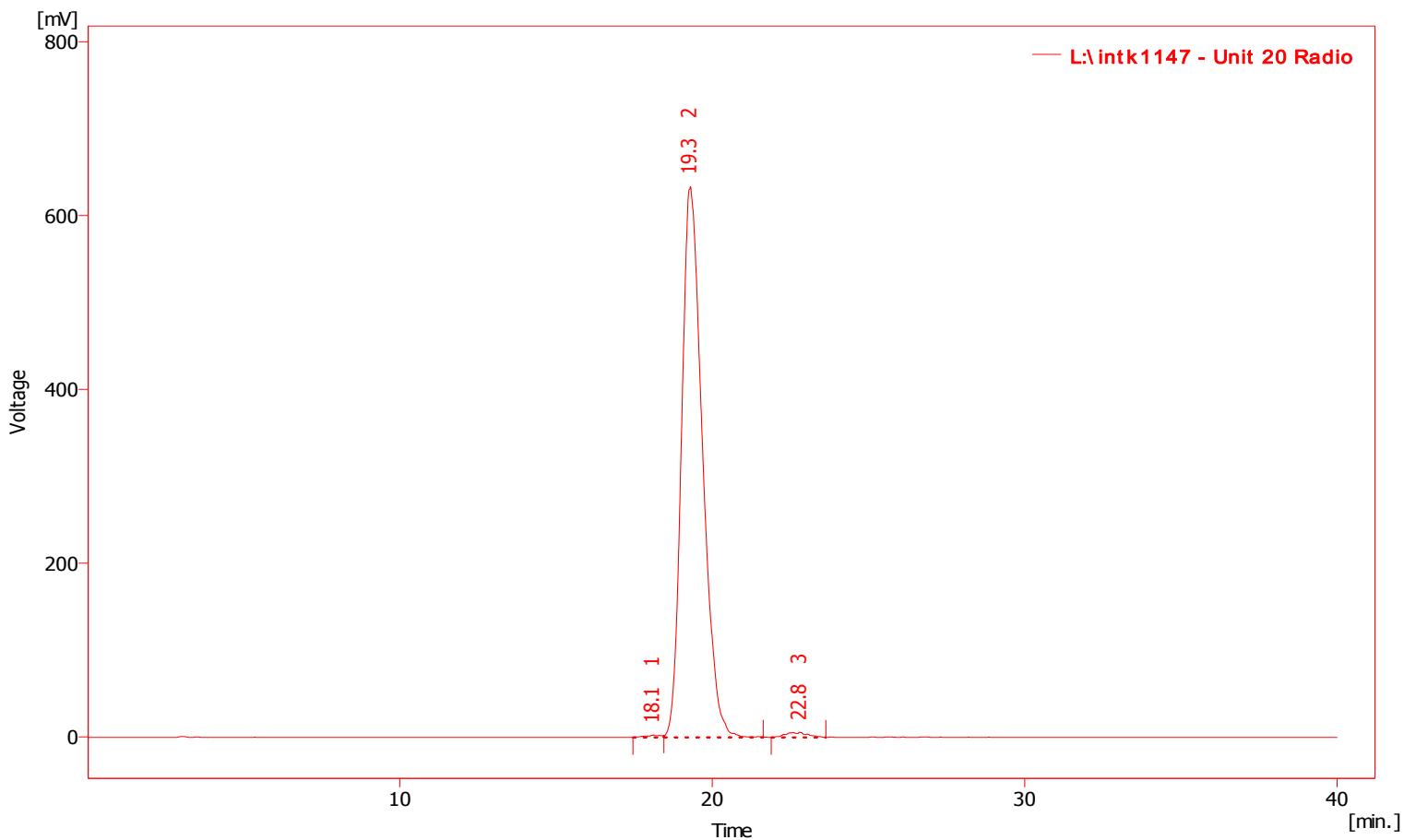
	Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/I [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
1		13.98	54.032	1.39	0.17	0.18	2387.02	47740.48	1.00		
2		19.23	31621.742	764.67	99.60	99.58	4951.61	99032.28	1.24		4.7
3		22.47	72.620	1.82	0.23	0.24	6229.27	124585.48	0.92		2.9
		Total	31748.394	767.87	100.00	100.00					



