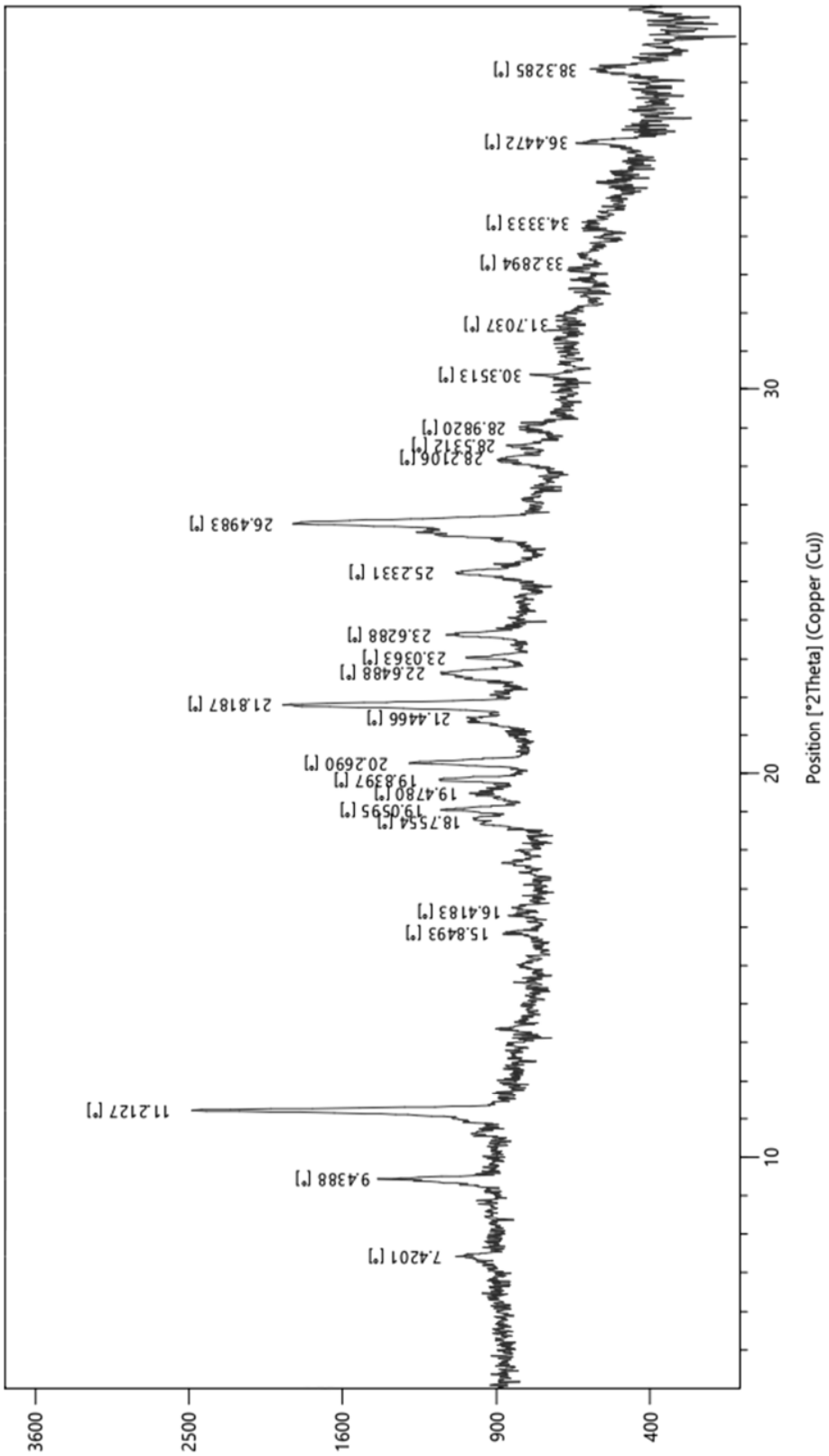

3600
2500
1600
900
400
10
20
30
Position [°2Theta] (Copper (Cu))
38.3285 [°]
36.4472 [°]
34.3333 [°]
33.2894 [°]
31.7037 [°]
30.3513 [°]
28.9820 [°]
28.5312 [°]
28.2106 [°]
26.4983 [°]
25.2331 [°]
23.6288 [°]
23.0363 [°]
22.6488 [°]
21.8187 [°]
21.4466 [°]
20.2690 [°]
19.8397 [°]
19.4780 [°]
19.0595 [°]
18.7554 [°]
16.4183 [°]
15.8493 [°]
11.2127 [°]
9.4388 [°]
7.4201 [°]

