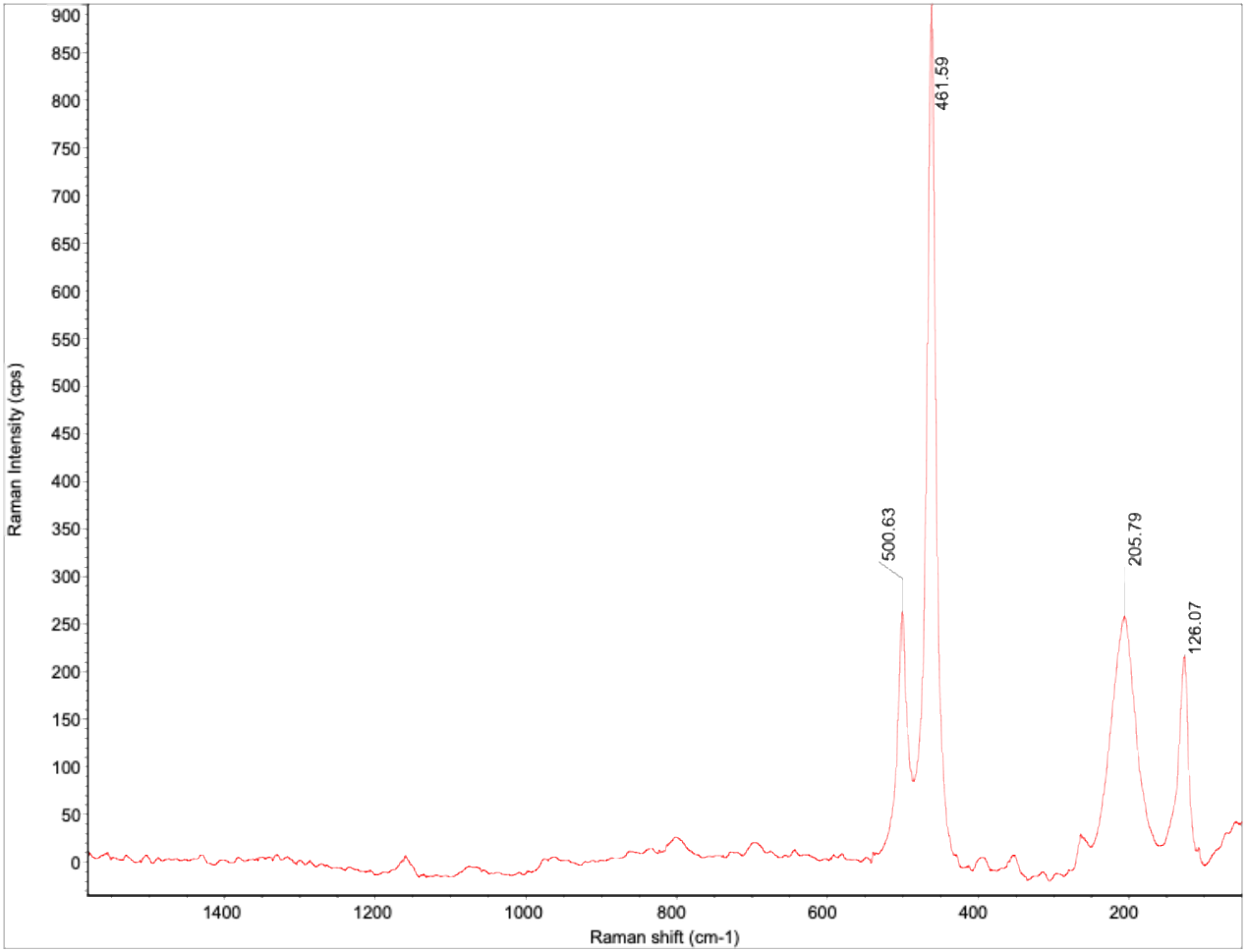
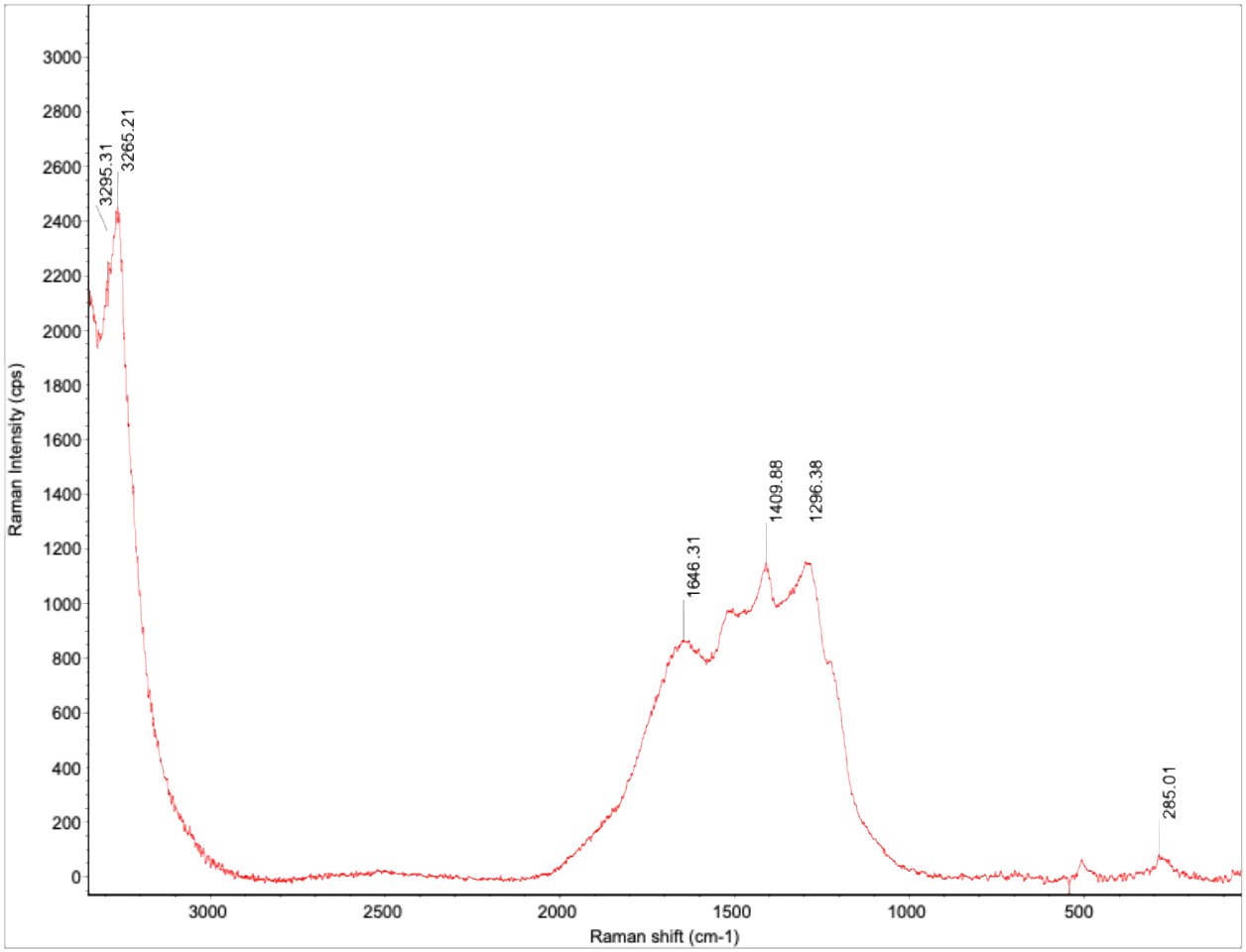
Mineral Database

Table of Contents

Agate


Raman Intensity (cps)
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
461.59
500.63
205.79
126.07
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

Basalt*


Raman Intensity (cps)
Raman shift (cm-1)
3295.31
3265.21
1646.31
1409.88
1296.38
285.01
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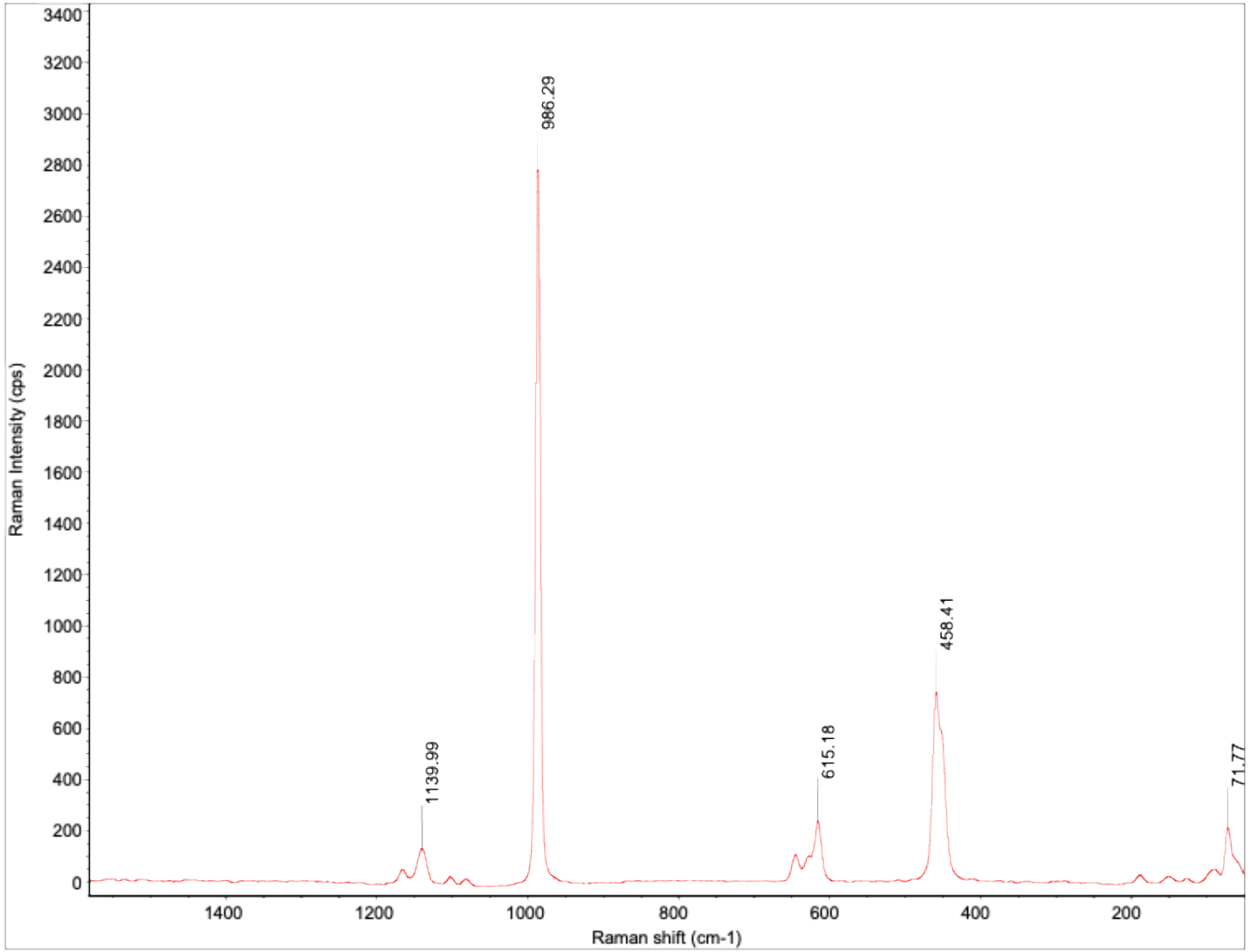
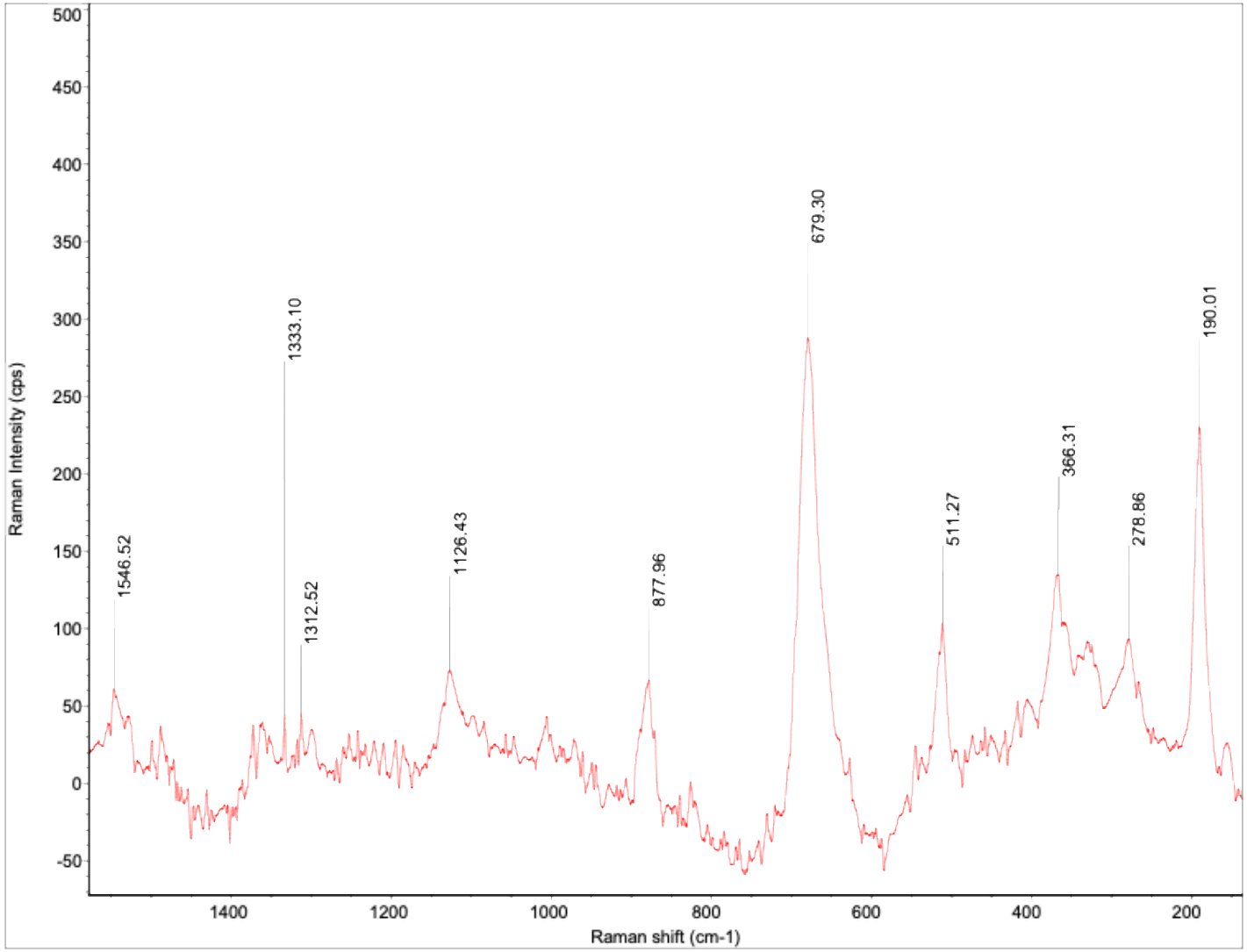
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
3000
2500
2000
1500
1000
500