**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

Chromatogram Info:

File Name	: L:\intk1147	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 2:57:35 PM	Acquired Date	: 8/26/2009 3:37:33 PM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: Radiochemical trace of 14C material co-injected with standard	Modified	: 2/11/2014 4:14 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: Radiochemical
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



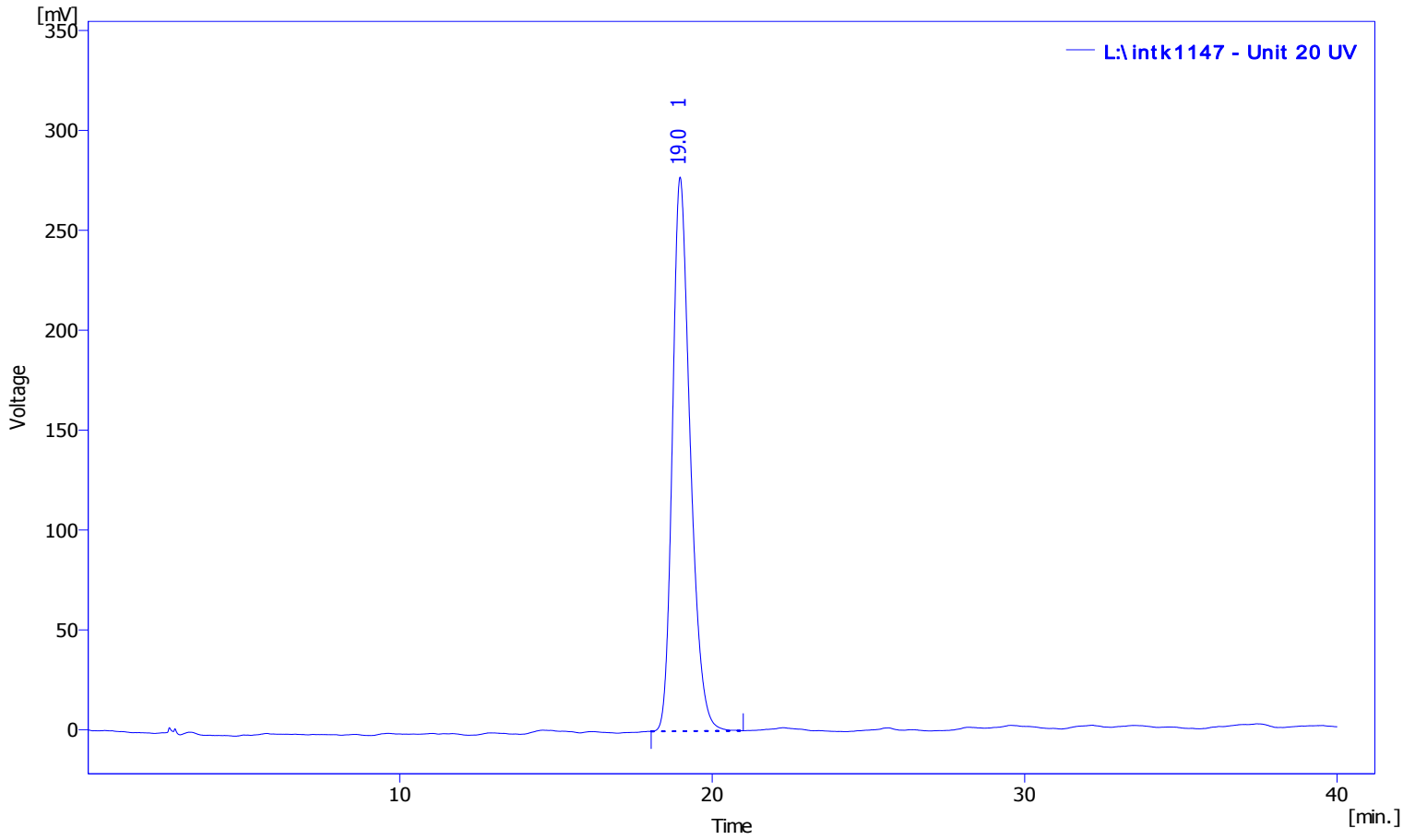
Result Table (Uncal - L:\intk1147 - Unit 20 Radio)

	Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/l [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
1		18.12	89.977	2.85	0.30	0.44	4393.33	87866.68	0.76		
2		19.30	29394.221	633.96	98.73	98.63	3982.07	79641.49	1.27		1.0
3		22.82	287.235	5.95	0.96	0.93	3961.90	79238.02	0.89		2.6
		Total	29771.434	642.76	100.00	100.00					

**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

Chromatogram Info:

File Name	: L:\intk1147	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 2:57:35 PM	Acquired Date	: 8/26/2009 3:37:33 PM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: UV trace of 14C material co-injected with standard	Modified	: 2/11/2014 4:13 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: UV 283nm
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



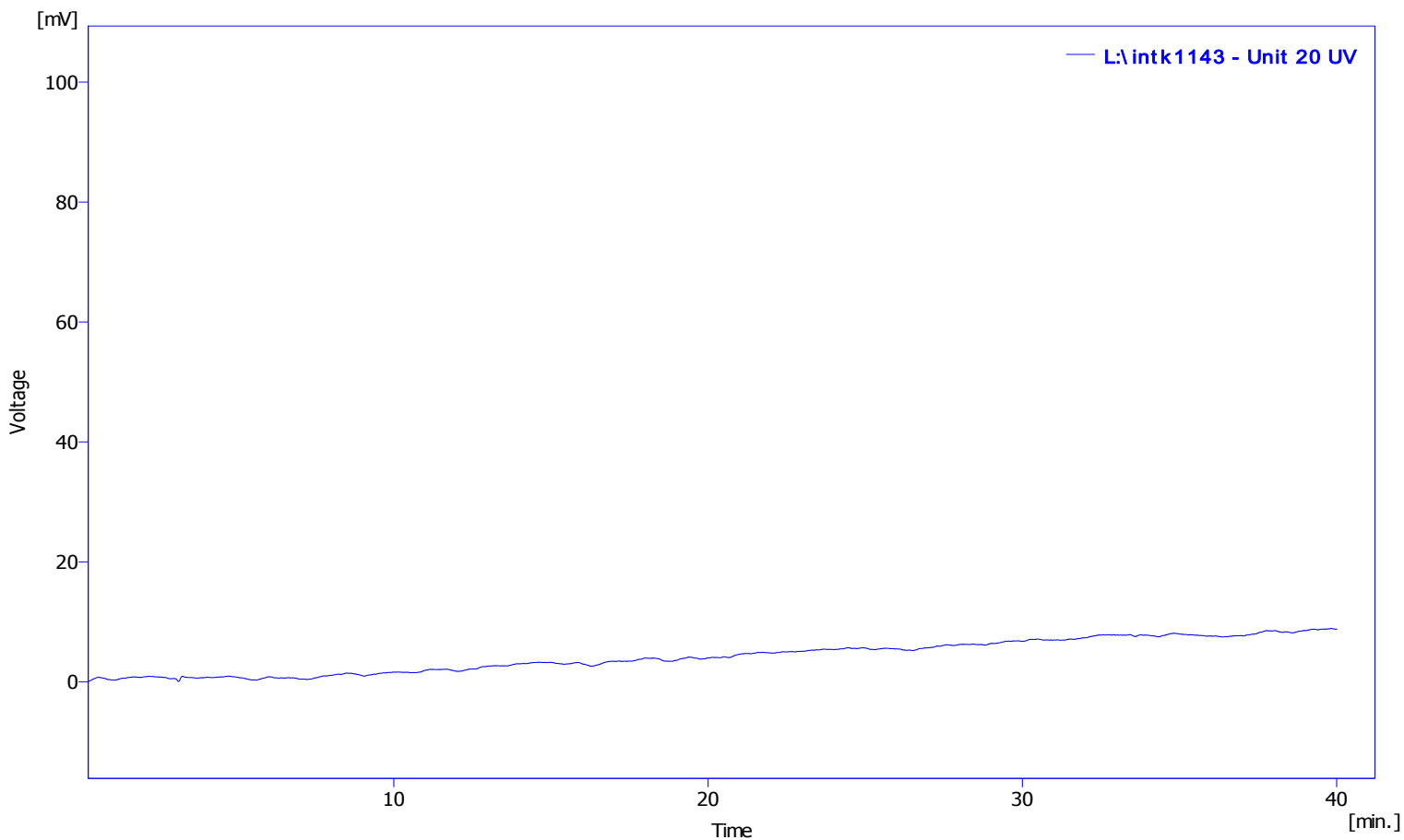
Result Table (Uncal - L:\intk1147 - Unit 20 UV)

	Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/l [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
1		18.97	11003.990	277.42	100.00	100.00	5539.81	110796.12	1.29		
		Total	11003.990	277.42	100.00	100.00					

**MC-2035**  
**Etoposide, [ethylidene-1-14C]-**  
**Lot 645-163-059-A-20090825-DC**

Chromatogram Info:

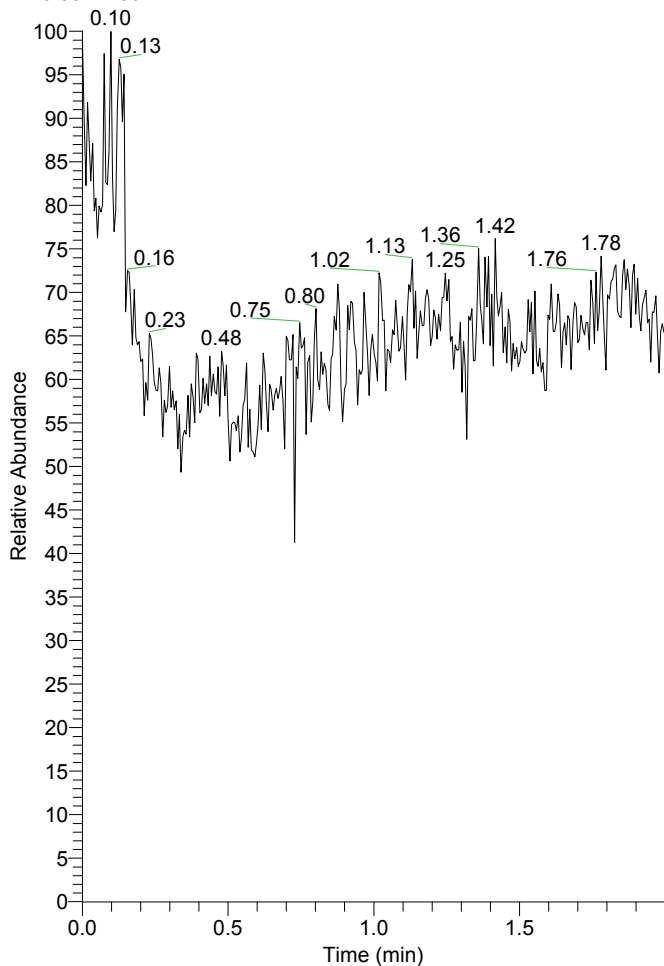
File Name	: L:\intk1143	File Created	: 2/11/2014 4:03:19 PM
Origin	: Acquired, Acquisition started 8/26/2009 10:00:39 AM	Acquired Date	: 8/26/2009 10:40:38 AM
Project	: Test	By	: Administrator
Method	: Unit20_40_min_run	By	: Administrator
Description	: UV trace of blank injection	Modified	: 2/11/2014 4:05 PM
Created	: 4/9/2008 10:56 AM		
Column	:	Detection	: UV 283nm
Mobile Phase	:	Temperature	:
Flow Rate	:	Pressure	:
Note	:		



*Result Table (Uncal - L:\intk1143 - Unit 20 UV)*

Compound Name	Reten. Time [min]	Area [mV.s]	Height [mV]	Area [%]	Height [%]	Efficiency [th.pl]	Eff/I [t.p./m]	Symmetry/Tailing [-]	Response Factor	Resolution [-]
No peak to report										