Figure 1

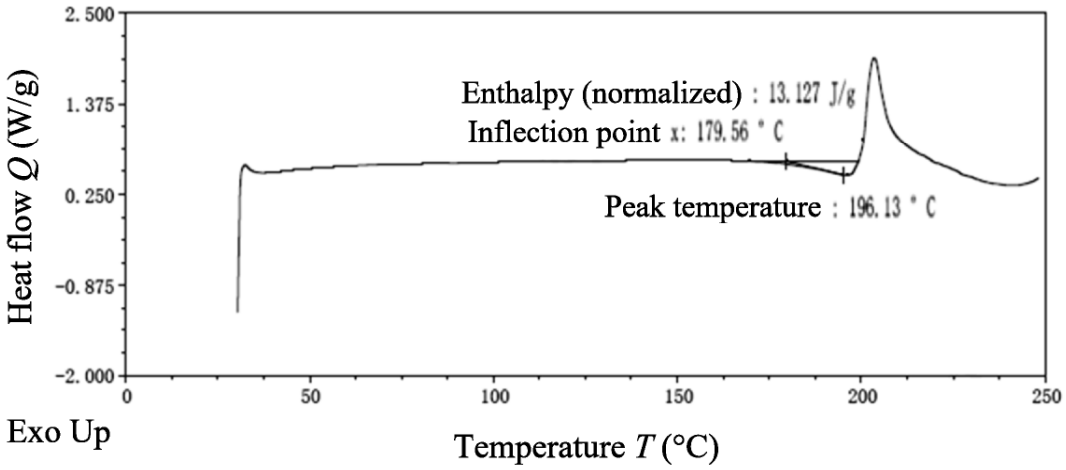


Figure 2

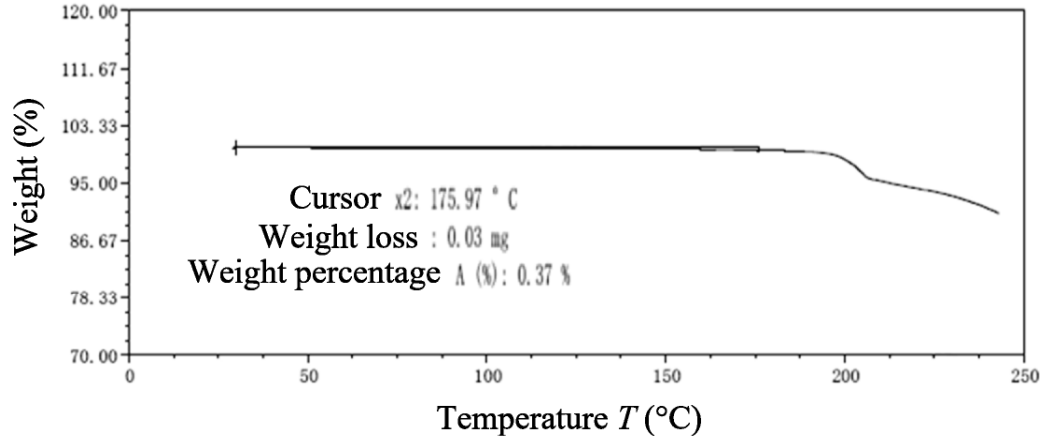


Figure 3

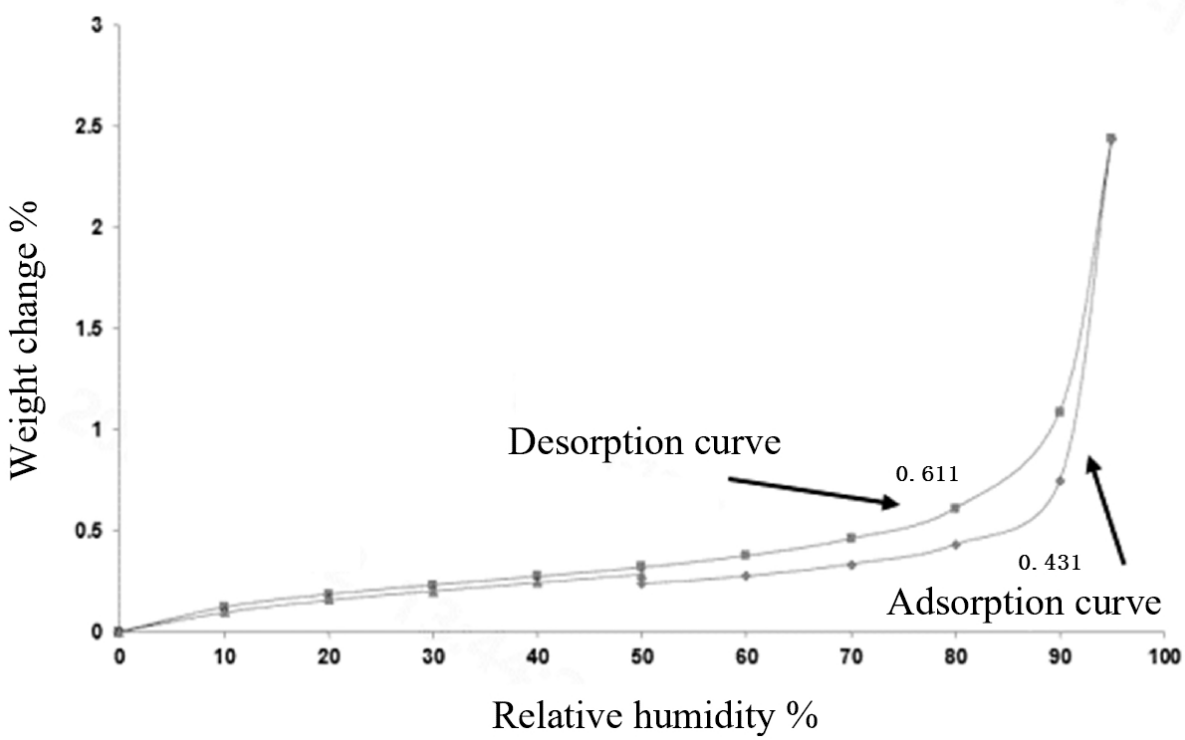

Weight change %
Relative humidity %
Desorption curve
0. 611
0. 431
Adsorption curve
0
0.5
1
1.5
2
2.5
3
0
10
20
30
40
50
60
70
80
90
100

Figure 4

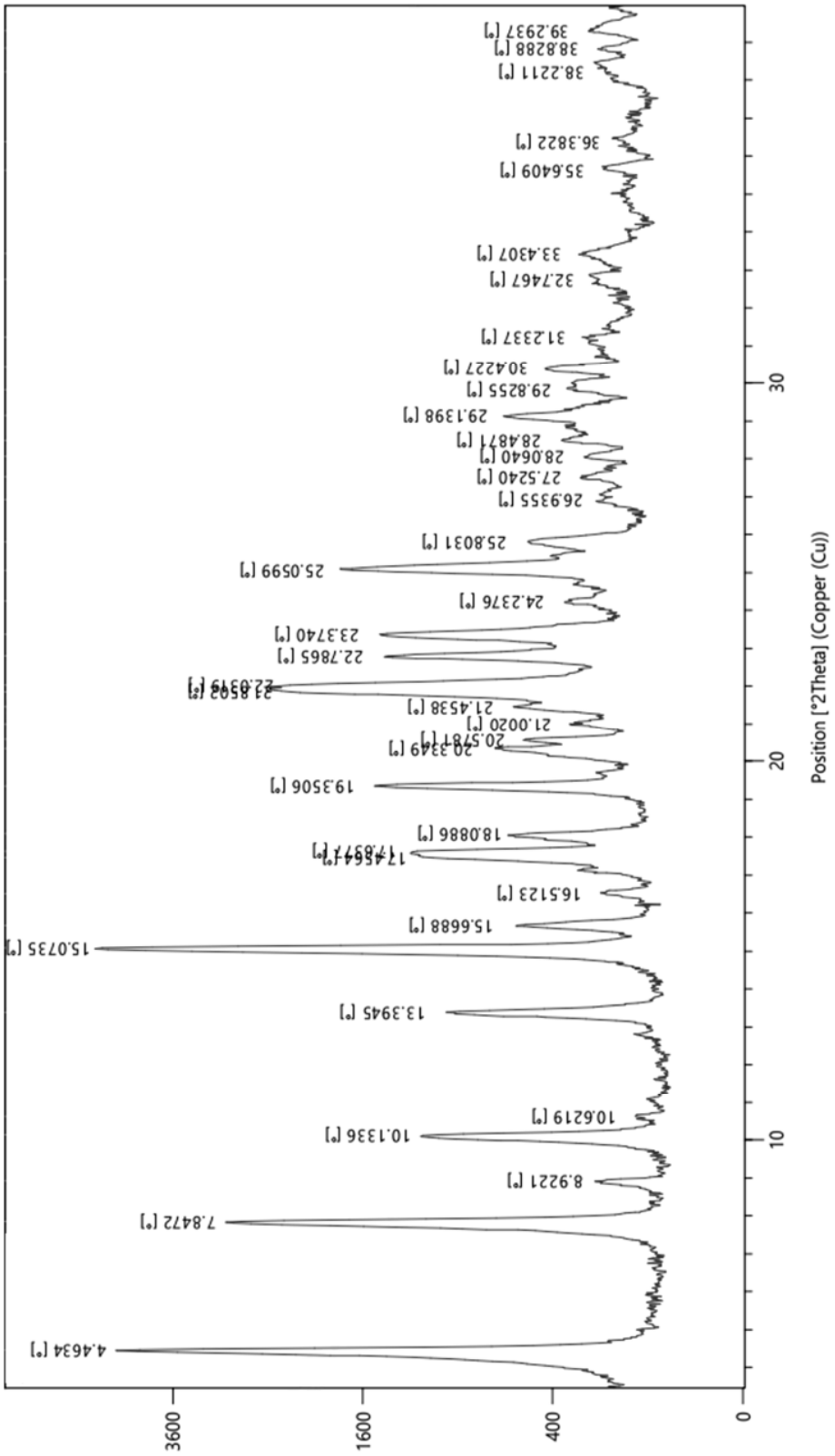

4.4634 [°]
7.8472 [°]
8.9221 [°]
10.1336 [°]
10.6219 [°]
13.3945 [°]
15.0735 [°]
15.6688 [°]
16.5123 [°]
18.0886 [°]
19.3506 [°]
20.3349 [°]
21.0020 [°]
21.4538 [°]
22.7865 [°]
23.3740 [°]
24.2376 [°]
25.0599 [°]
25.8031 [°]
26.9355 [°]
27.5240 [°]
28.0640 [°]
28.4871 [°]
29.1398 [°]
29.8255 [°]
30.4227 [°]
31.2337 [°]
32.7467 [°]
33.4307 [°]
35.6409 [°]
36.3822 [°]
38.2211 [°]
38.8288 [°]
39.2937 [°]
0
400
1600
3600
10
20
30
Position [°2Theta] (Copper (Cu))