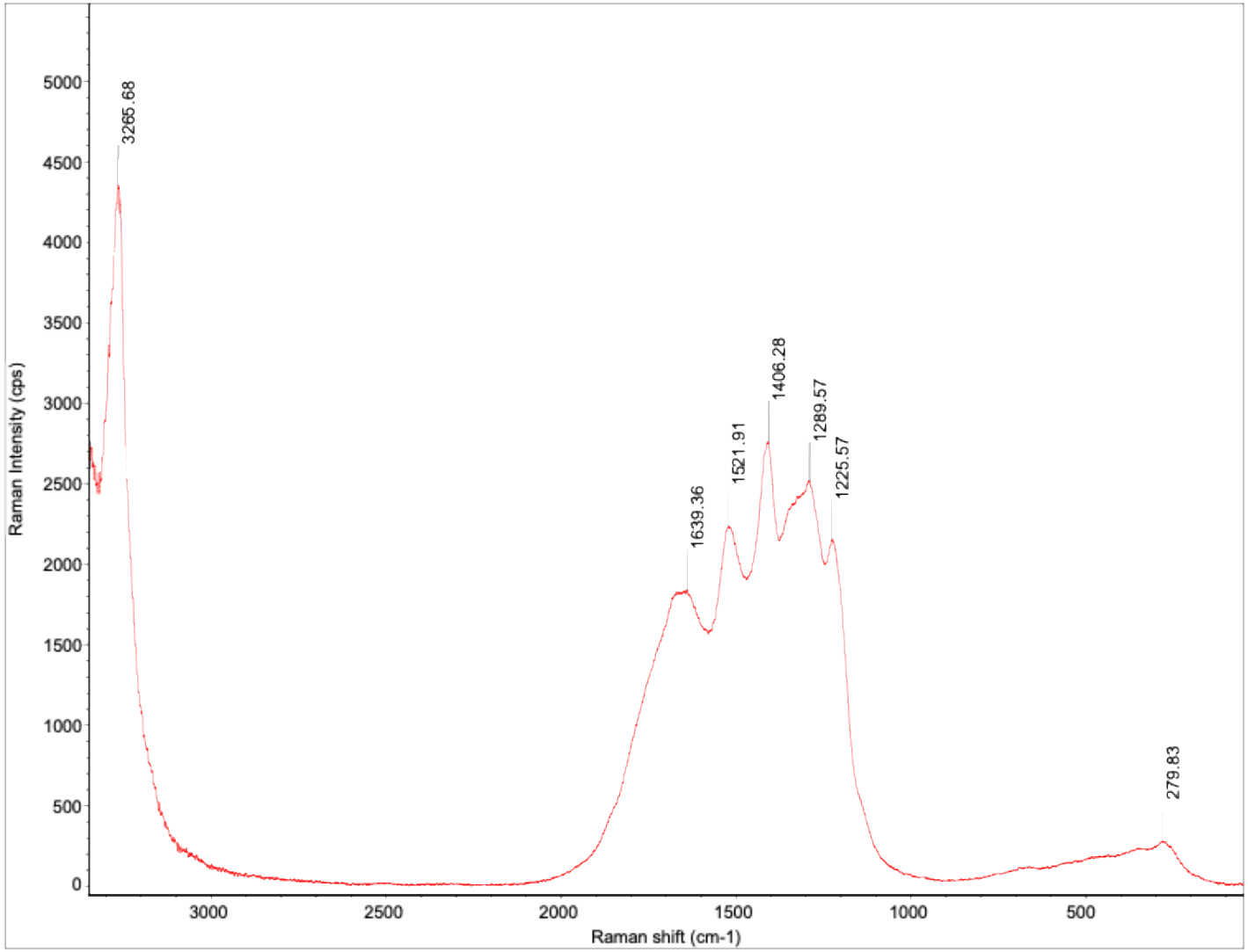
Calcite


Raman Intensity (cps)
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
1139.99
986.29
615.18
458.41
71.77

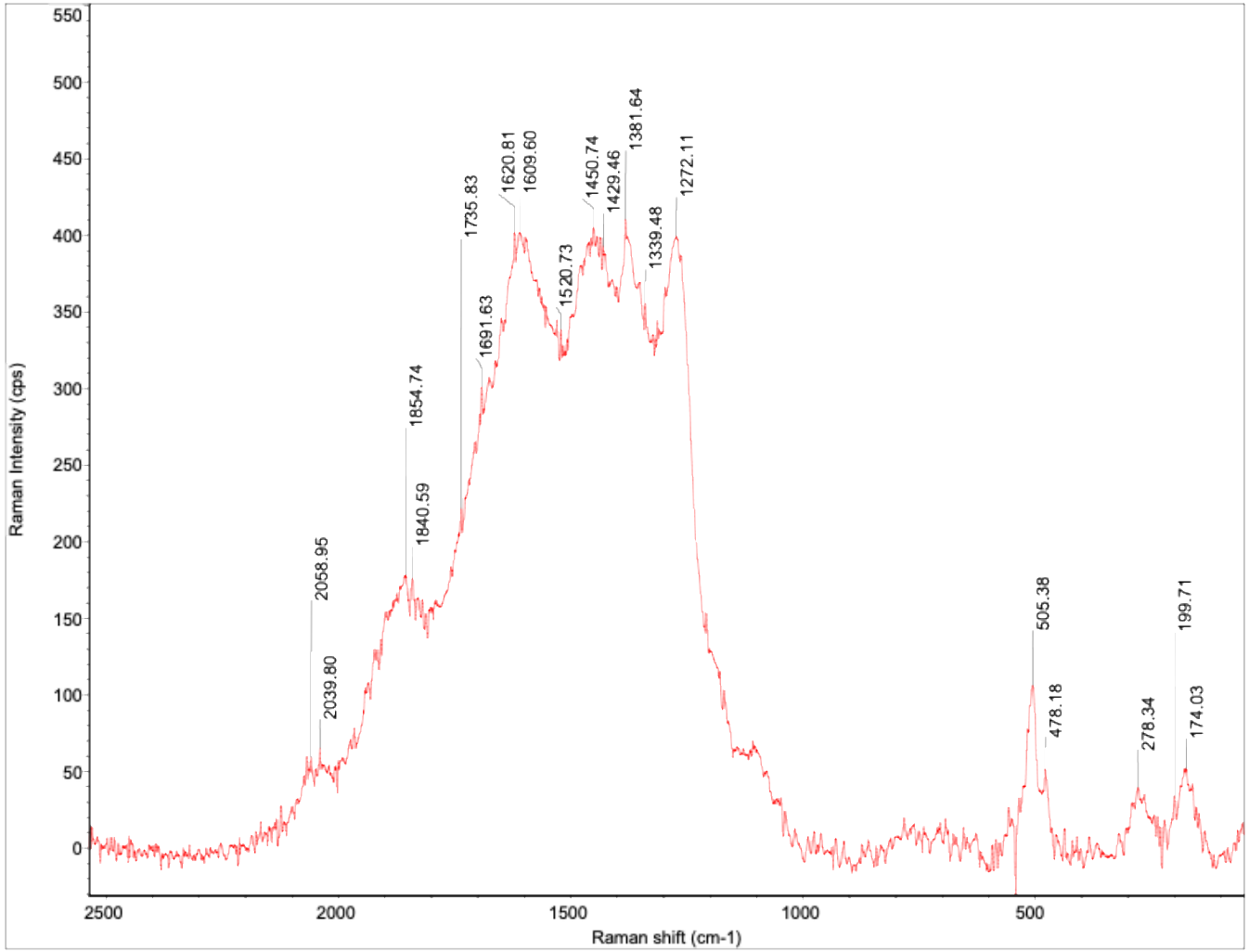
Chalcopyrite



Copper Ore


Raman Intensity (cps)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
3265.68
1639.36
1521.91
1406.28
1289.57
1225.57
279.83
3000
2500
2000
1500
1000
500
Raman shift (cm-1)

Diabase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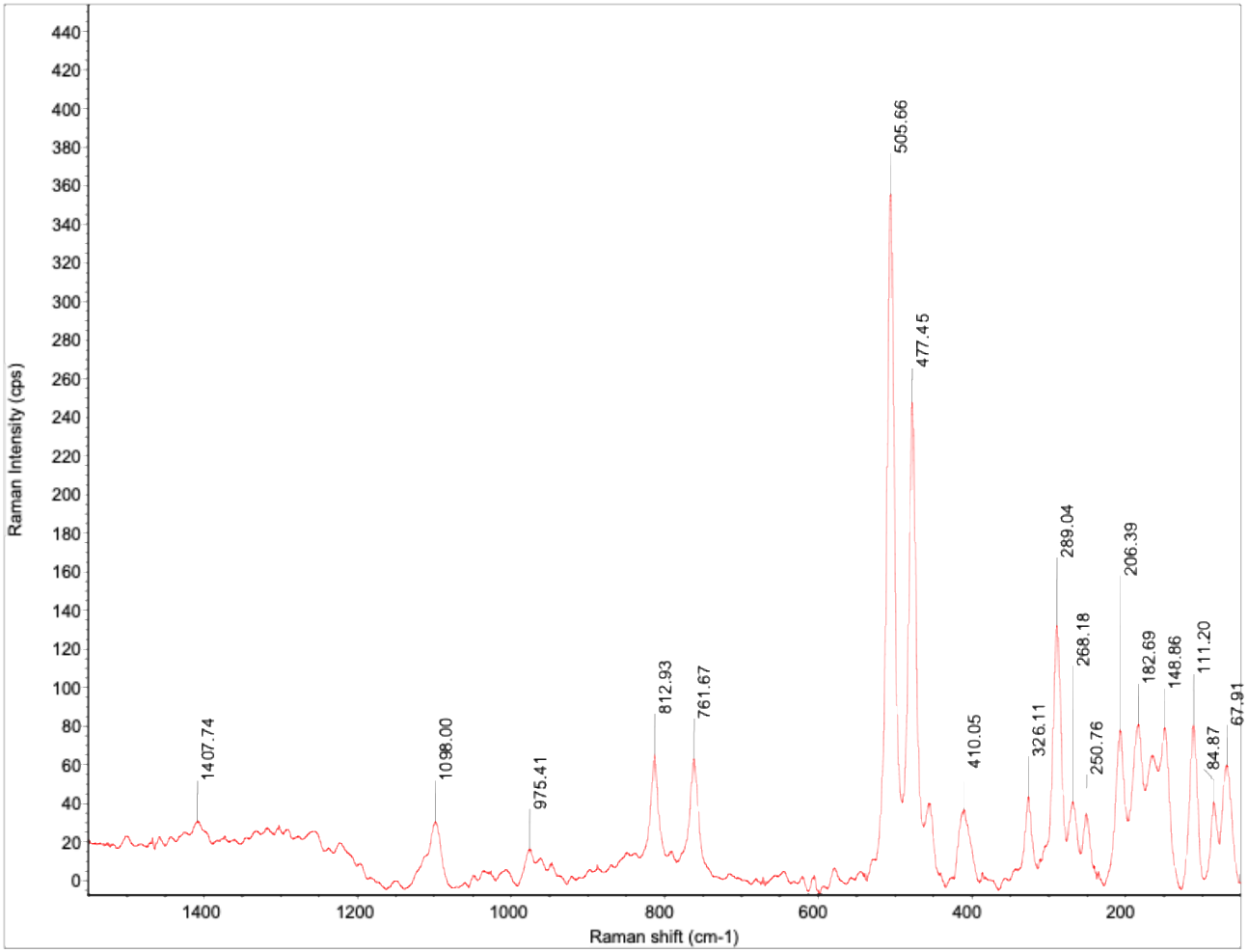
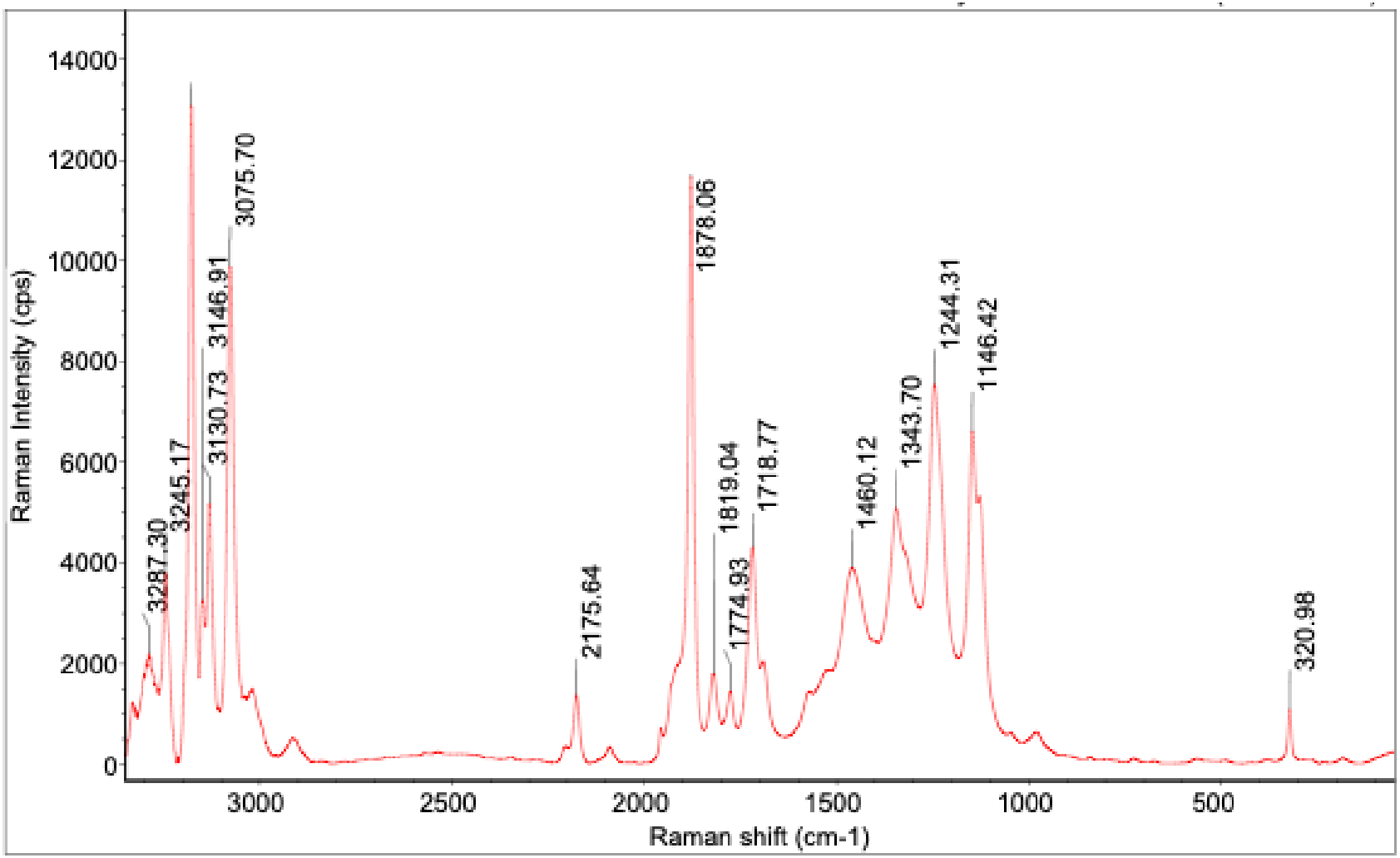
550
500
450
400
350
300
250
200
150
100
50
0
2500
2000
1500
1000
500
Raman shift (cm-1)
2058.95
2039.80
1854.74
1840.59
1735.83
1691.63
1620.81
1609.60
1520.73
1450.74
1429.46
1381.64
1339.48
1272.11
505.38
478.18
278.34
199.71
174.03