RT: 0.00 - 2.00



NL:  
8.09E9  
TIC MS  
MC2035-  
20090825-  
DC

MC2035-20090825-DC#1-351 RT: 0.00-2.00

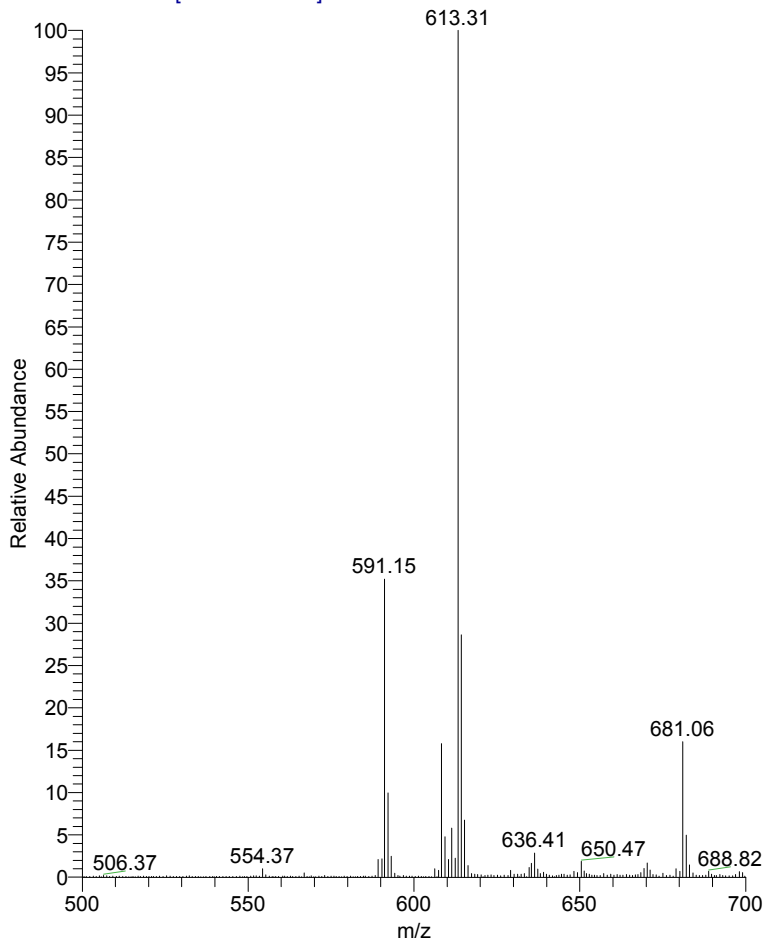
T: + c NSI Full ms [500.00-700.00]

m/z = 587.57-619.78

m/z	Intensity	Relative
589.18	37959270.7	2.07
590.32	39123140.7	2.14
591.15	644264217.3	35.18
592.18	181569136.2	9.92
593.18	44709706.9	2.44
594.19	8146158.9	0.44
606.24	17710051.0	0.97
607.47	14218533.0	0.78
608.28	288222022.5	15.74
609.31	86799645.9	4.74
610.41	37566828.4	2.05
611.42	105320961.5	5.75
612.49	40560576.2	2.22
613.31	1831175677.1	100.00
614.31	523602849.2	28.59
615.29	123046589.0	6.72
616.30	24321705.6	1.33
617.37	7331768.2	0.40
618.35	5830234.4	0.32
619.21	5215057.7	0.28