Figure 5

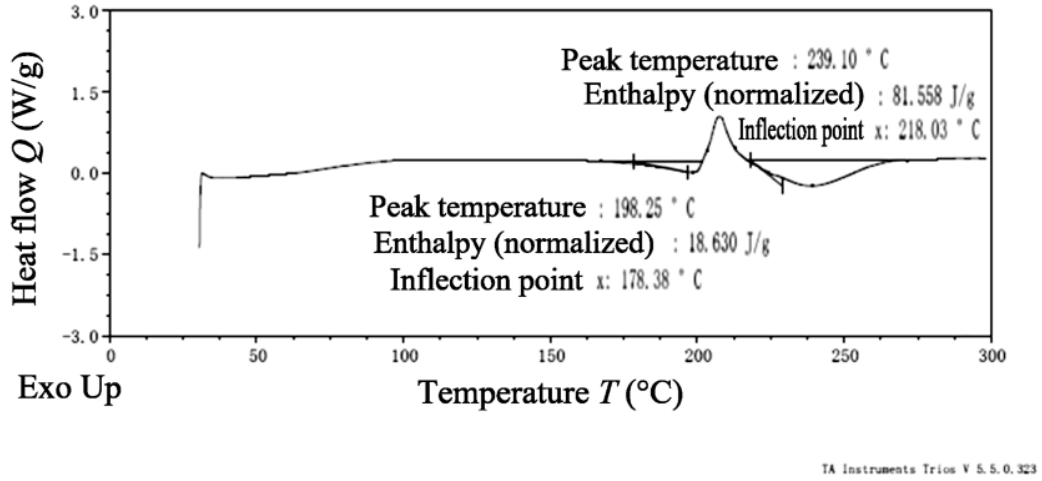


Figure 6

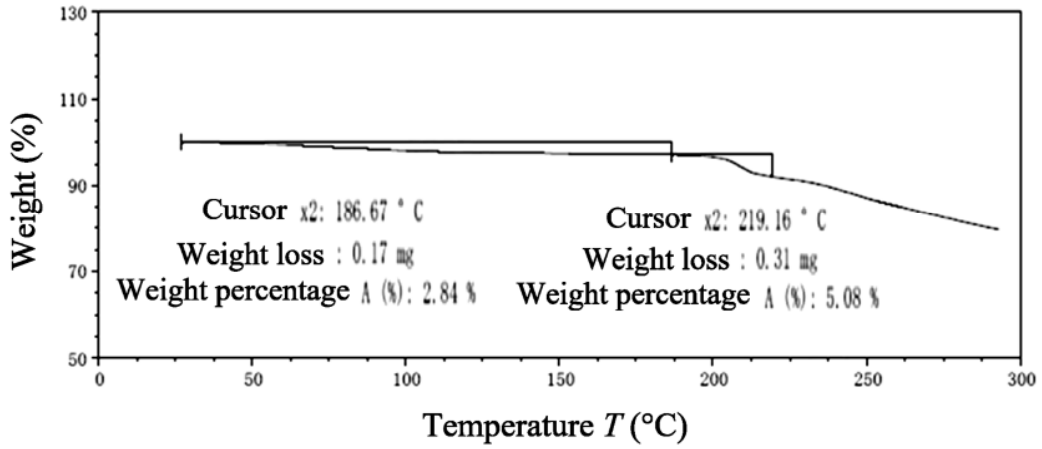
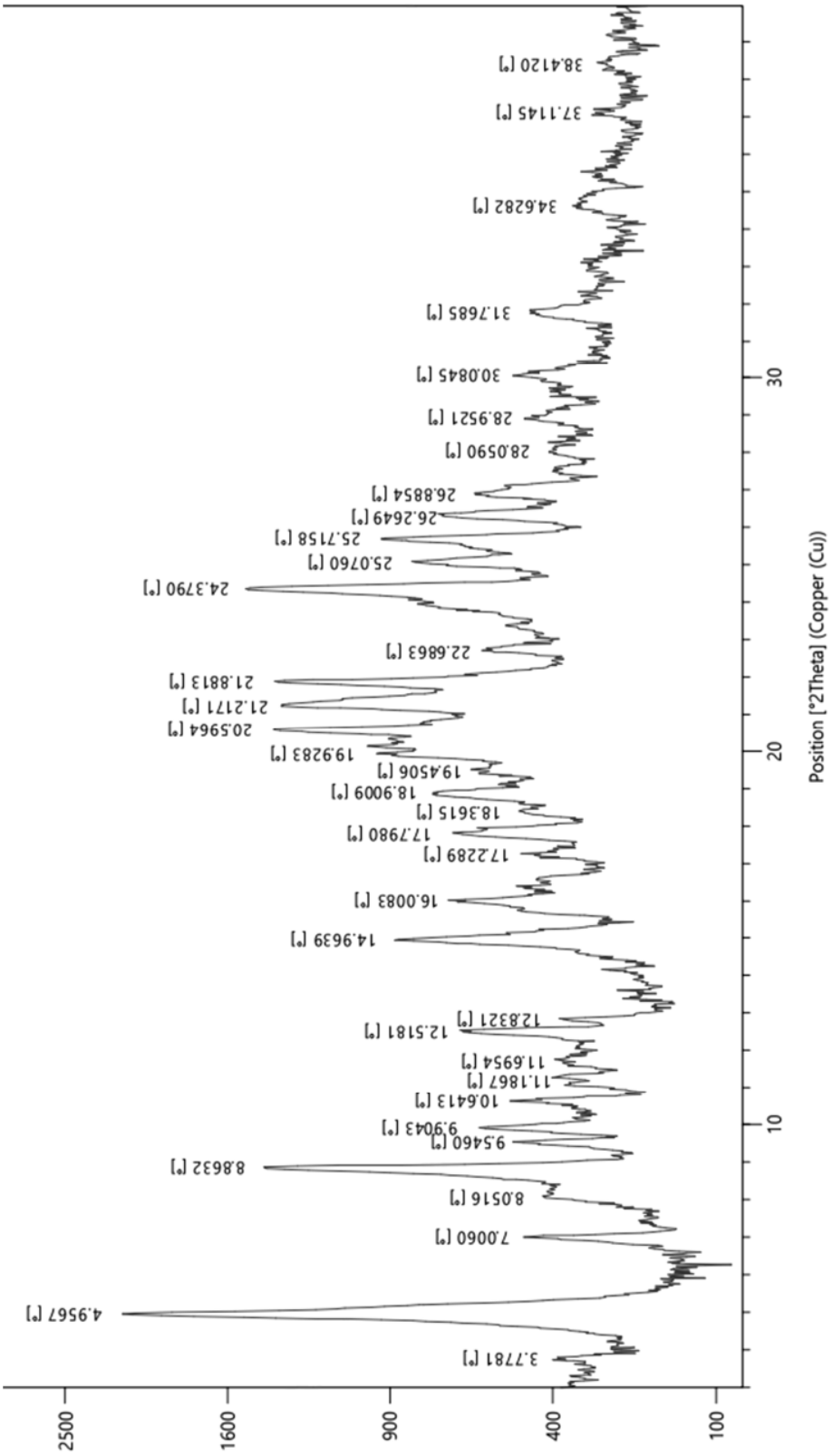


Figure 7


Position [°2Theta] (Copper (Cu))
2500
1600
900
400
100
10
20
30
3.7781 [°]
4.9567 [°]
7.0060 [°]
8.0516 [°]
8.8632 [°]
9.5460 [°]
9.9043 [°]
10.6413 [°]
11.1867 [°]
11.6954 [°]
12.5181 [°]
12.8321 [°]
14.9639 [°]
16.0083 [°]
17.2289 [°]
17.7980 [°]
18.3615 [°]
18.9009 [°]
19.4506 [°]
19.9283 [°]
20.5964 [°]
21.2171 [°]
21.8813 [°]
22.6863 [°]
24.3790 [°]
25.0760 [°]
25.7158 [°]
26.2649 [°]
26.8854 [°]
28.0590 [°]
28.9521 [°]
30.0845 [°]
31.7685 [°]
34.6282 [°]
37.1145 [°]
38.4120 [°]
Figure 8