Feldspar


Raman Intensity (cps)
Raman shift (cm-1)
1407.74
1098.00
975.41
812.93
761.67
505.66
477.45
410.05
326.11
289.04
268.18
250.76
206.39
182.69
148.86
111.20
84.87
67.91

Fluorite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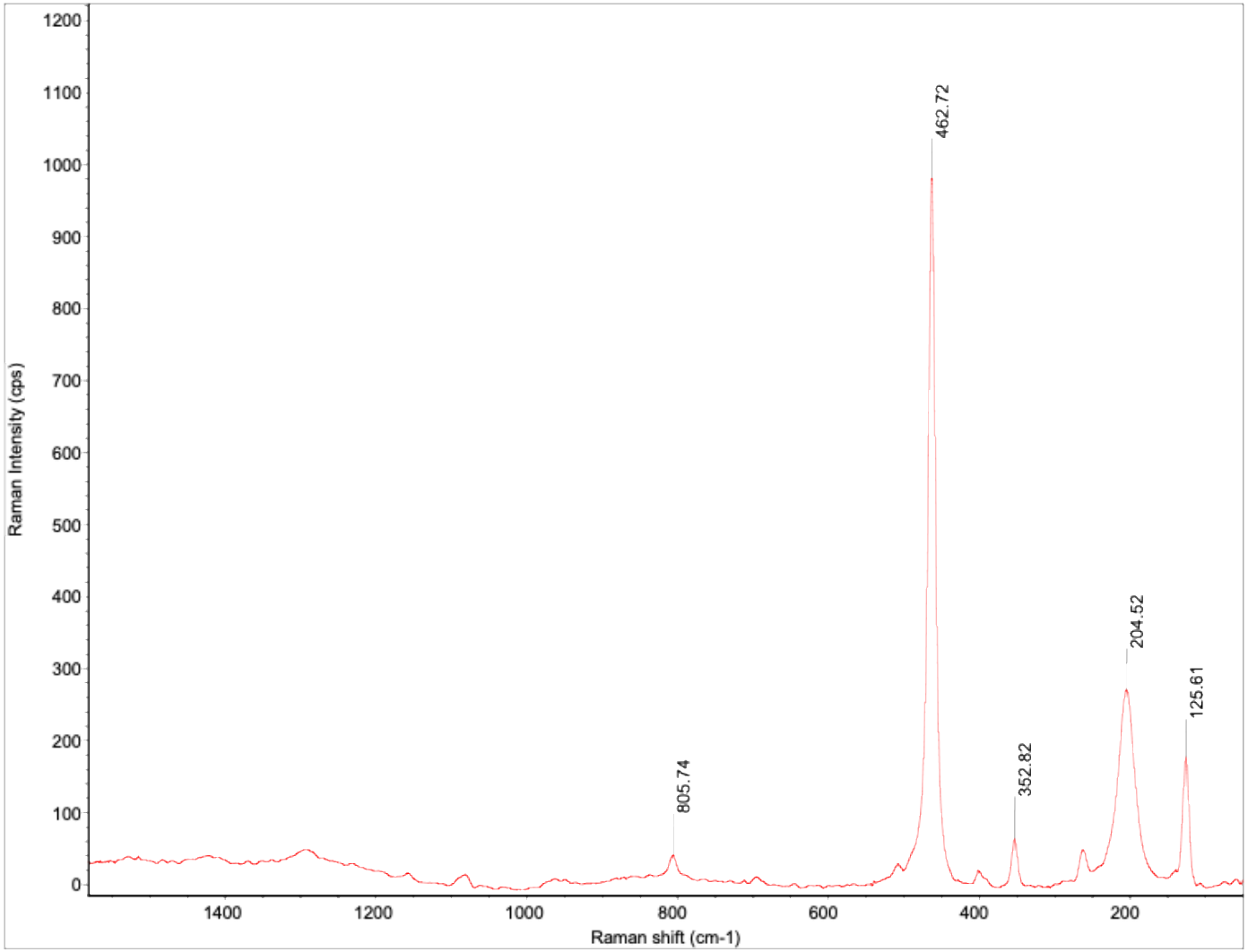
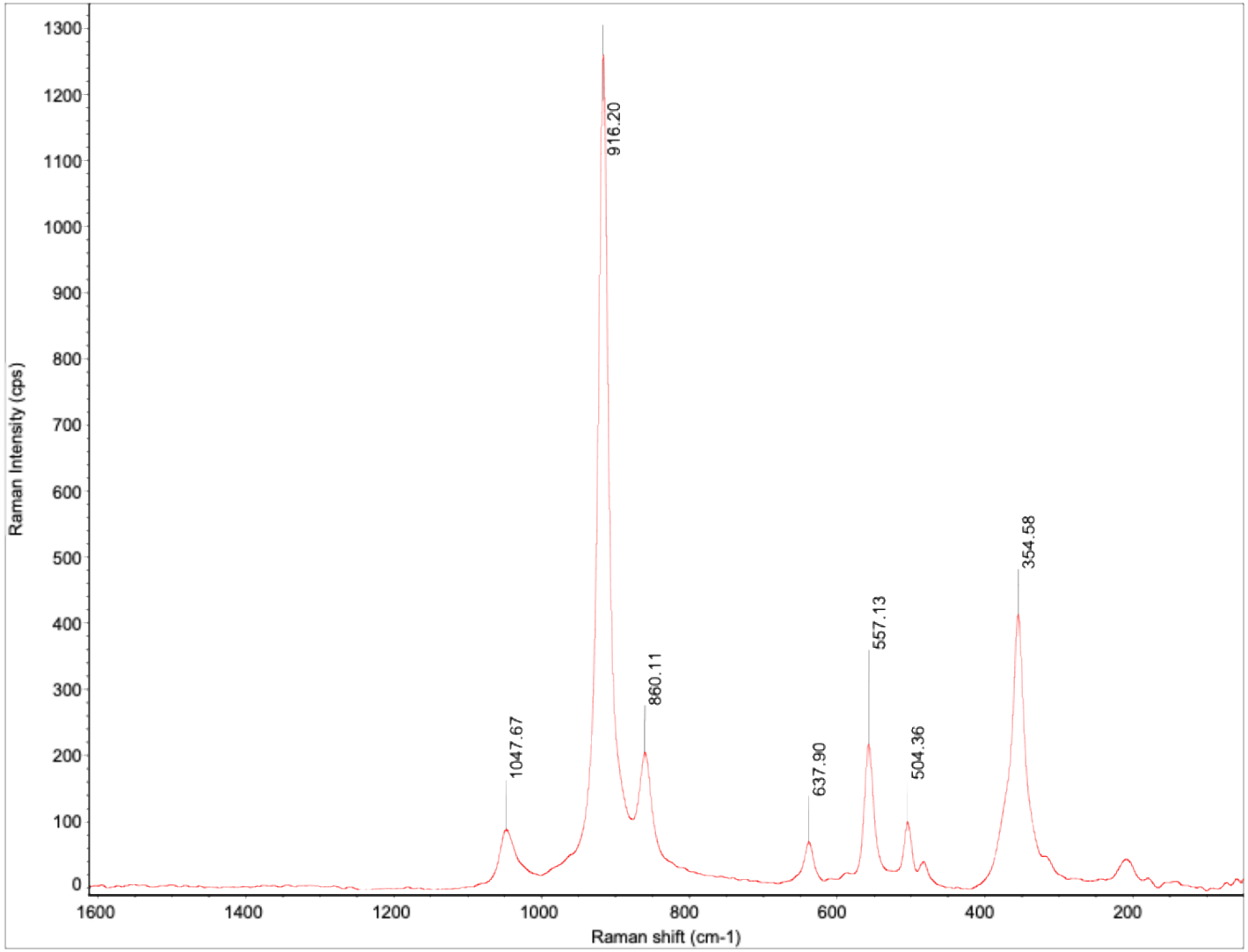
14000
12000
10000
8000
6000
4000
2000
0
3000
2500
2000
1500
1000
500
Raman shift (cm-1)
3287.30
3245.17
3130.73
3146.91
3075.70
2175.64
1878.06
1819.04
1774.93
1718.77
1460.12
1343.70
1244.31
1146.42
320.98

Galena


Raman Intensity (cps)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
462.72
805.74
352.82
204.52
125.61

Garnet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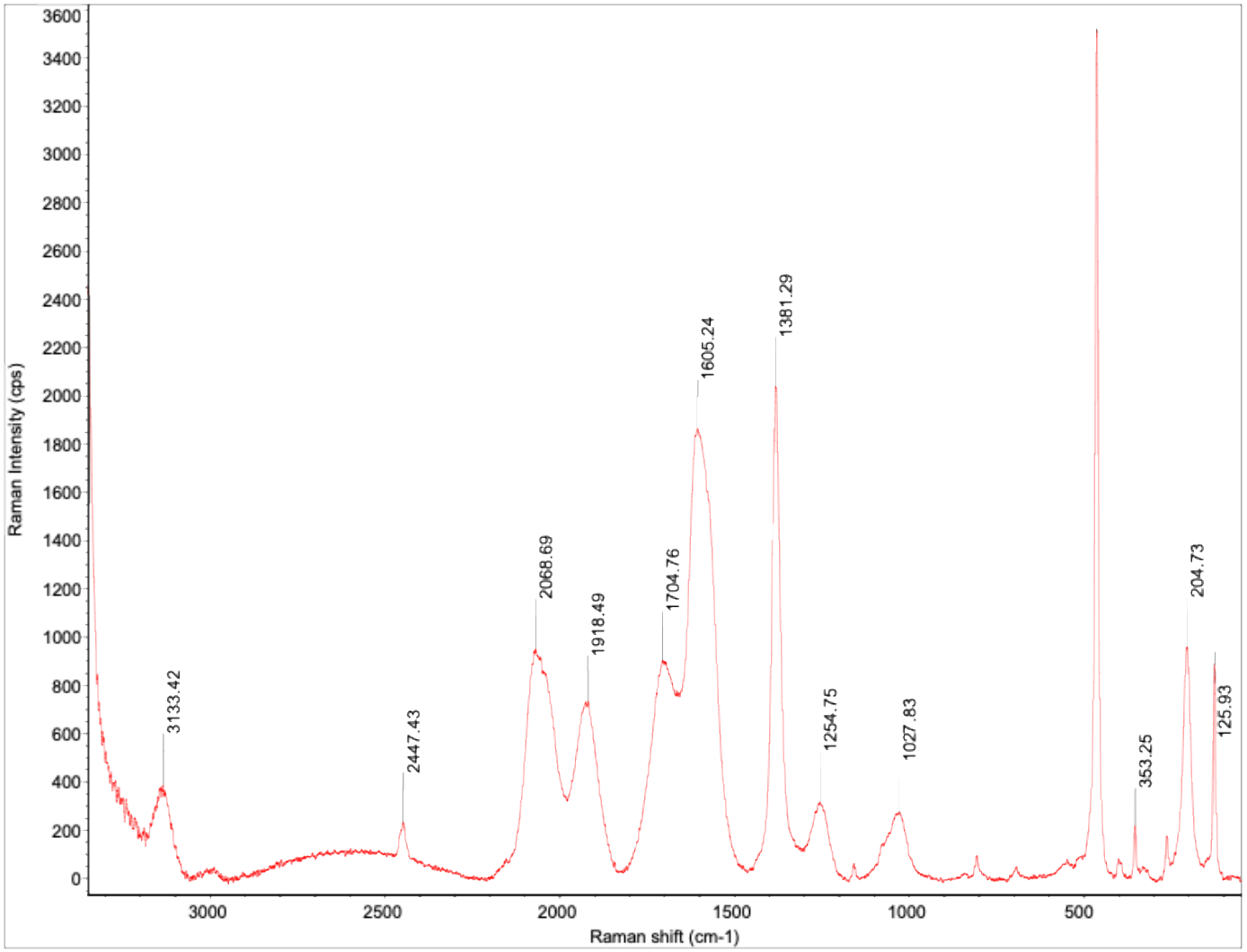
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1600
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
916.20
860.11
1047.67
637.90
557.13
504.36
354.58