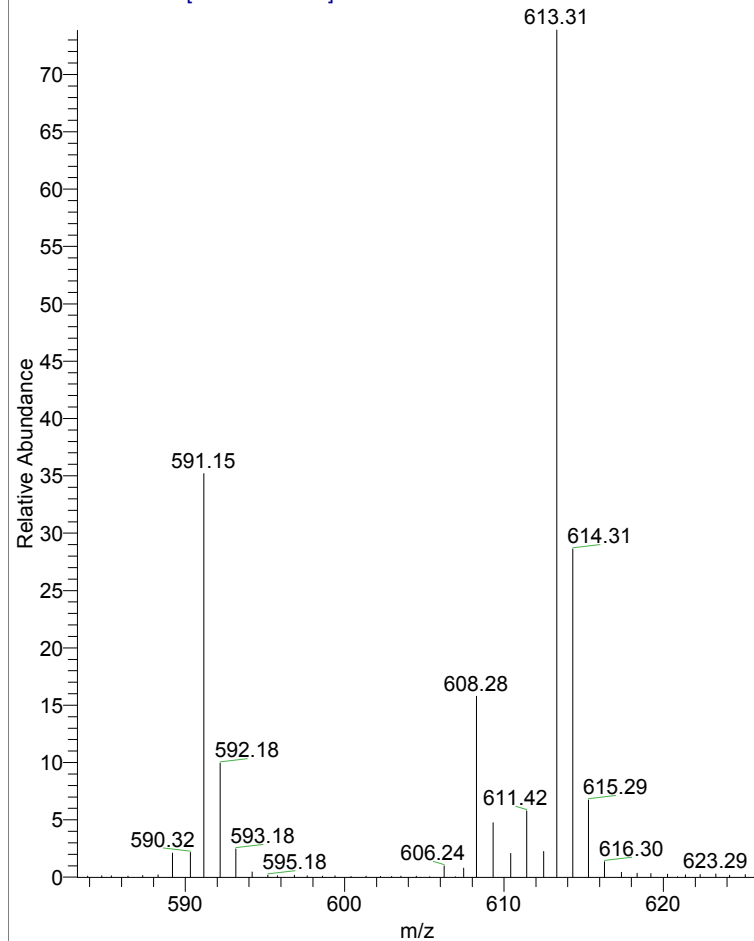
MC2035-20090825-DC #1-351 RT: 0.00-2.00 AV: 351 NL: 1.83E9

T: + c NSI Full ms [500.00-700.00]



MC2035-20090825-DC #1-351 RT: 0.00-2.00 AV: 351 NL: 1.83E9

T: + c NSI Full ms [500.00-700.00]