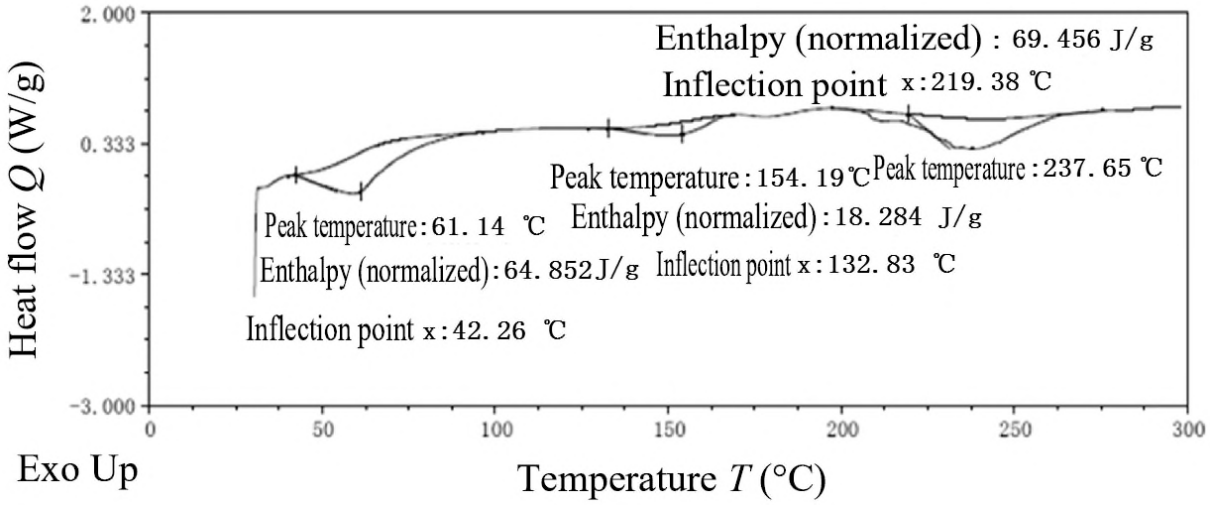


Figure 9

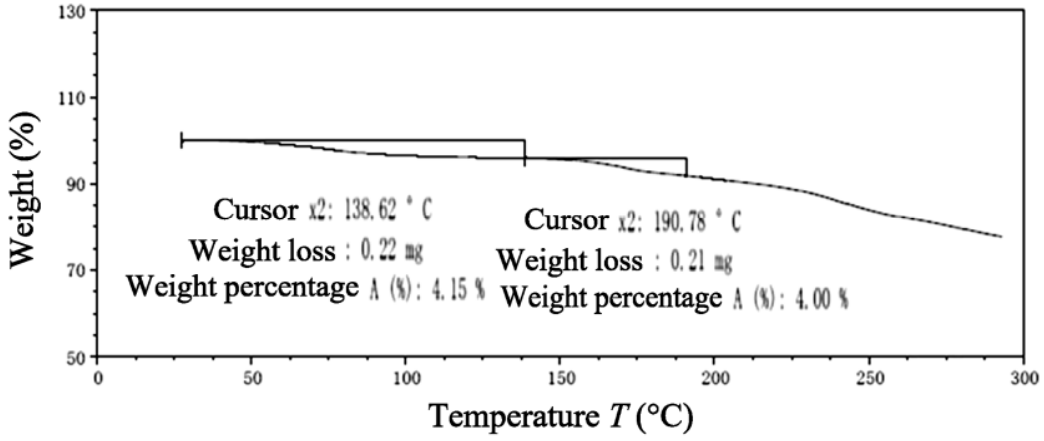


Figure 10

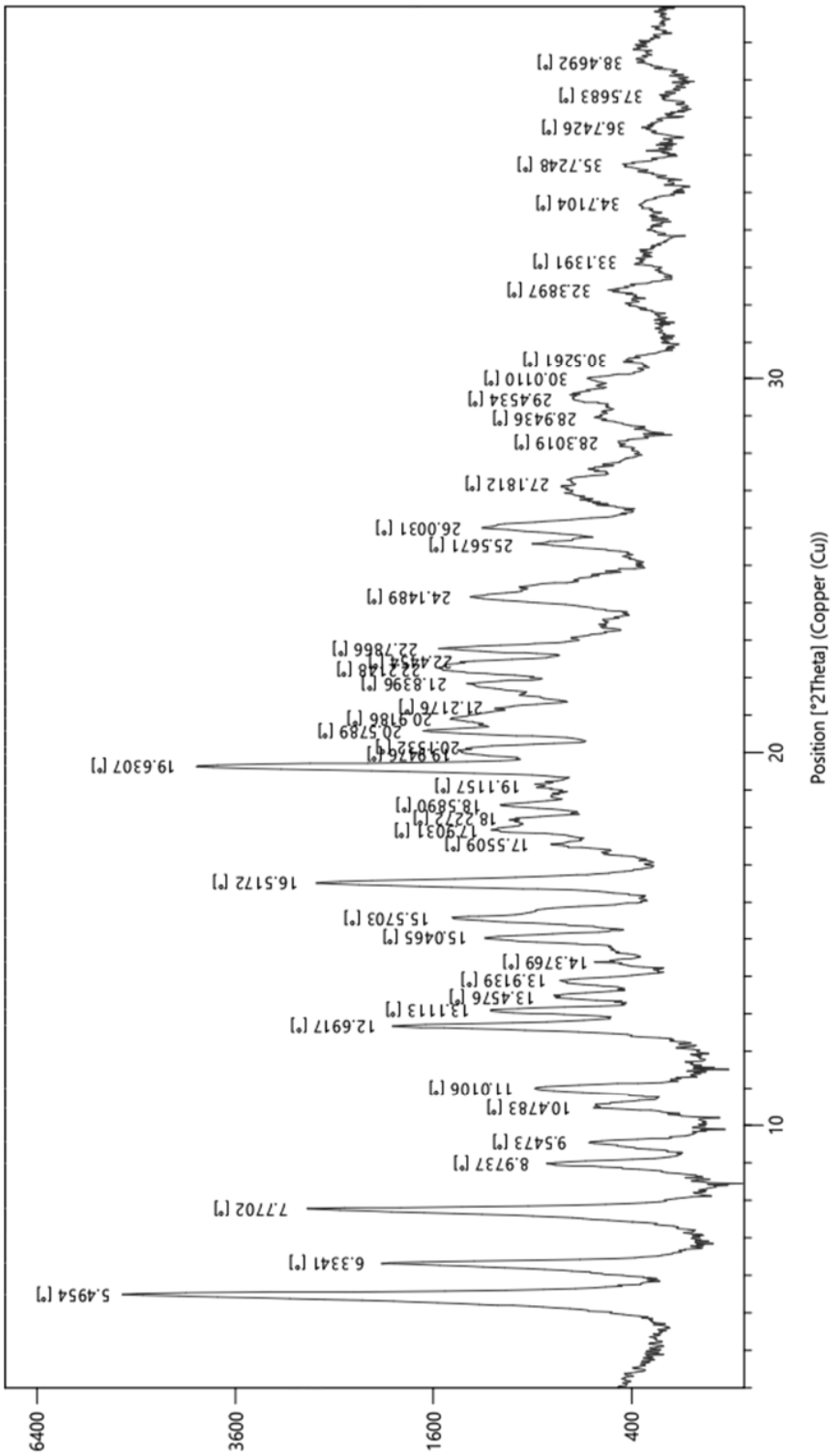

5.4954 [°]
6.3341 [°]
7.7702 [°]
8.9737 [°]
9.5473 [°]
10.4783 [°]
11.0106 [°]
12.6917 [°]
13.1113 [°]
13.4576 [°]
13.9139 [°]
14.3769 [°]
15.0465 [°]
15.5703 [°]
16.5172 [°]
17.5509 [°]
17.9031 [°]
18.2272 [°]
18.5890 [°]
19.1157 [°]
19.6307 [°]
19.9476 [°]
20.1532 [°]
20.5789 [°]
20.9186 [°]
21.2176 [°]
21.8396 [°]
22.2148 [°]
22.4554 [°]
22.7866 [°]
24.1489 [°]
25.5671 [°]
26.0031 [°]
27.1812 [°]
28.3019 [°]
28.9436 [°]
29.4534 [°]
30.0110 [°]
30.5261 [°]
32.3897 [°]
33.1391 [°]
34.7104 [°]
35.7248 [°]
36.7426 [°]
37.5683 [°]
38.4692 [°]
6400
3600
1600
400
10
20
30
Position [°2Theta] (Copper (Cu))