Granite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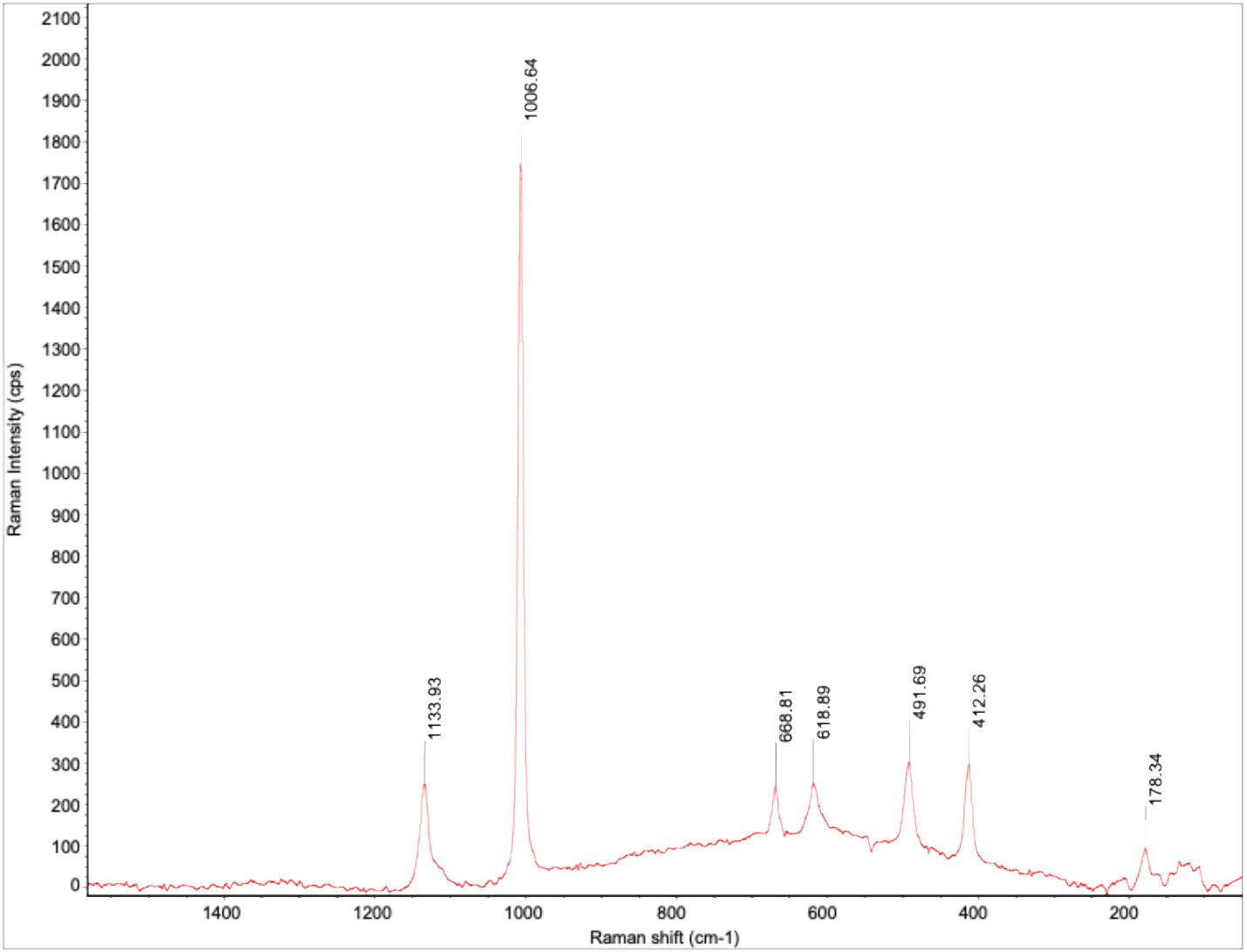
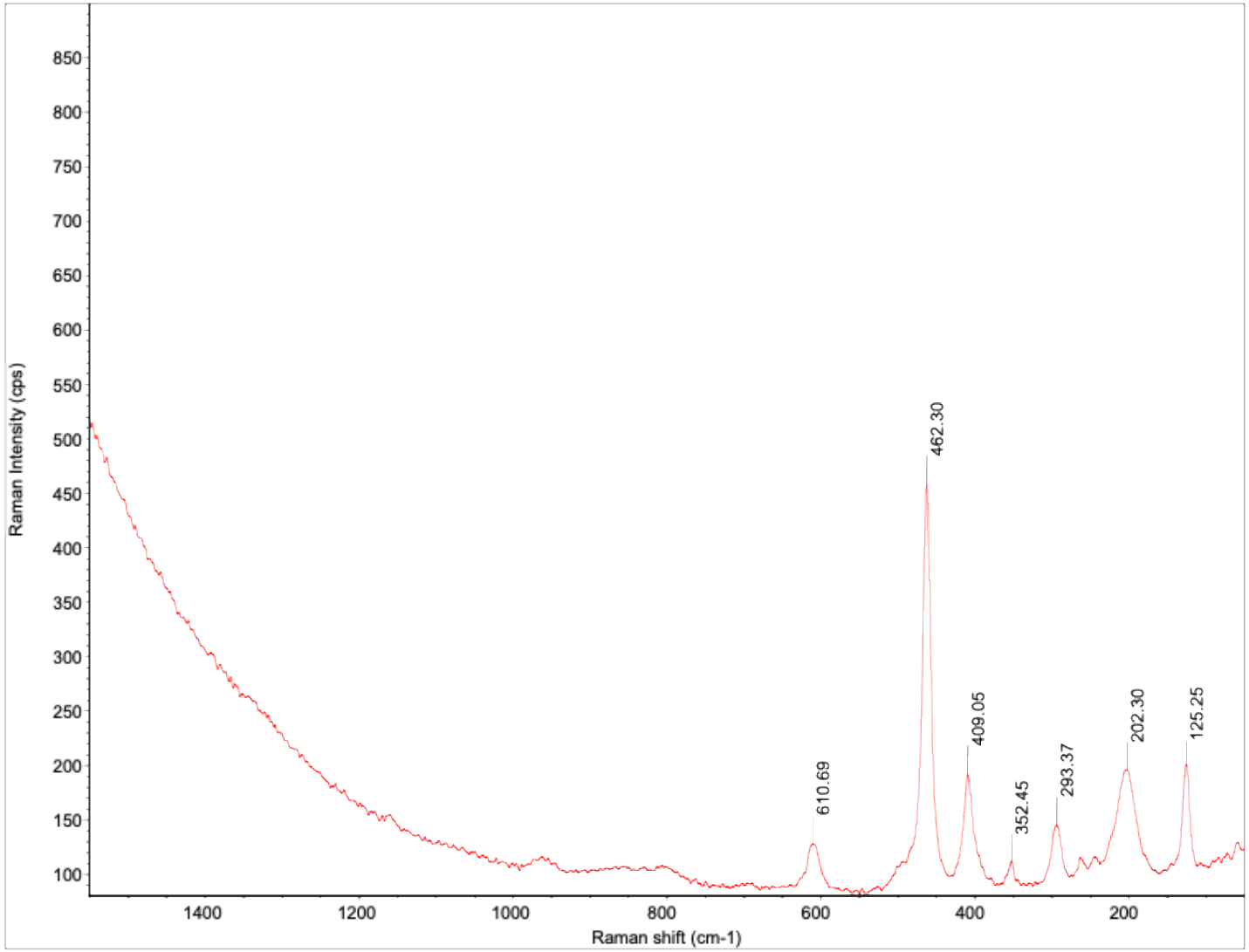
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
3133.42
2447.43
2068.69
1918.49
1704.76
1605.24
1381.29
1254.75
1027.83
353.25
204.73
125.93
3000
2500
2000
1500
1000
500
Raman shift (cm-1)

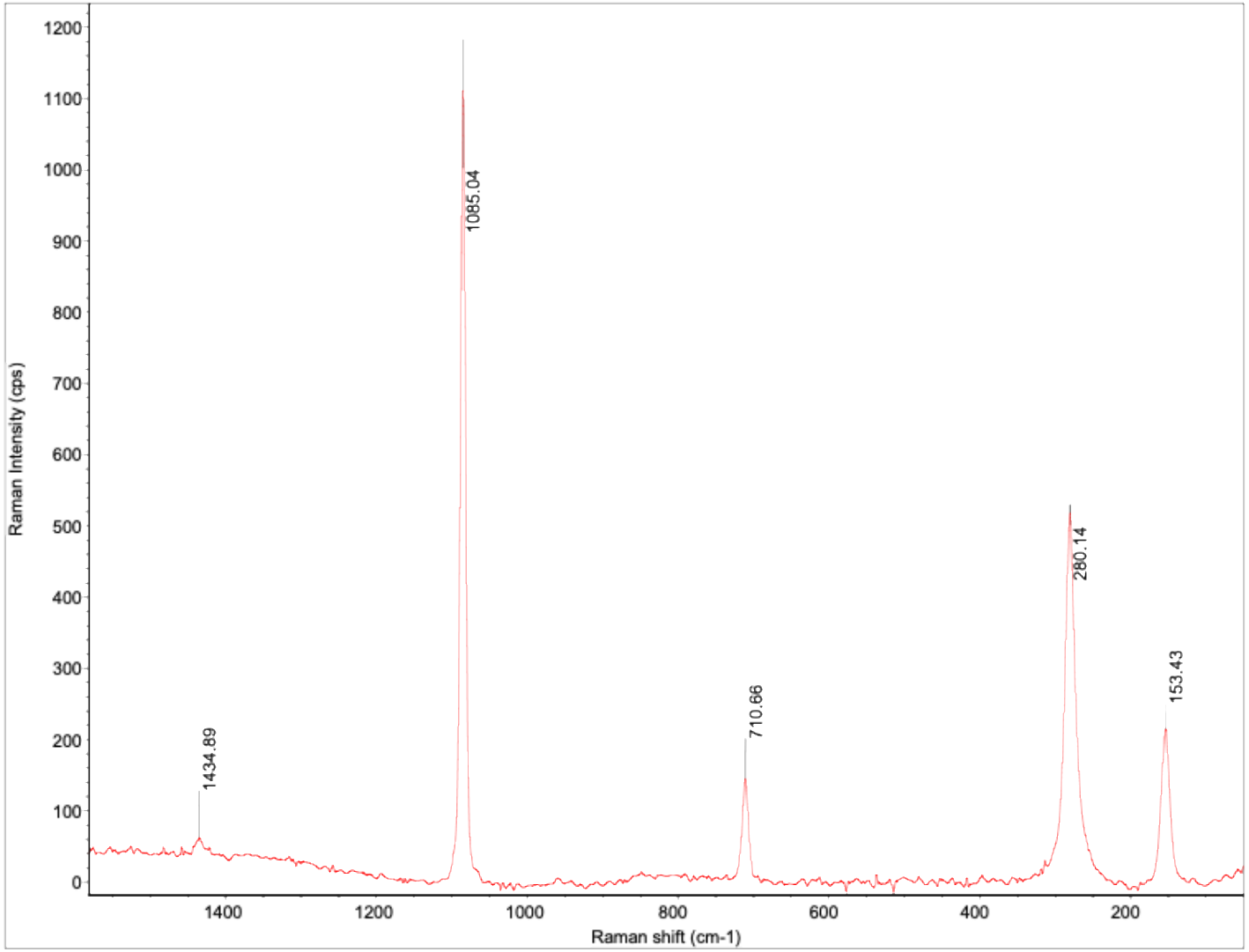
Gypsum


Raman Intensity (cps)
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1006.64
1133.93
668.81
618.89
491.69
412.26
178.34
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

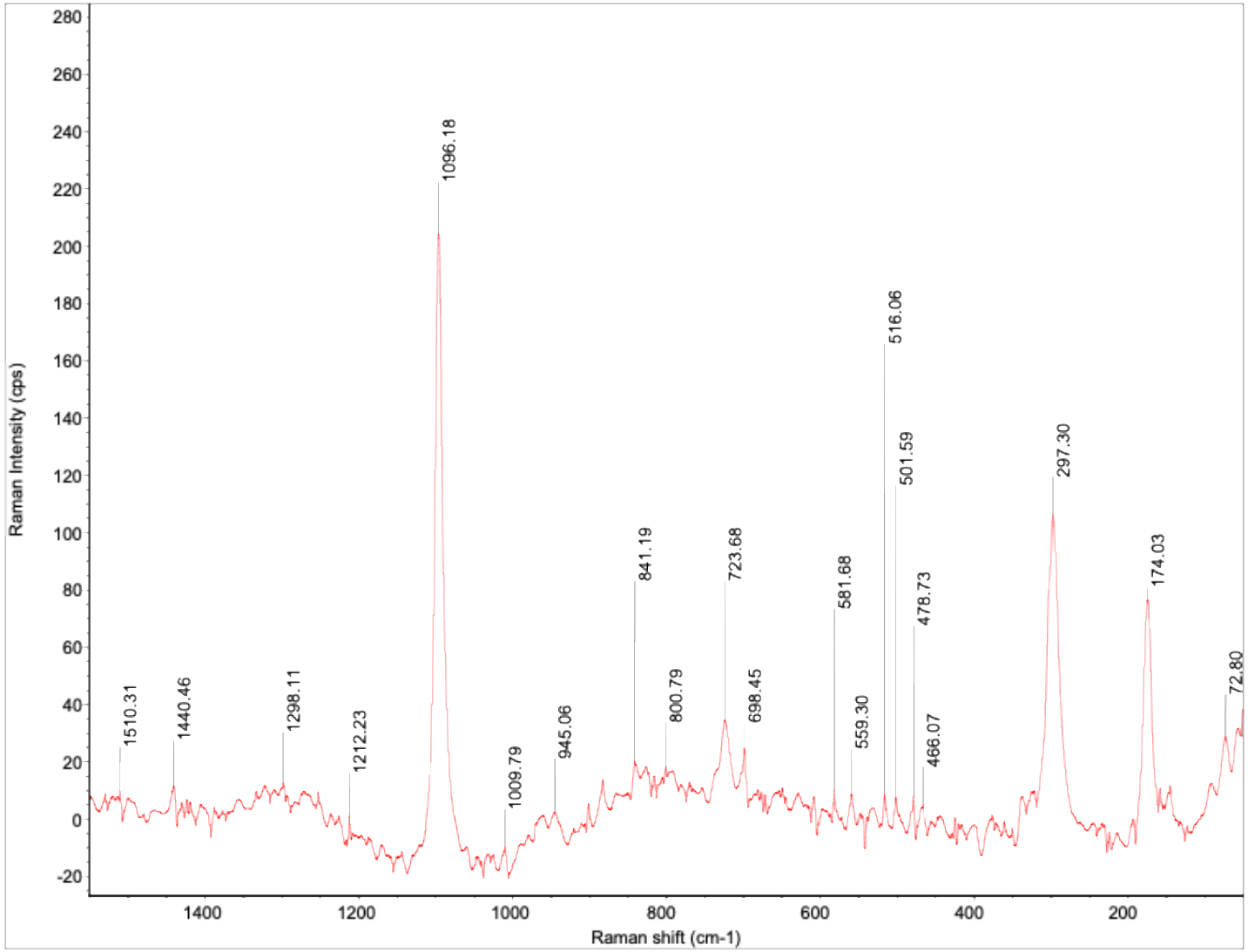
Jasper


Raman Intensity (cps)
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
610.69
462.30
409.05
352.45
293.37
202.30
125.25