MC2035, Etoposide, [ethylidene-1-14C]- 1H NMR in CD2Cl2  
 Batch# 20090825-DC

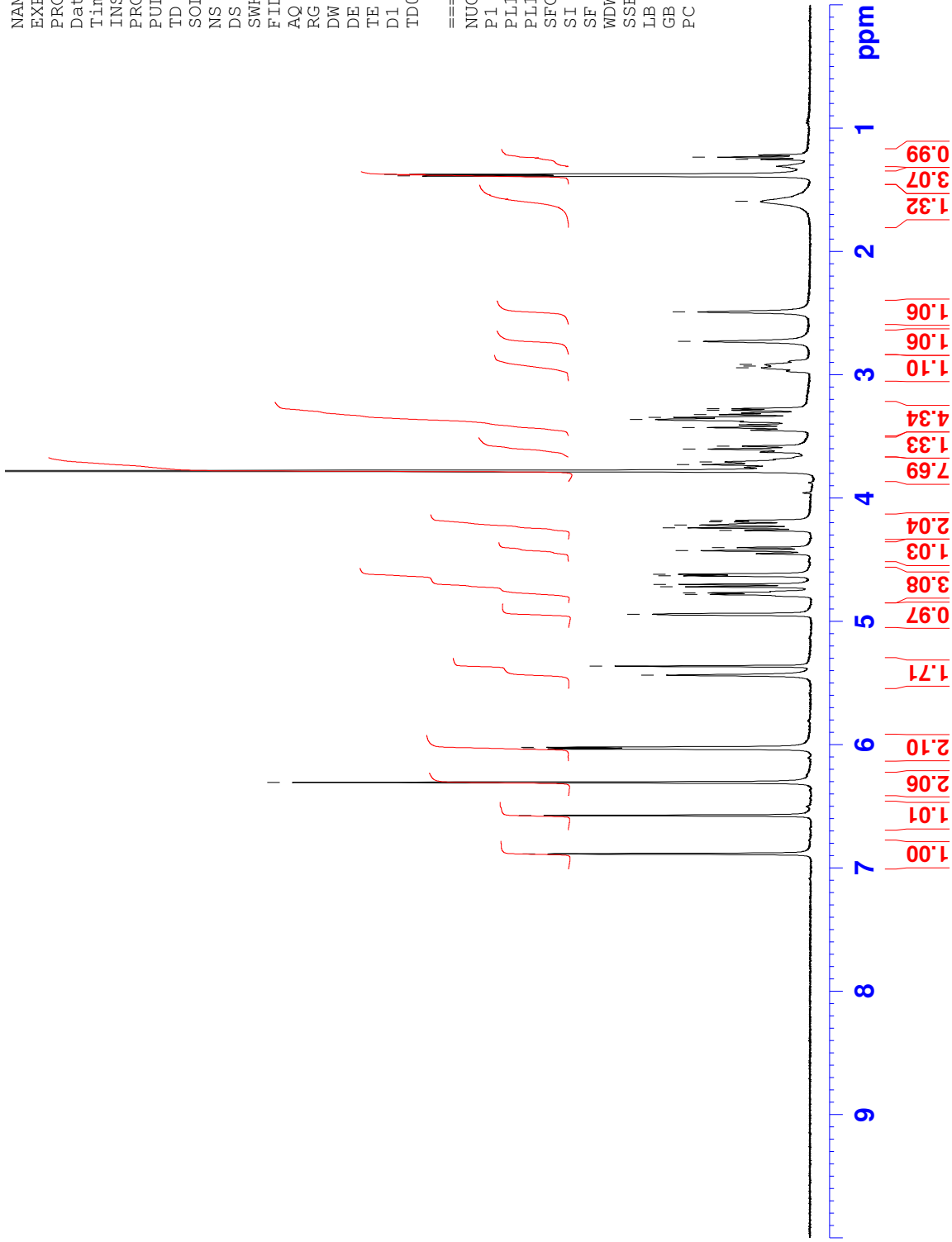


6.886  
6.575  
6.307  
6.034  
6.022  
5.436  
5.363  
4.943  
4.782  
4.770  
4.720  
4.701  
4.631  
4.619  
4.426  
4.402  
4.263  
4.242  
4.219  
4.193  
4.183  
3.781  
3.729  
3.707  
3.603  
3.579  
3.428  
3.363  
3.346  
3.323  
3.288  
3.276  
2.944  
2.930  
2.916  
2.729  
2.490  
1.593  
1.387  
1.375  
1.252  
1.235

```

NAME MC2035
EXPNO 1
PROCNO 1
Date_ 20090826
Time 16.20
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CD2Cl2
NS 128
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 362
DW 60.400 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 14.50 usec
PL1 -0.70 dB
PL1W 10.03411102 W
SFO1 400.1324710 MHz
SI 32768
SF 400.1299968 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00
  
```





Etoposide, standard <sup>1</sup>H NMR in CD<sub>2</sub>Cl<sub>2</sub>



6.886  
6.577  
6.307  
6.038  
6.025  
5.432  
5.366  
4.944  
4.790  
4.777  
4.726  
4.707  
4.635  
4.622  
4.428  
4.404  
4.264  
4.244  
4.220  
4.195  
4.185  
3.782  
3.630  
3.606  
3.583  
3.453  
3.432  
3.411  
3.387  
3.367  
3.351  
3.324  
3.311  
3.288  
3.276  
2.945  
2.918  
2.688  
2.436  
1.582  
1.390  
1.378

```

NAME      Etoposide std
EXPNO     1
PROCNO    1
Date_     20090827
Time      14.32
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zg30
TD         65536
SOLVENT   CD2Cl2
NS         128
DS         2
SWH        8278.146 Hz
FIDRES     0.126314 Hz
AQ         3.9584243 sec
RG         362
DW         60.400 usec
DE         6.50 usec
TE         295.0 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         14.50 usec
PL1        -0.70 dB
PL1W       10.03411102 W
SF01       400.1324710 MHz
SI         32768
SF         400.1299968 MHz
WDW        no
SSB        0
LB         0.00 Hz
GB         0
PC         1.00
    
```