Figure 11

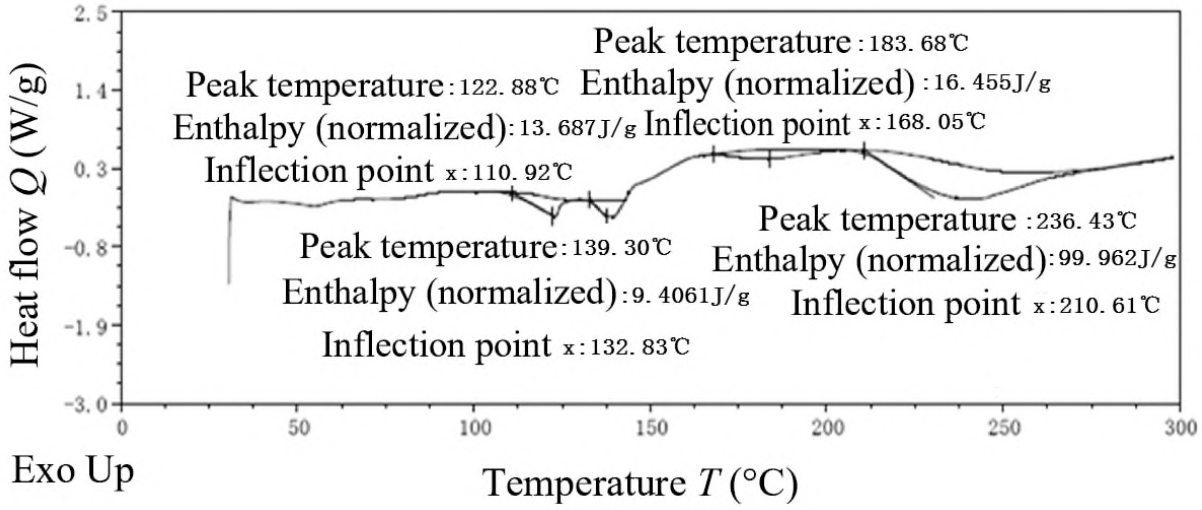


Figure 12

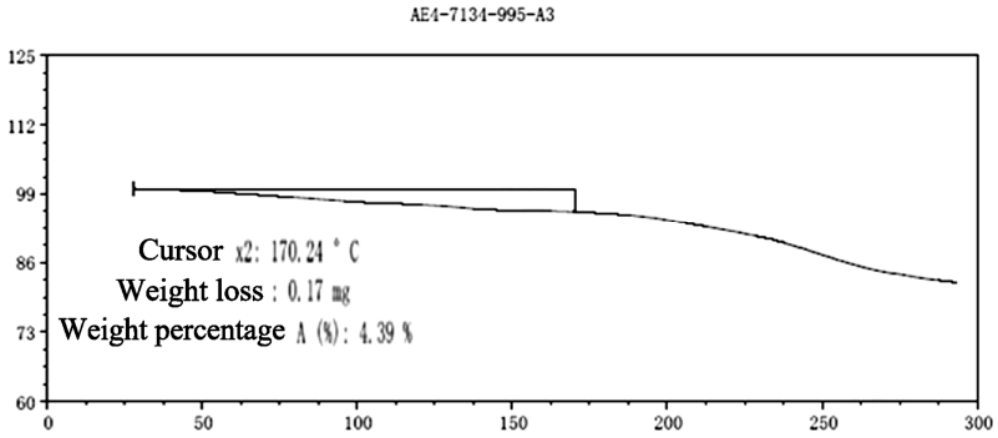


Figure 13

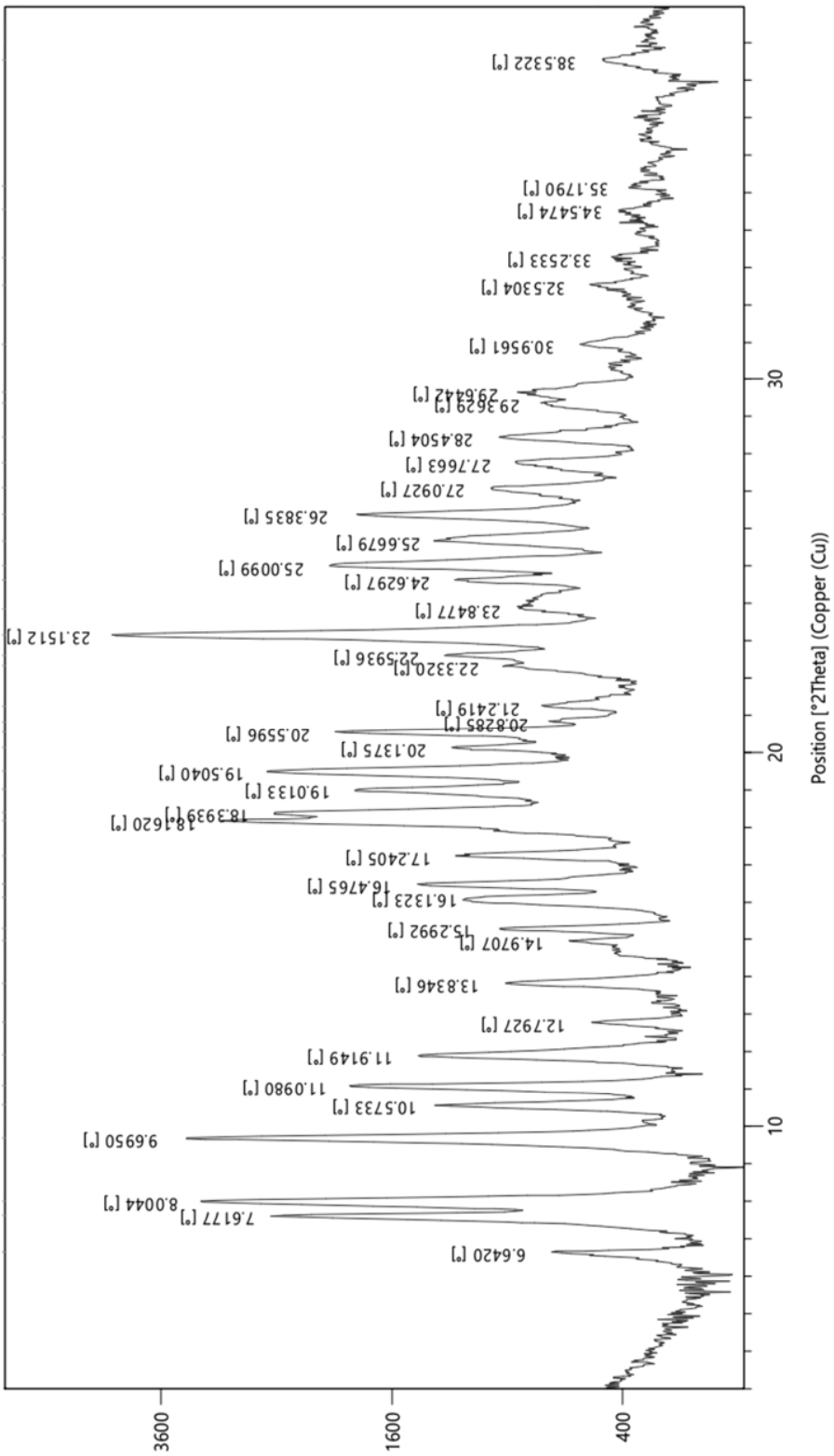

6.6420 [°]
7.6177 [°]
8.0044 [°]
9.6950 [°]
10.5733 [°]
11.0980 [°]
11.9149 [°]
12.7927 [°]
13.8346 [°]
14.9707 [°]
15.2992 [°]
16.1323 [°]
16.4765 [°]
17.2405 [°]
18.1620 [°]
18.3939 [°]
19.0133 [°]
19.5040 [°]
20.1375 [°]
20.5596 [°]
20.8285 [°]
21.2419 [°]
22.3320 [°]
22.5936 [°]
23.1512 [°]
23.8477 [°]
24.6297 [°]
25.0099 [°]
25.6679 [°]
26.3835 [°]
27.0927 [°]
27.7663 [°]
28.4504 [°]
29.3629 [°]
29.6442 [°]
30.9561 [°]
32.5304 [°]
33.2533 [°]
34.5474 [°]
35.1790 [°]
38.5322 [°]
3600
1600
400
10
20
30
Position [°2Theta] (Copper (Cu))