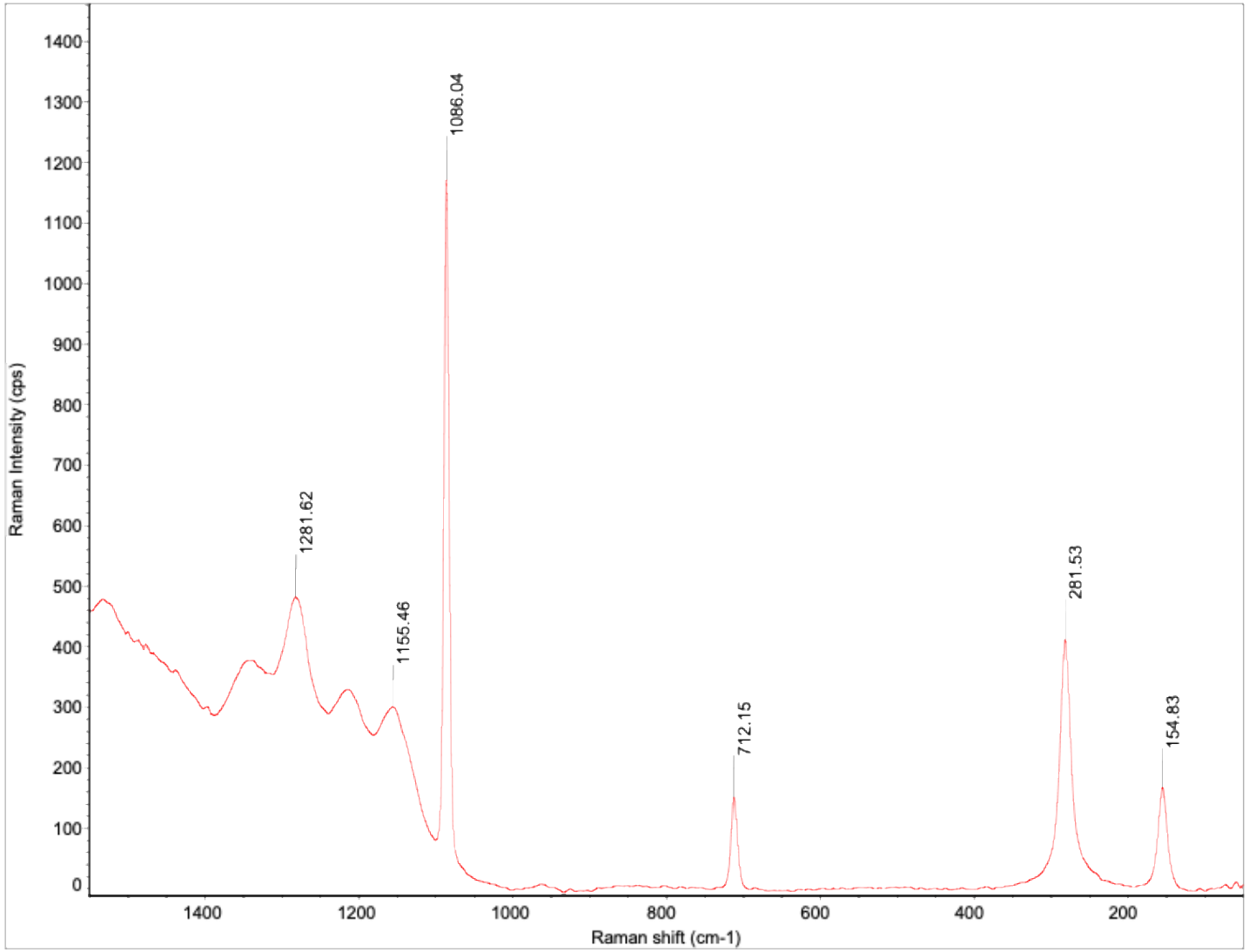
Limestone


Raman Intensity (cps)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1085.04
280.14
153.43
710.66
1434.89
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

Magnesite


Raman Intensity (cps)
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
1510.31
1440.46
1298.11
1212.23
1096.18
1009.79
945.06
841.19
800.79
723.68
698.45
581.68
559.30
516.06
501.59
478.73
466.07
297.30
174.03
72.80

Marble


Raman Intensity (cps)
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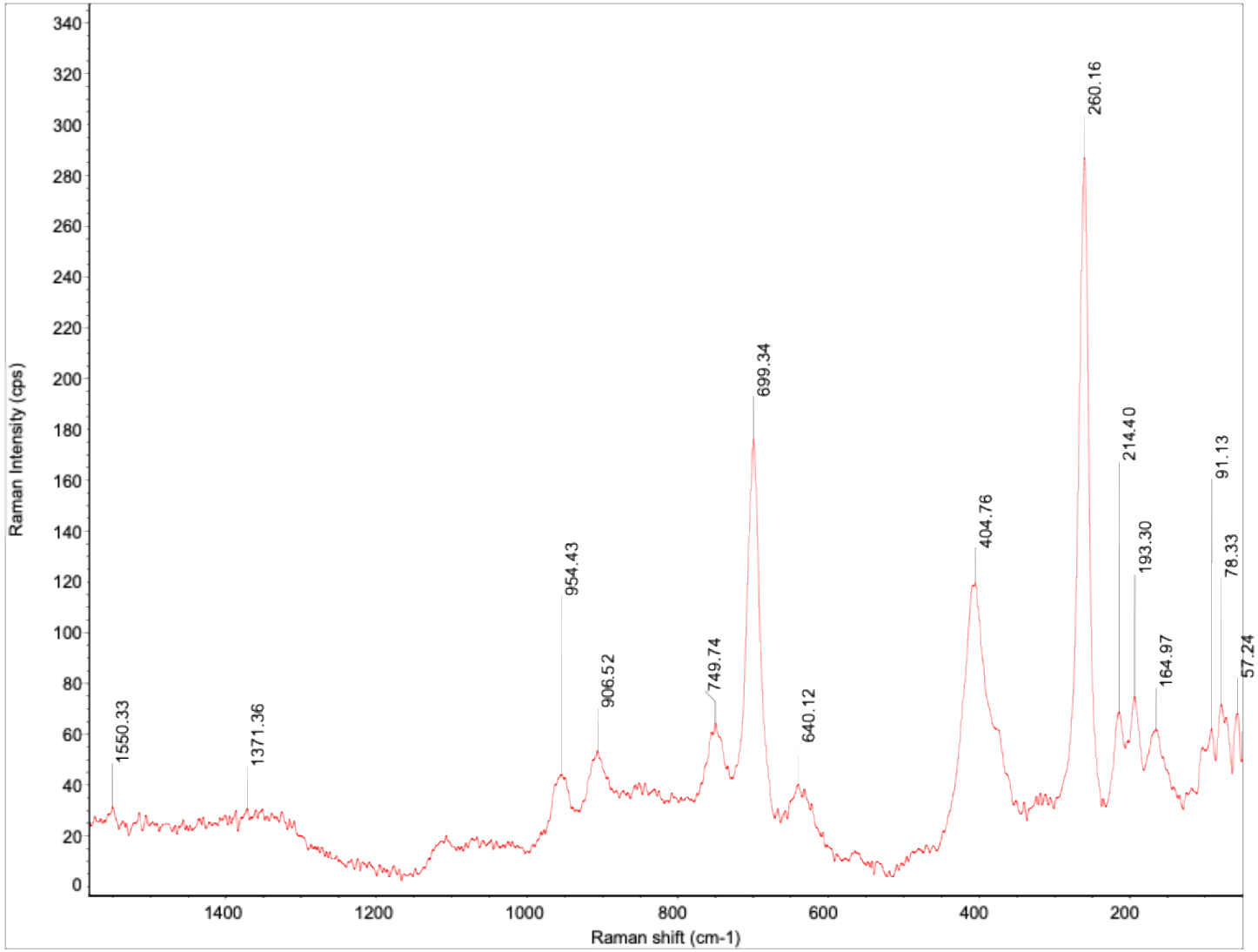
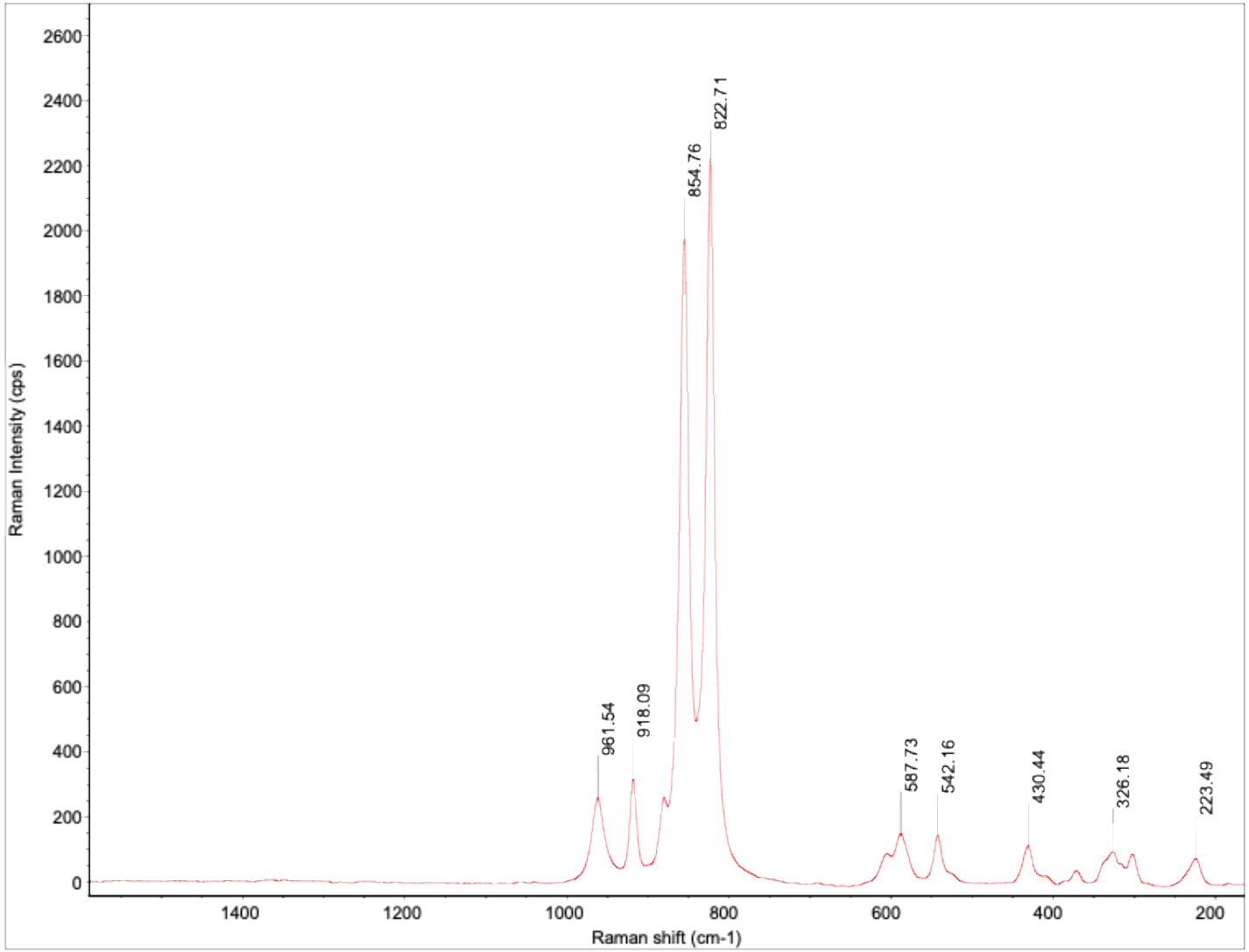
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1086.04
1281.62
1155.46
712.15
281.53
154.83
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