Figure 14

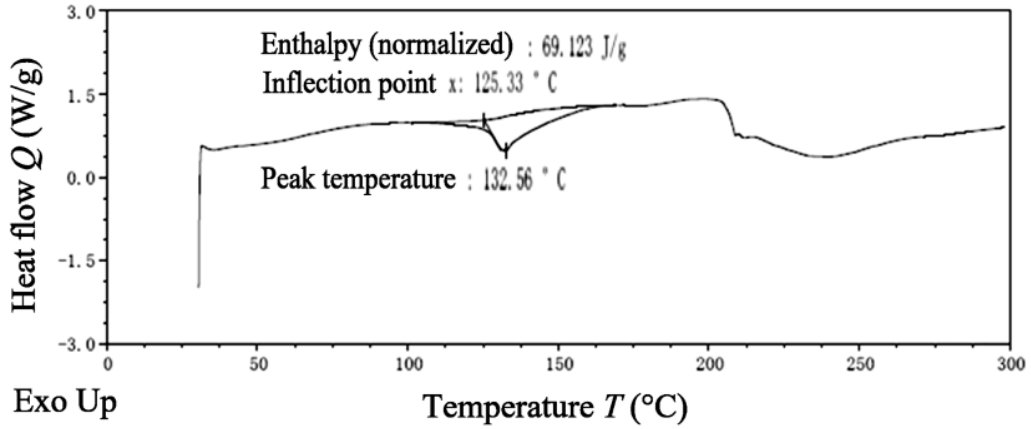


Figure 15

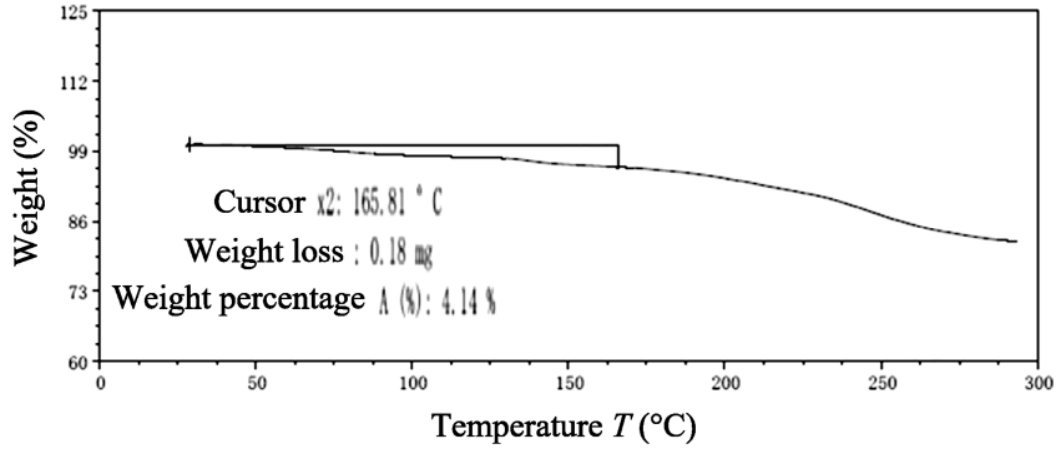


Figure 16

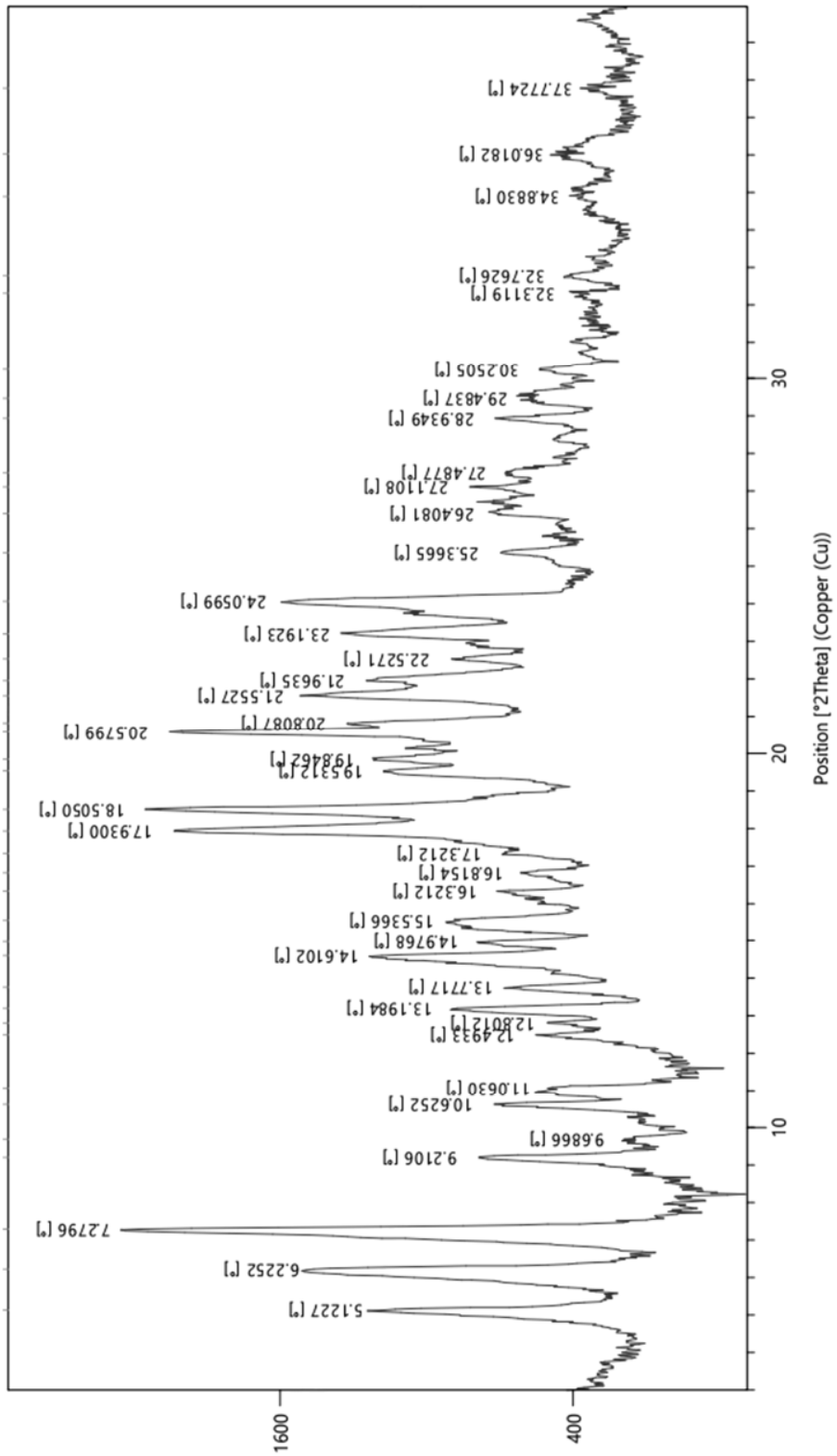

7.2796 [°]
6.2252 [°]
5.1227 [°]
9.2106 [°]
9.6866 [°]
10.6252 [°]
11.0630 [°]
12.4933 [°]
12.8012 [°]
13.1984 [°]
13.7717 [°]
14.6102 [°]
14.9768 [°]
15.5366 [°]
16.3212 [°]
16.8154 [°]
17.3212 [°]
17.9300 [°]
18.5050 [°]
19.5312 [°]
19.8462 [°]
20.5799 [°]
20.8087 [°]
21.5527 [°]
21.9635 [°]
22.5271 [°]
23.1923 [°]
24.0599 [°]
25.3665 [°]
26.4081 [°]
27.1108 [°]
27.4877 [°]
28.9349 [°]
29.4837 [°]
30.2505 [°]
32.3119 [°]
32.7626 [°]
34.8830 [°]
36.0182 [°]
37.7724 [°]
1600
400
10
20
30
Position [°2Theta] (Copper (Cu))

Figure 17

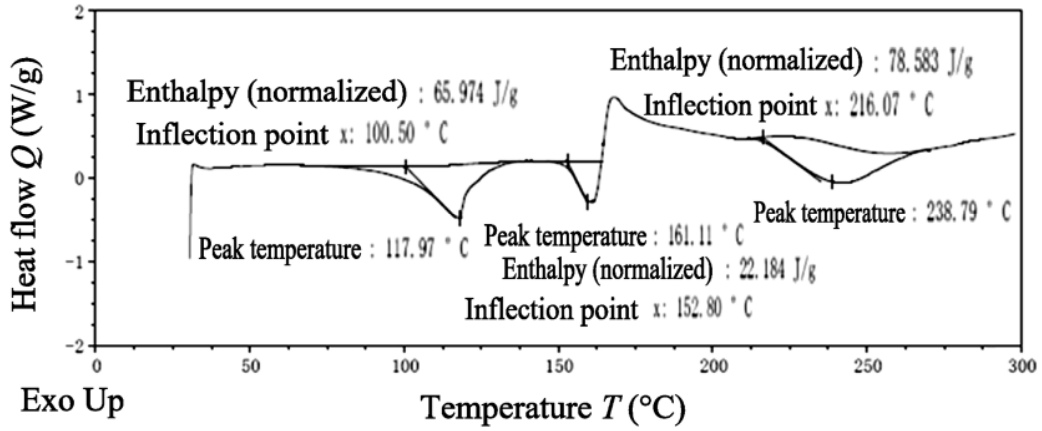


Figure 18

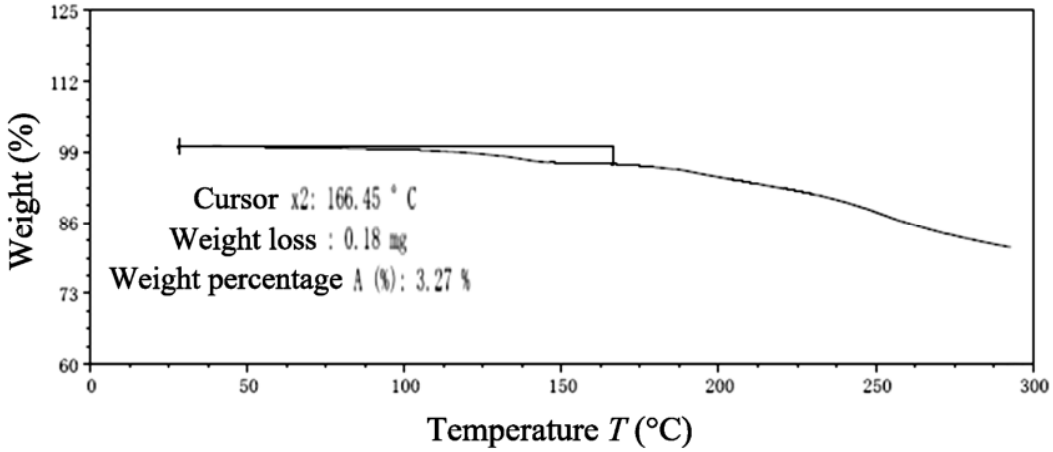


Figure 19

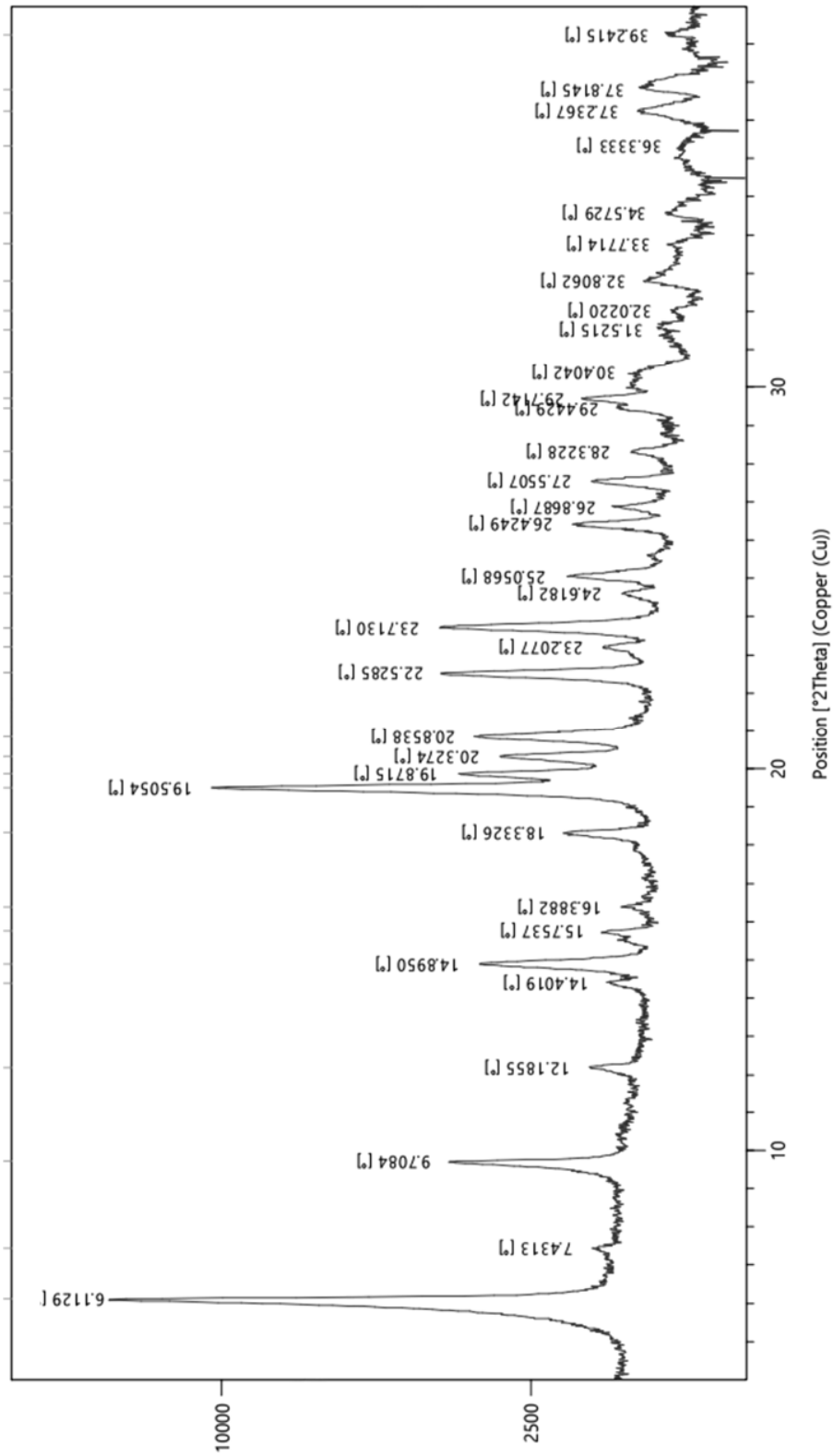

6.1129 [°]
7.4313 [°]
9.7084 [°]
12.1855 [°]
14.4019 [°]
14.8950 [°]
15.7537 [°]
16.3882 [°]
18.3326 [°]
19.5054 [°]
19.8715 [°]
20.3274 [°]
20.8538 [°]
22.5285 [°]
23.2077 [°]
23.7130 [°]
24.6182 [°]
25.0568 [°]
26.4249 [°]
26.8687 [°]
27.5507 [°]
28.3228 [°]
29.4429 [°]
29.7142 [°]
30.4042 [°]
31.5215 [°]
32.0220 [°]
32.8062 [°]
33.7714 [°]
34.5729 [°]
36.3333 [°]
37.2367 [°]
37.8145 [°]
39.2415 [°]
10000
2500
10
20
30
Position [°2Theta] (Copper (Cu))

Figure 20

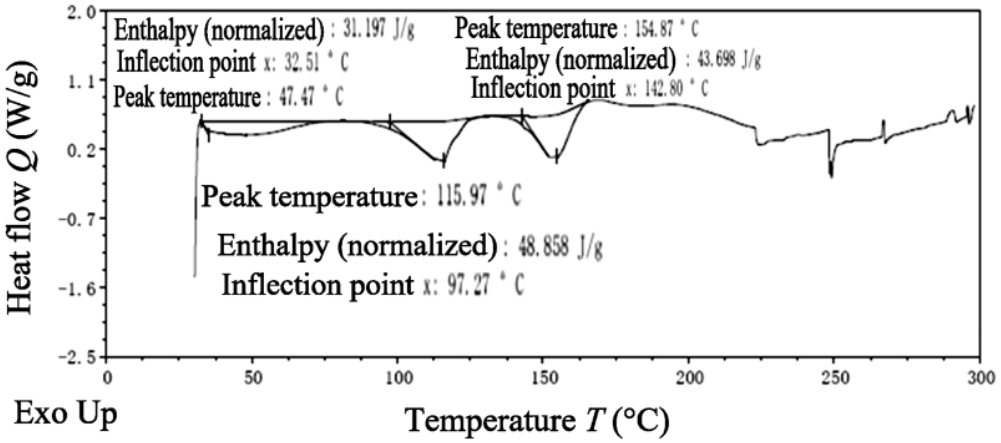


Figure 21

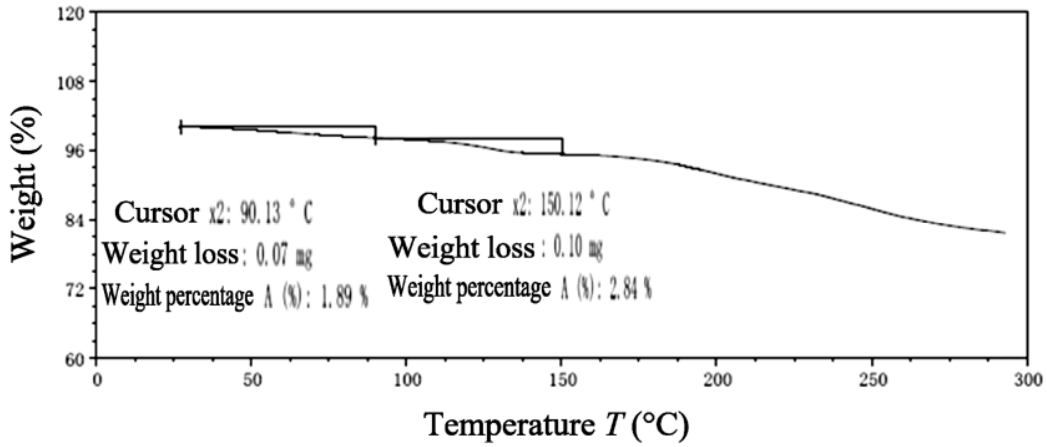
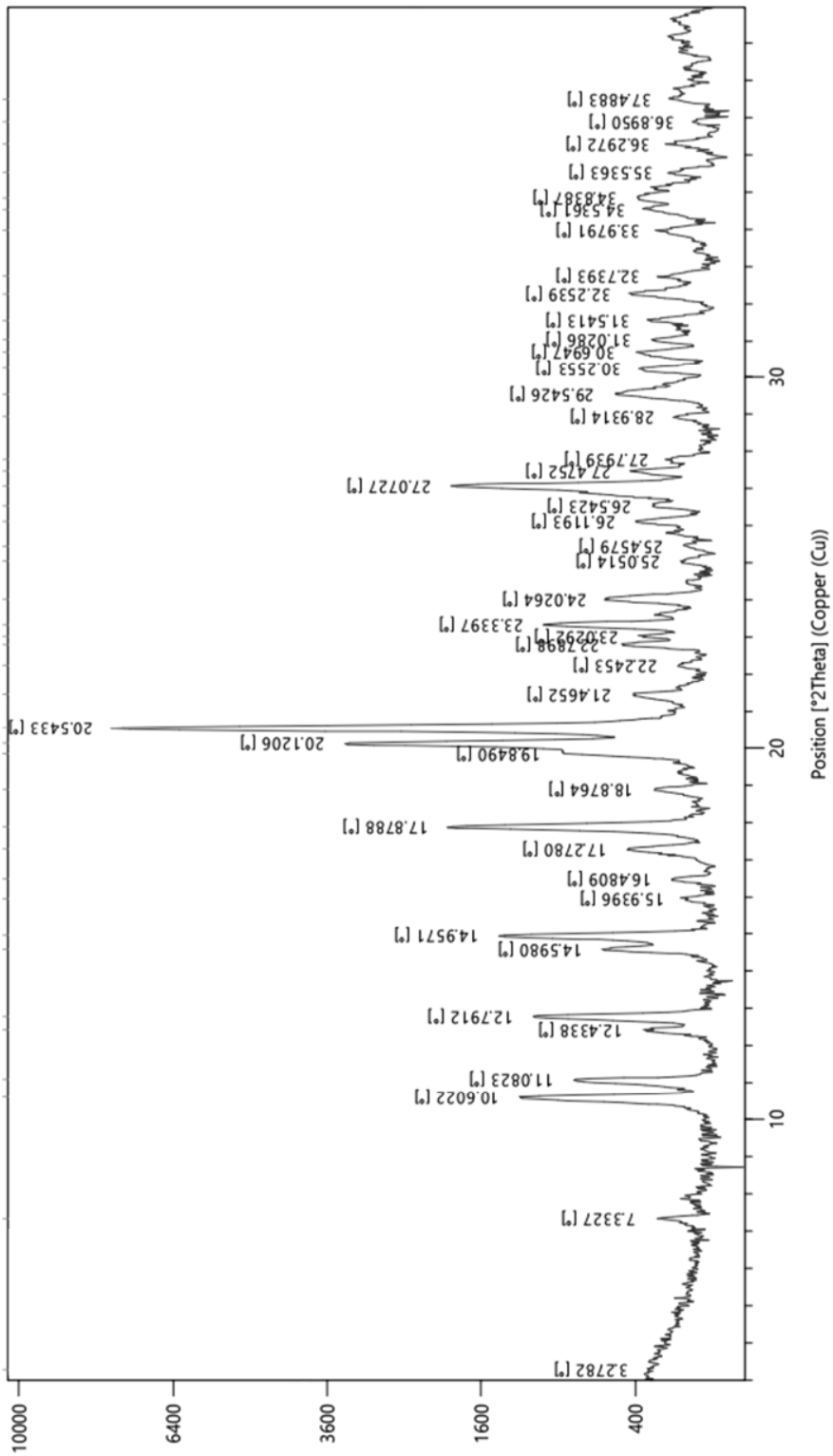