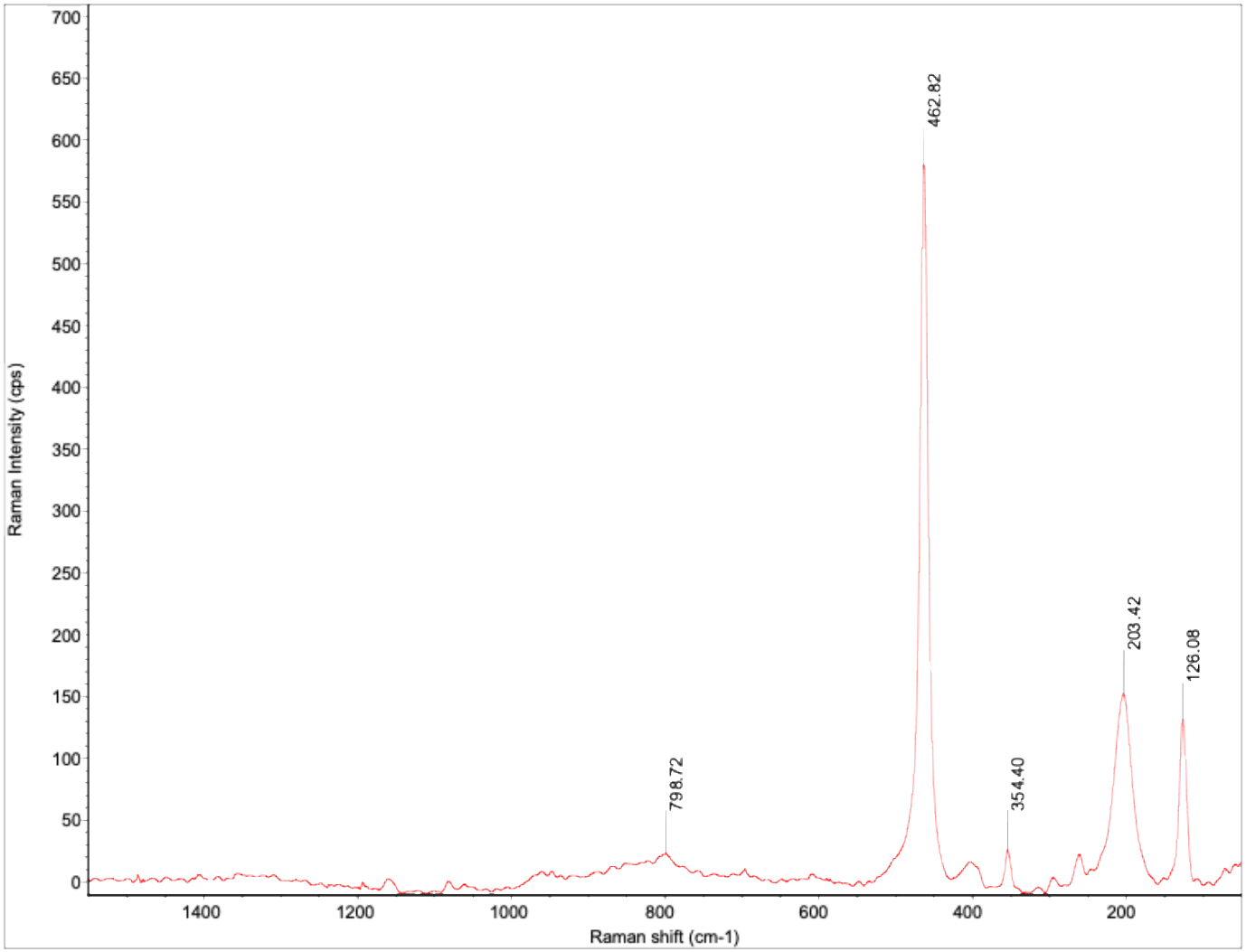
Muscovite


Raman Intensity (cps)
Raman shift (cm-1)
1550.33
1371.36
954.43
906.52
749.74
699.34
640.12
404.76
260.16
214.40
193.30
164.97
91.13
78.33
57.24

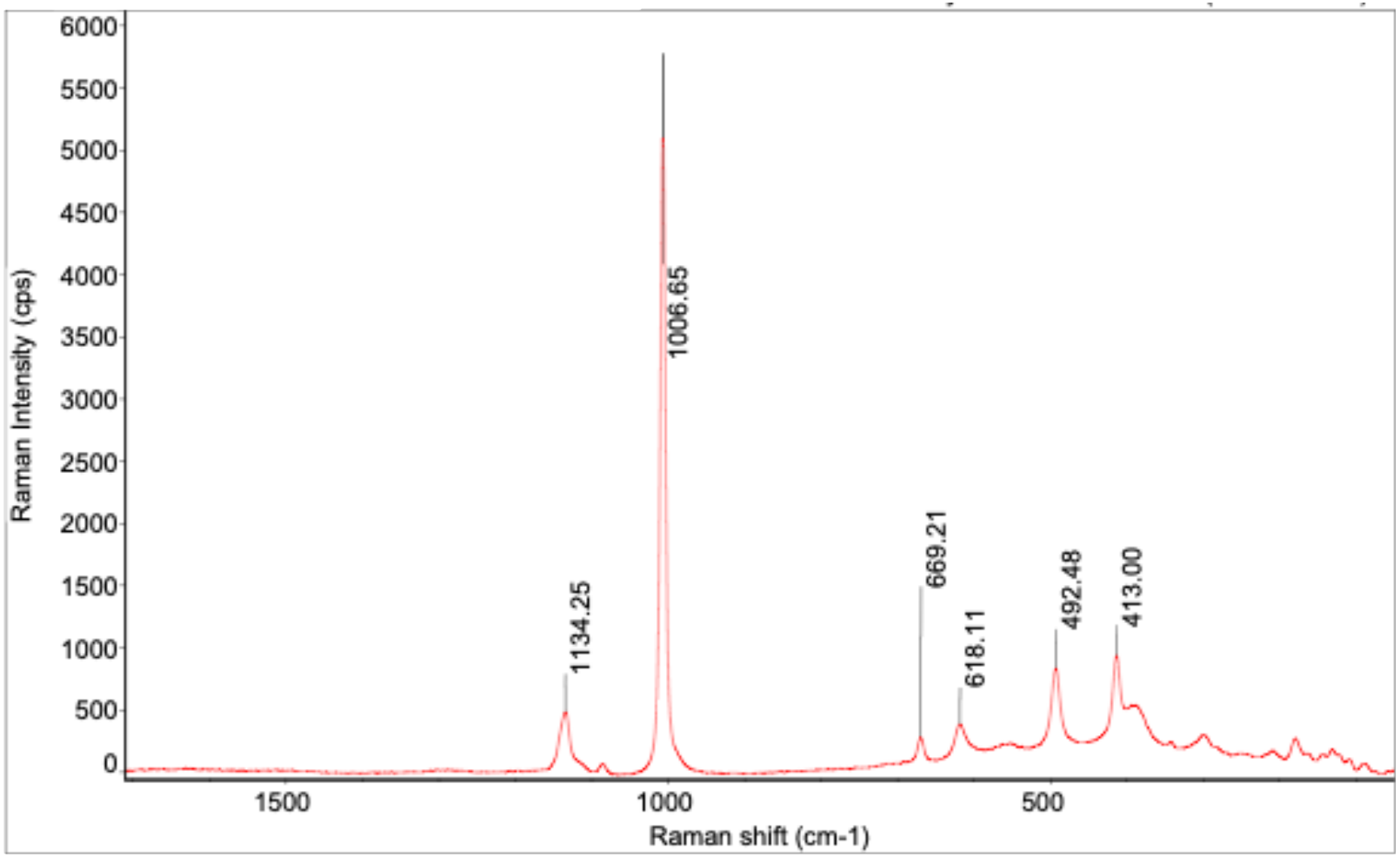
Olivine


Raman Intensity (cps)
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
961.54
918.09
854.76
822.71
587.73
542.16
430.44
326.18
223.49
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

Onyx


Raman Intensity (cps)
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
462.82
798.72
354.40
203.42
126.08

Pyrite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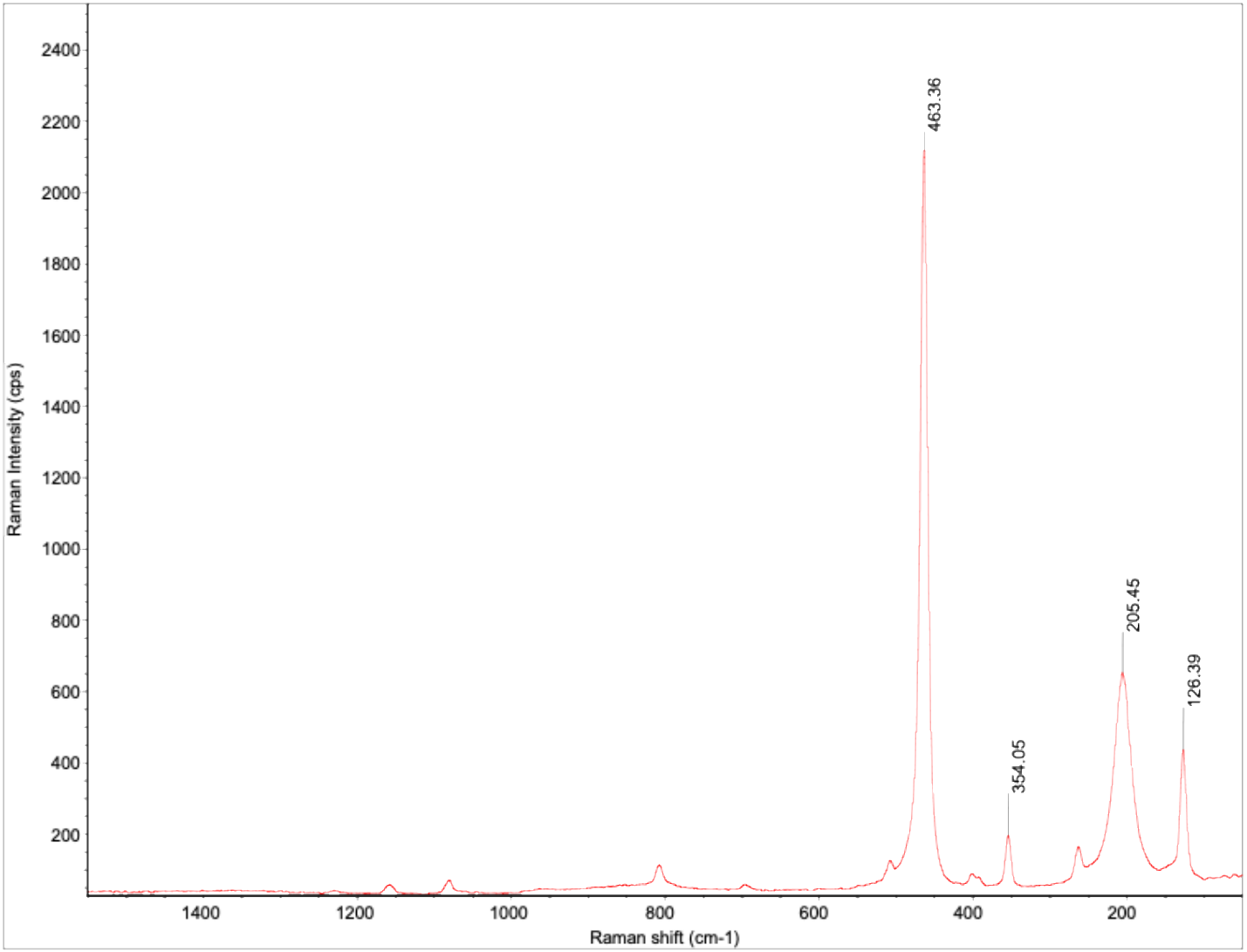
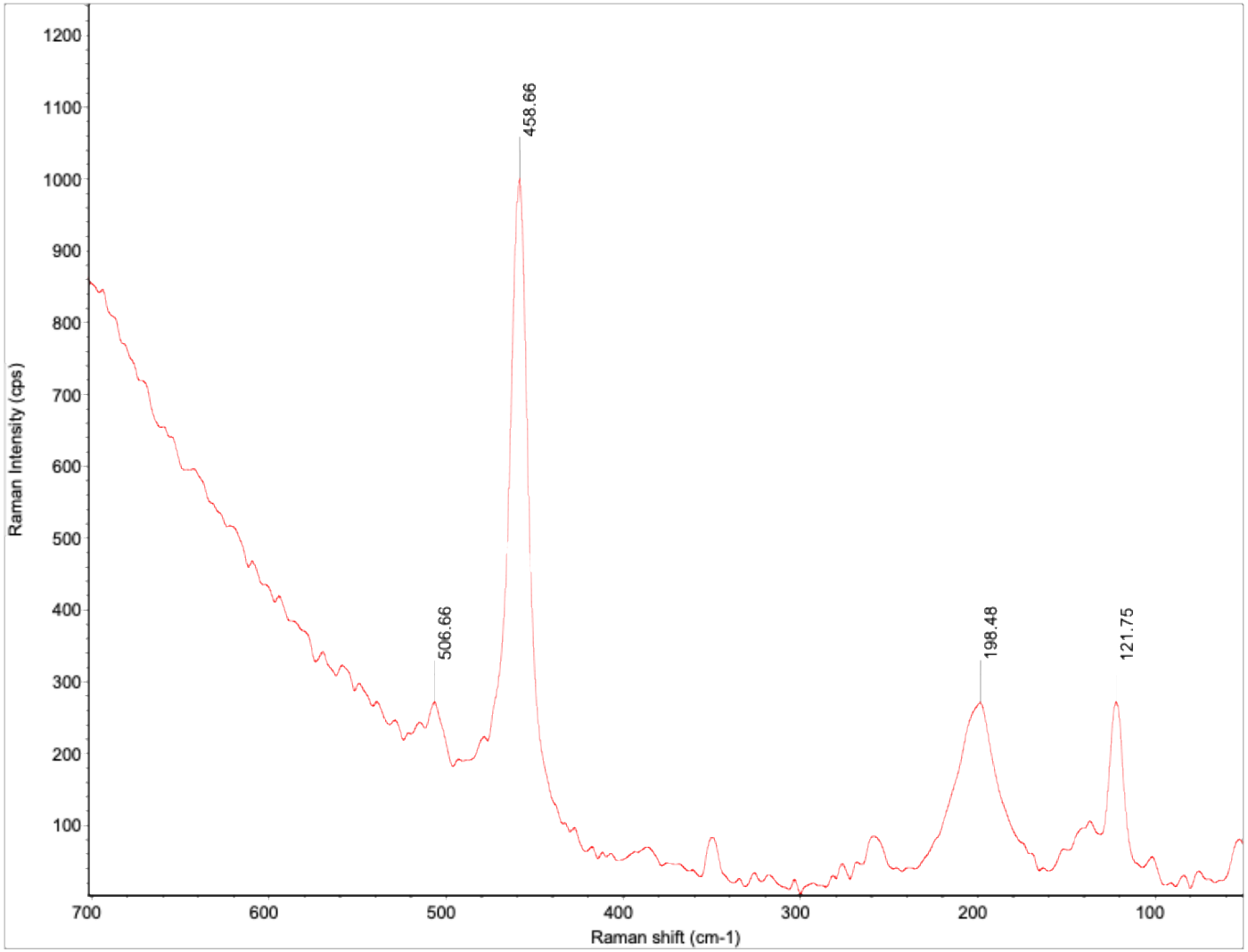
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1134.25
1006.65
669.21
618.11
492.48
413.00
1500
1000
500
Raman shift (cm-1)