Figure 22


10000
6400
3600
1600
400
10
20
30
Position [°2Theta] (Copper (Cu))
3.2782 [°]
7.3327 [°]
10.6022 [°]
11.0823 [°]
12.4338 [°]
12.7912 [°]
14.5980 [°]
14.9571 [°]
15.9396 [°]
16.4809 [°]
17.2780 [°]
17.8788 [°]
18.8764 [°]
19.8490 [°]
20.1206 [°]
20.5433 [°]
21.4652 [°]
22.2453 [°]
22.7898 [°]
23.0292 [°]
23.3397 [°]
24.0264 [°]
25.0514 [°]
25.4579 [°]
26.1193 [°]
26.5423 [°]
27.0727 [°]
27.4252 [°]
27.7939 [°]
28.9314 [°]
29.5426 [°]
30.2553 [°]
30.6942 [°]
31.0286 [°]
31.5413 [°]
32.2539 [°]
32.7393 [°]
33.9791 [°]
34.5361 [°]
34.8387 [°]
35.5363 [°]
36.2972 [°]
36.8950 [°]
37.4883 [°]
Figure 23

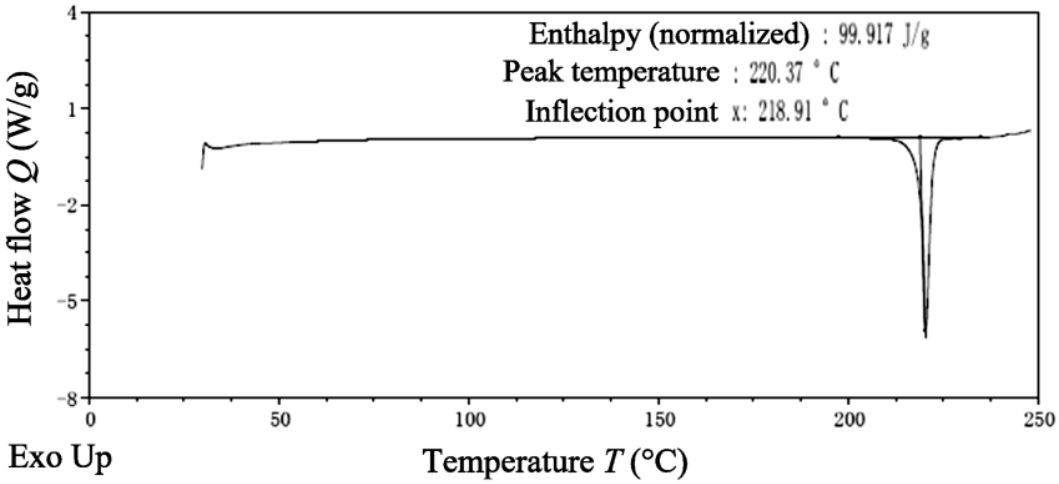


Figure 24

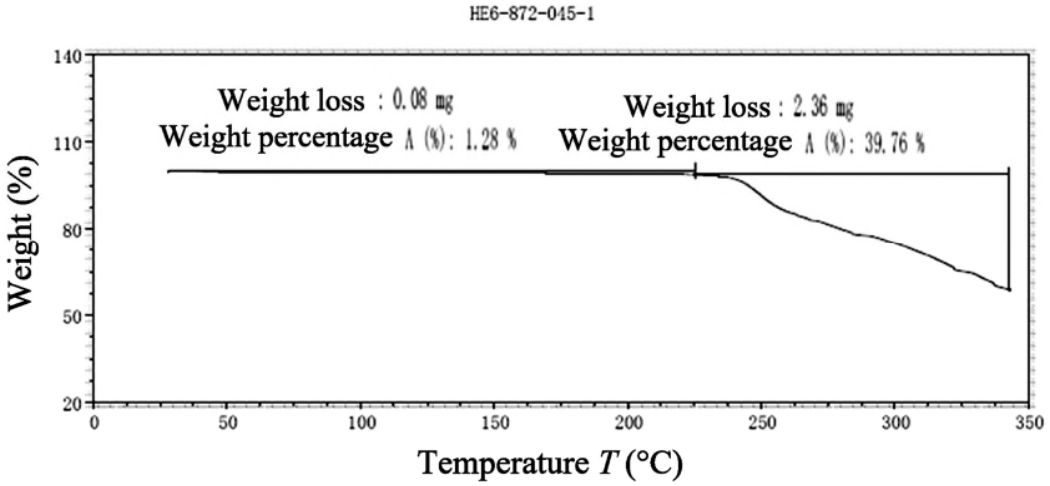


Figure 25

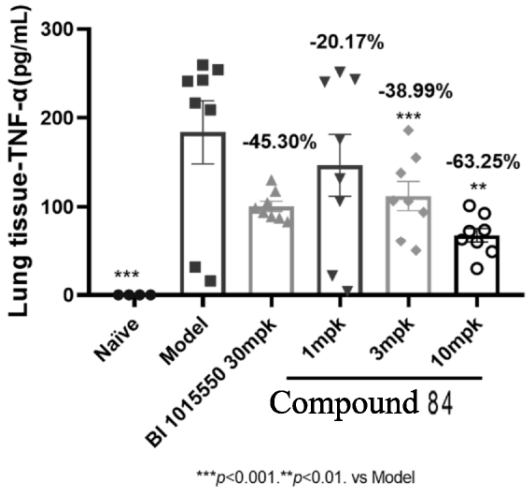


Figure 26

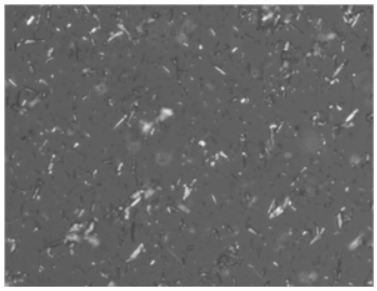


Figure 27

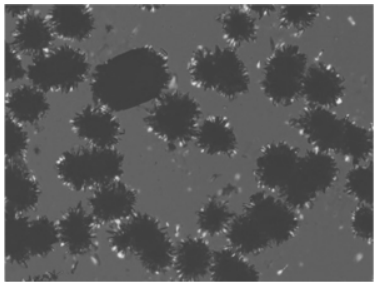


Figure 28