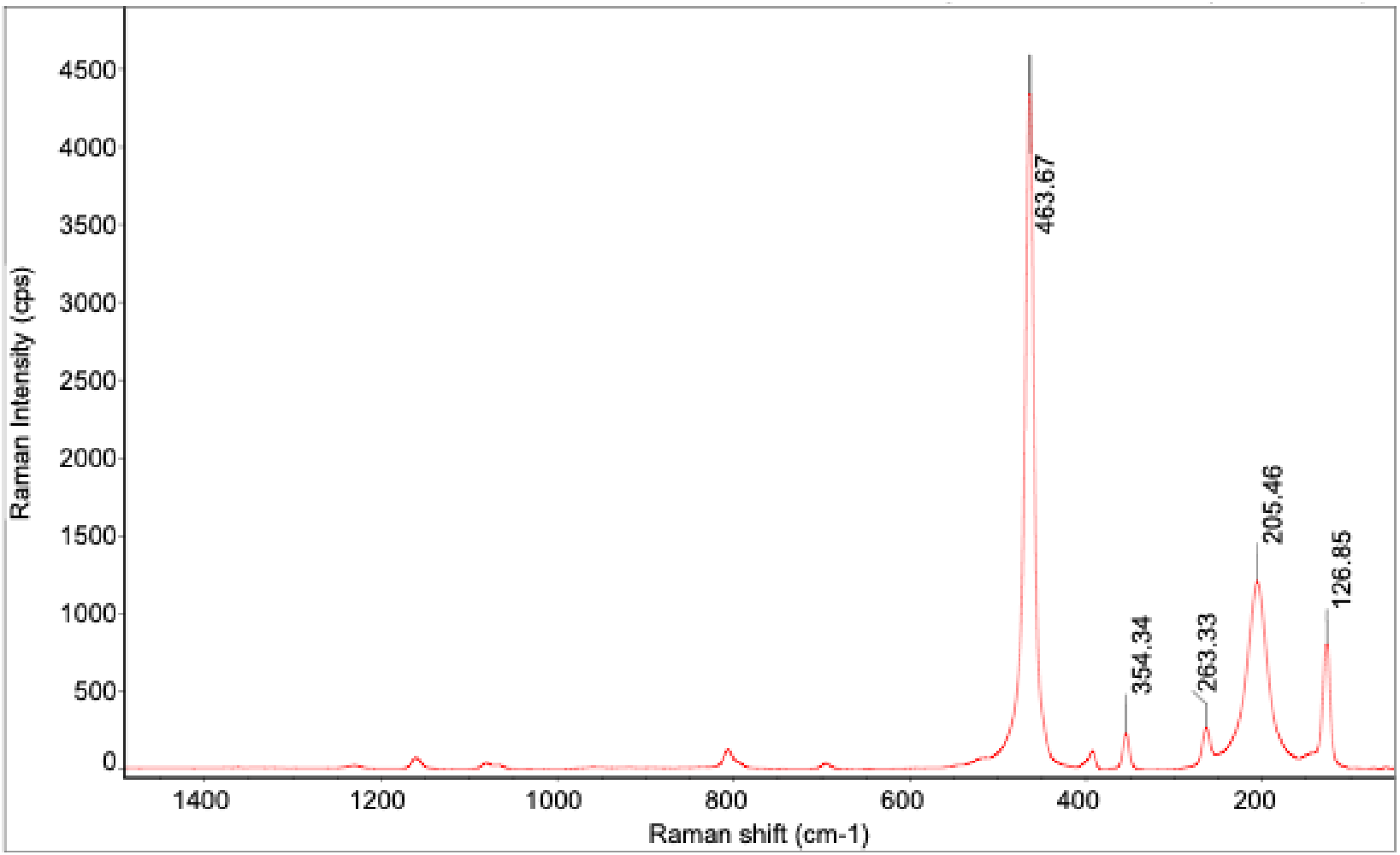
Quartz


Raman Intensity (cps)
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
463.36
354.05
205.45
126.39
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

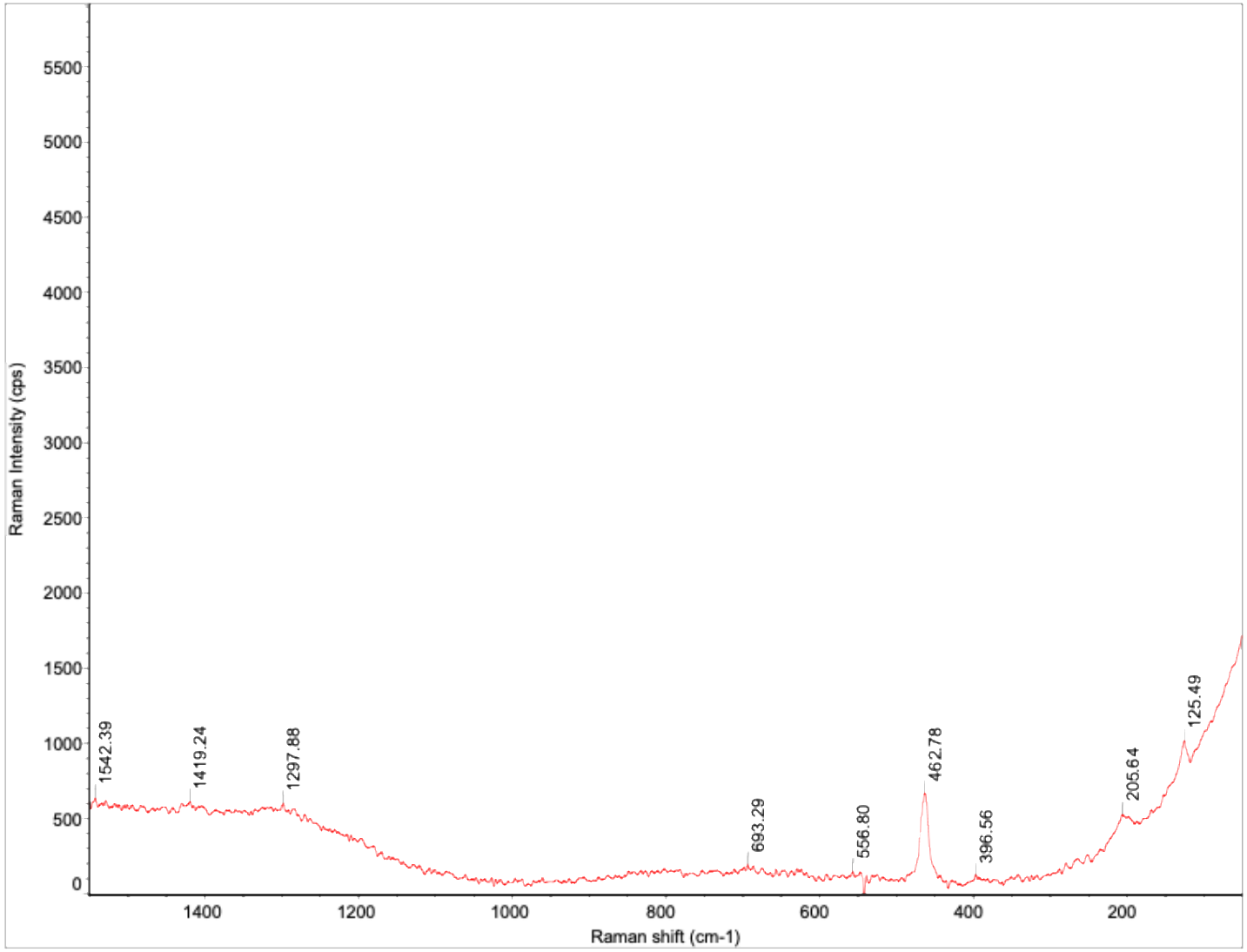
Rhyolite


Raman Intensity (cps)
1200
1100
1000
900
800
700
600
500
400
300
200
100
458.66
506.66
198.48
121.75
700
600
500
400
300
200
100
Raman shift (cm-1)

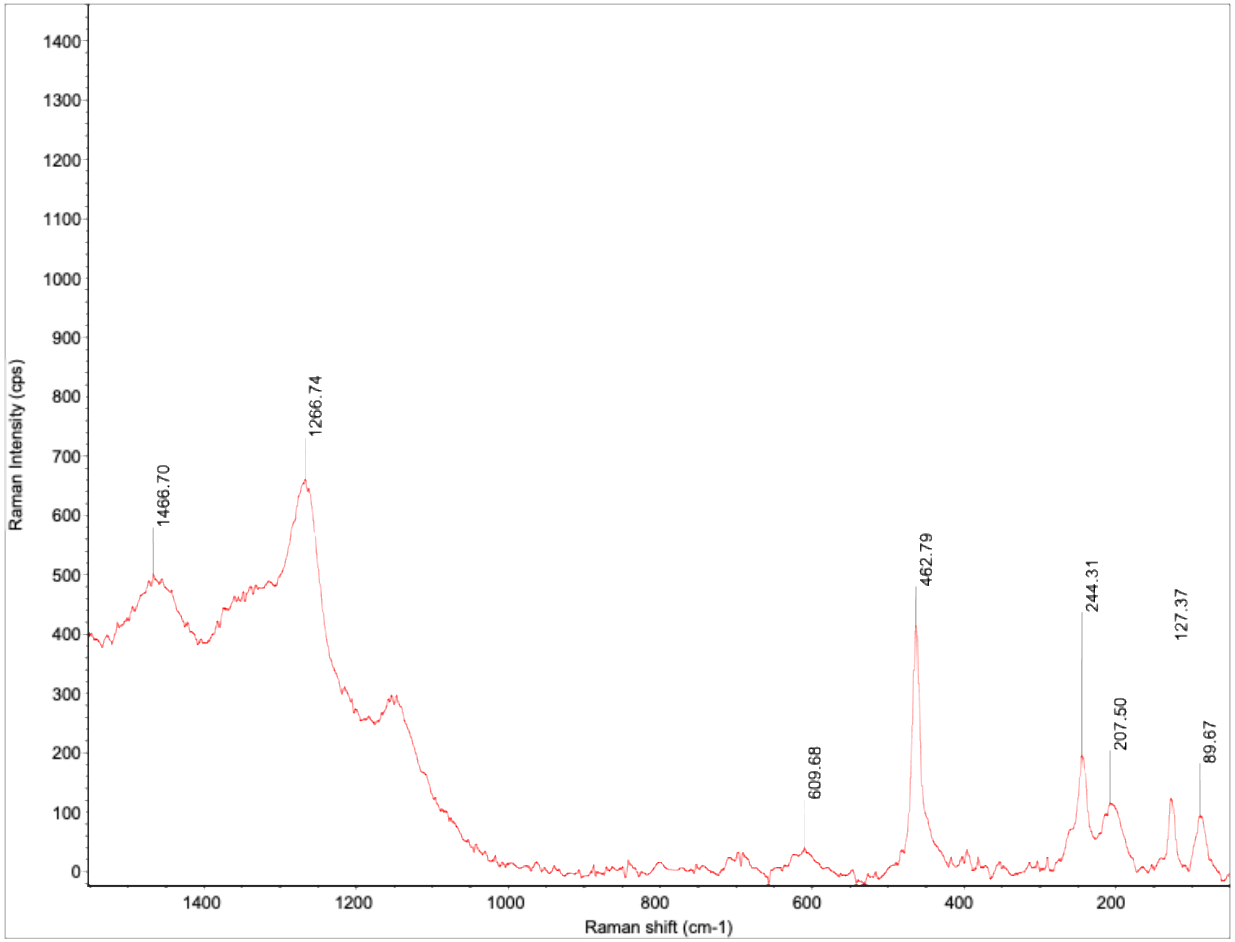
Rose Quartz


Raman Intensity (cps)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
463.67
354.34
263.33
205.46
126.85

Sandstone


Raman Intensity (cps)
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
1542.39
1419.24
1297.88
693.29
556.80
462.78
396.56
205.64
125.49

Schist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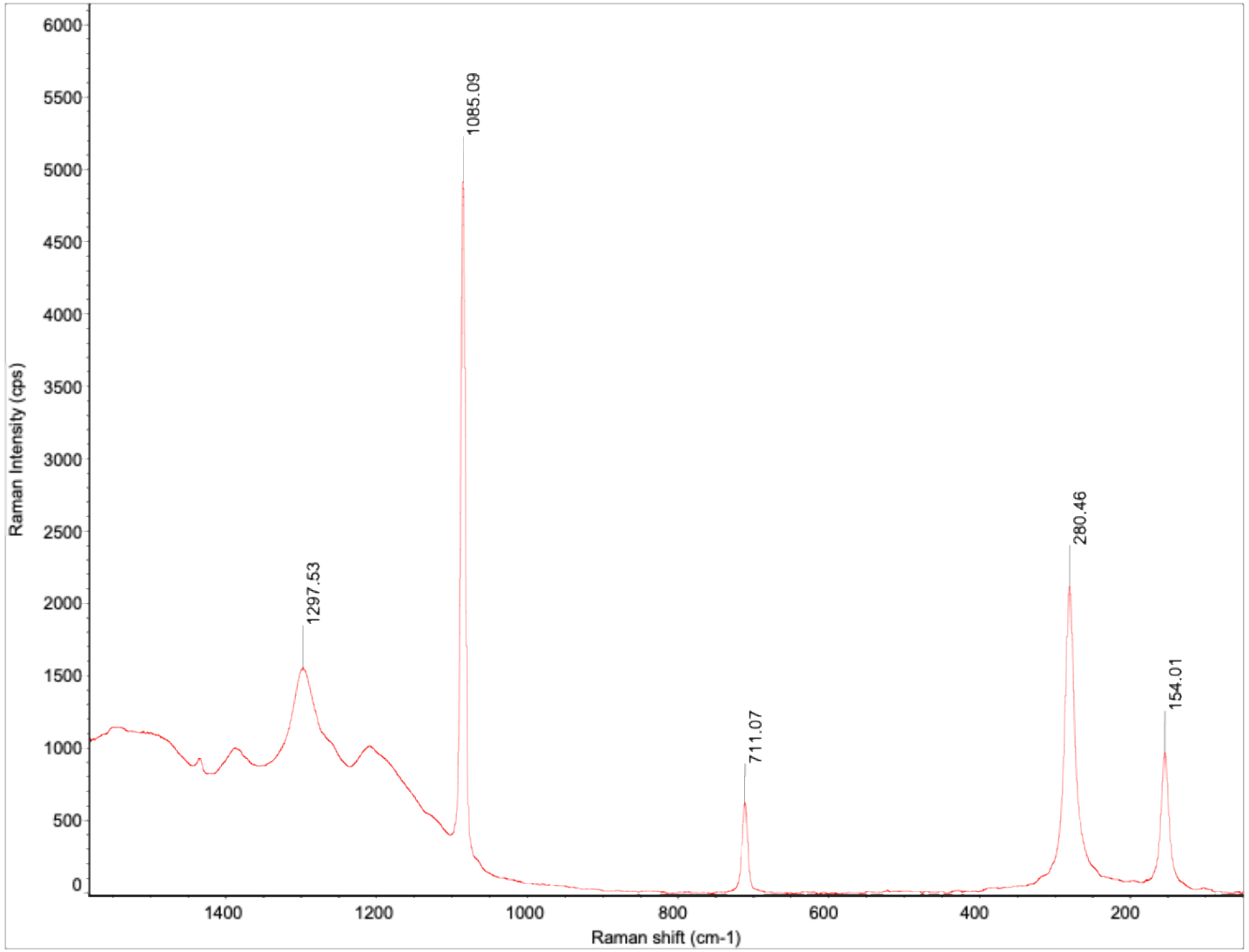
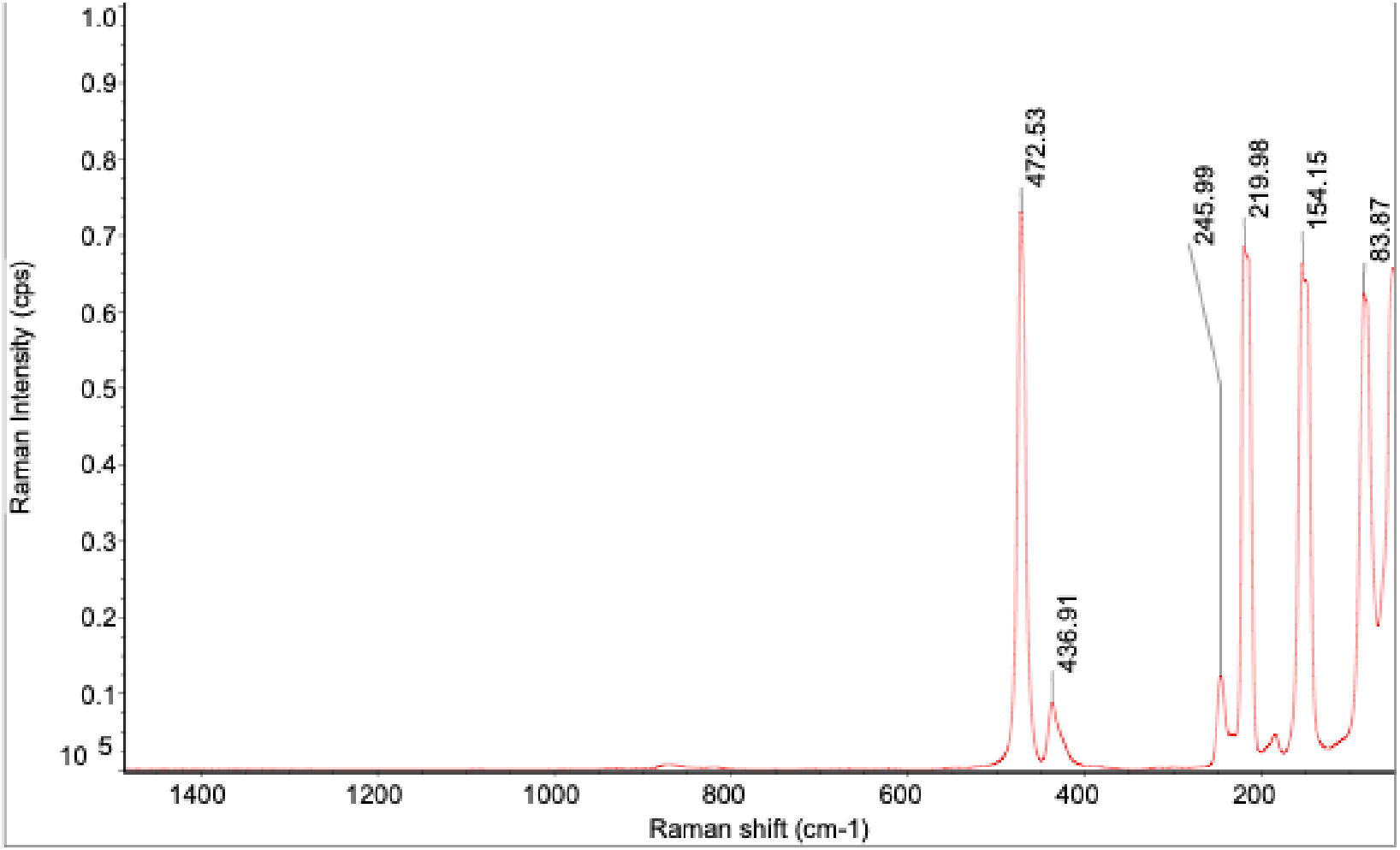
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1466.70
1266.74
609.68
462.79
244.31
207.50
127.37
89.67
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

Serpentine


Raman Intensity (cps)
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1085.09
1297.53
711.07
280.46
154.01
1400
1200
1000
800
600
400
200
Raman shift (cm-1)

Sulphur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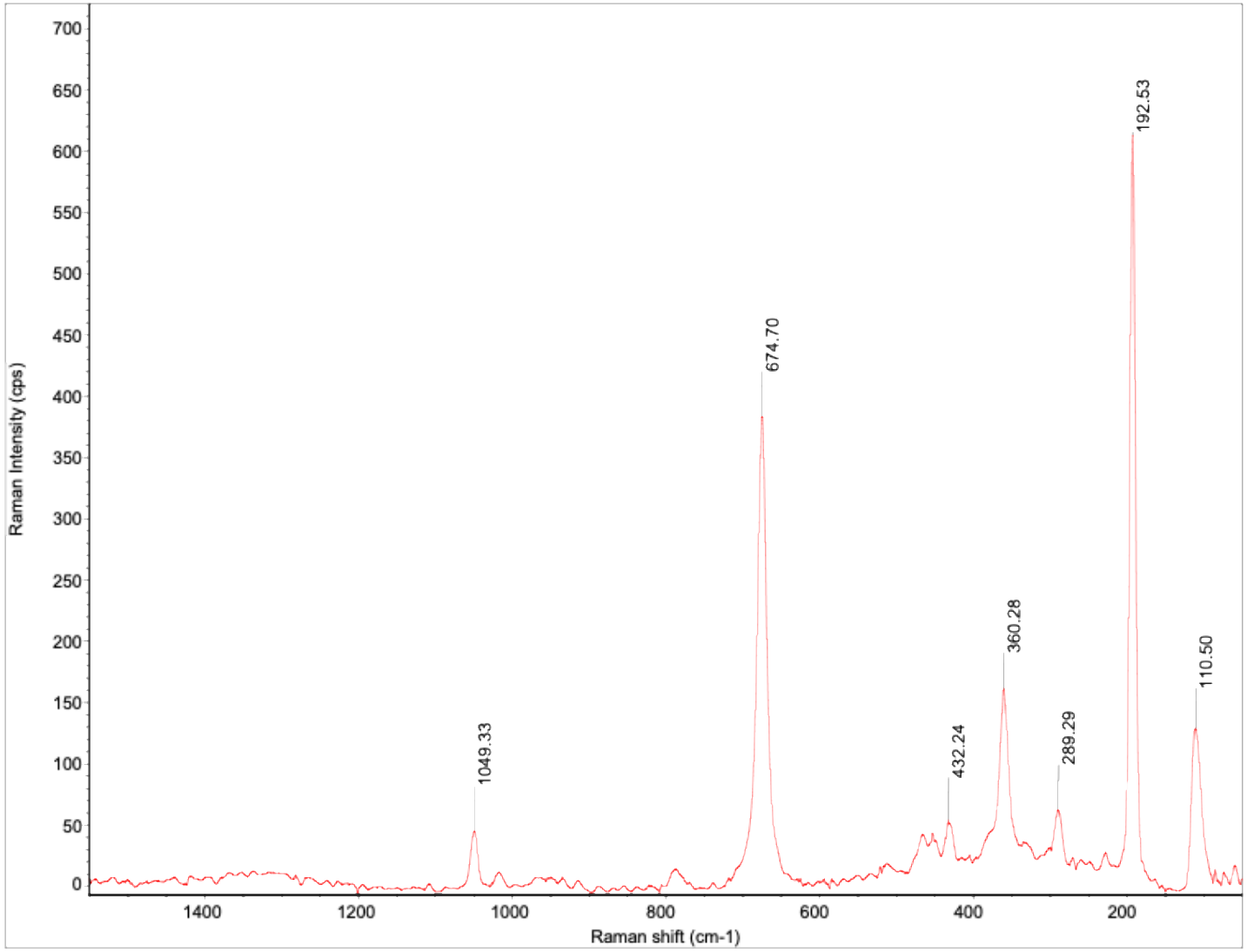
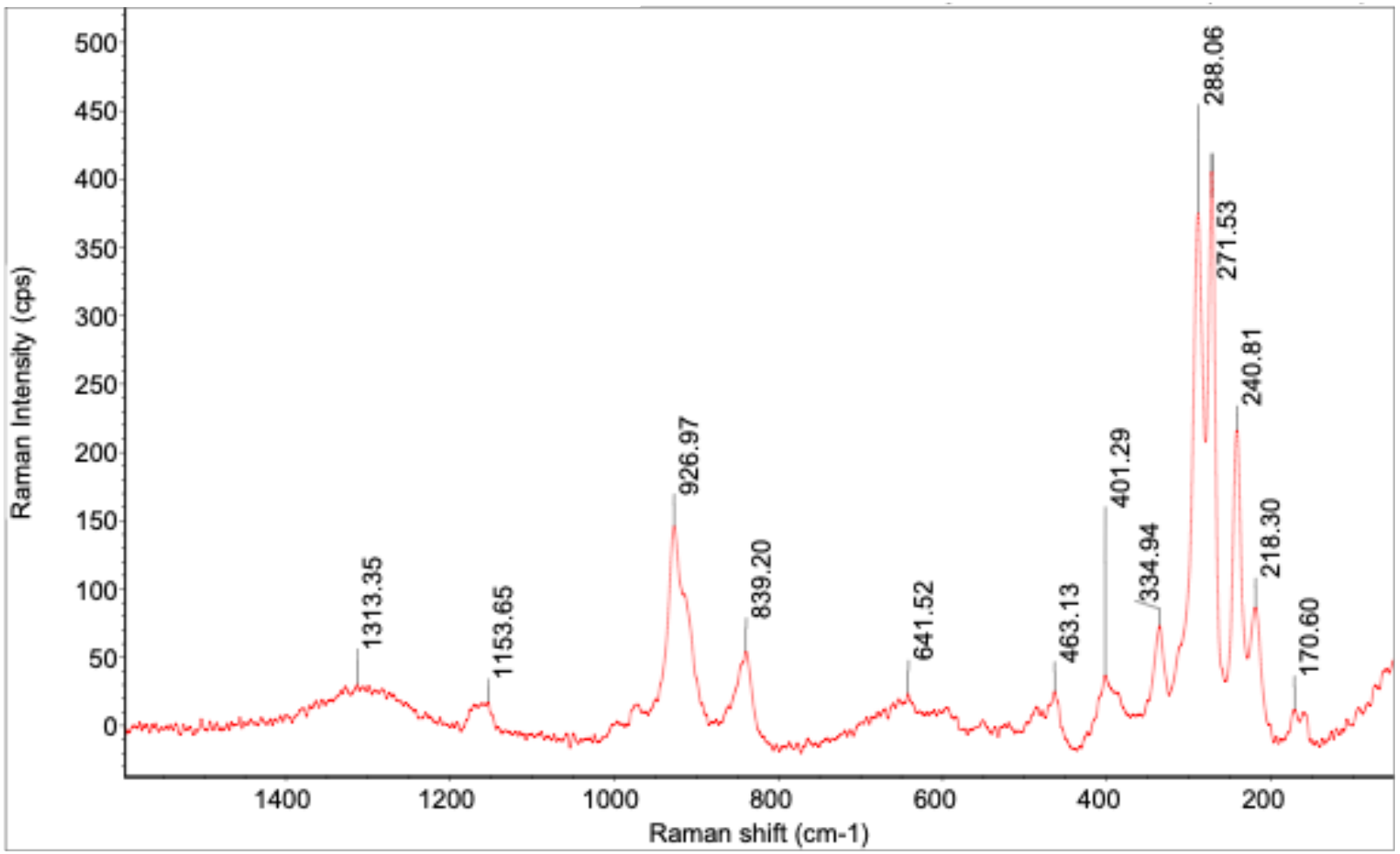
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
10 5
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
472.53
436.91
245.99
219.98
154.15
83.87

Talc


Raman Intensity (cps)
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
1049.33
674.70
432.24
360.28
289.29
192.53
110.50

Topaz


Raman Intensity (cps)
500
450
400
350
300
250
200
150
100
50
0
1400
1200
1000
800
600
400
200
Raman shift (cm-1)
1313.35
1153.65
926.97
839.20
641.52
463.13
401.29
334.94
288.06
271.53
240.81
218.30
170.60

Parameters of Thermo Scientific DXR2 Raman Microscope:

These are the parameters unless otherwise stated

Parameter	Value
Objective	10x
Laser wavelength	785 nm
Laser	On
Laser Power (max 30 mW)	20.0
Aperture	50 um slit
Grating	400 Lines/mm
Estimated Resolution	4.7 – 8.6 cm-1
Estimated Spot Size	3.1 µm
Allowed Range	3371 to 13 cm-1
Min Range Limit (cm-1)	50
Max Range Limit (cm-1)	3350

*Basalt was done at a laser power of 25.0 mW