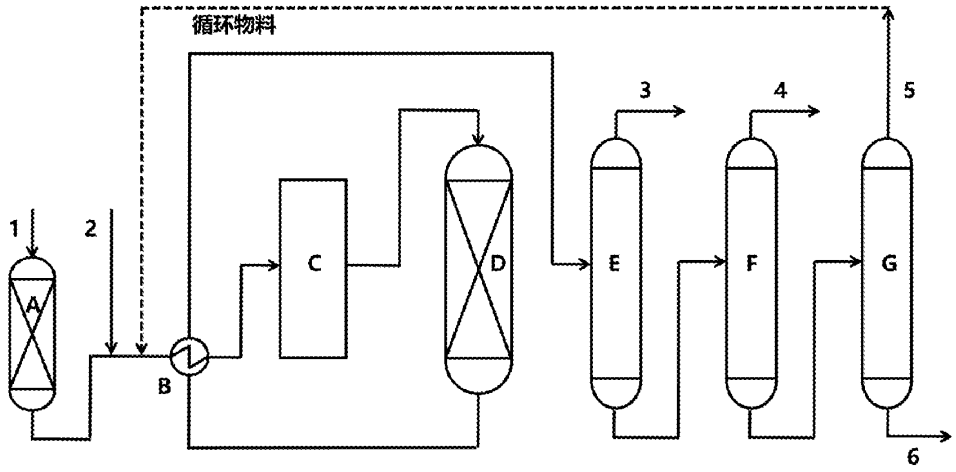


图 1

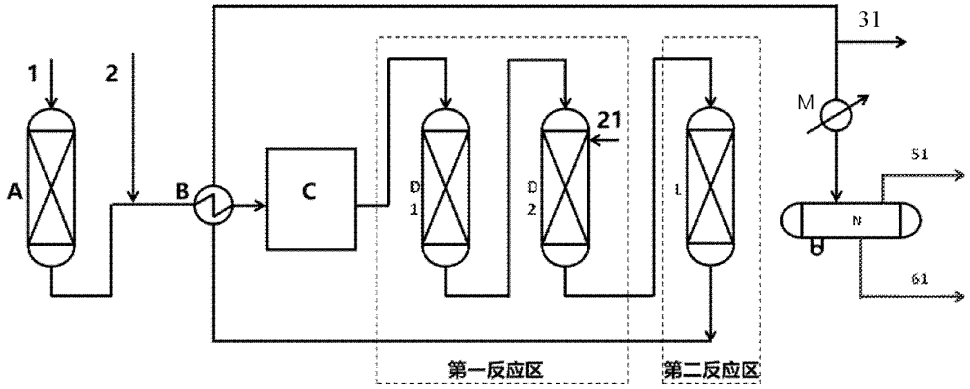


图 2

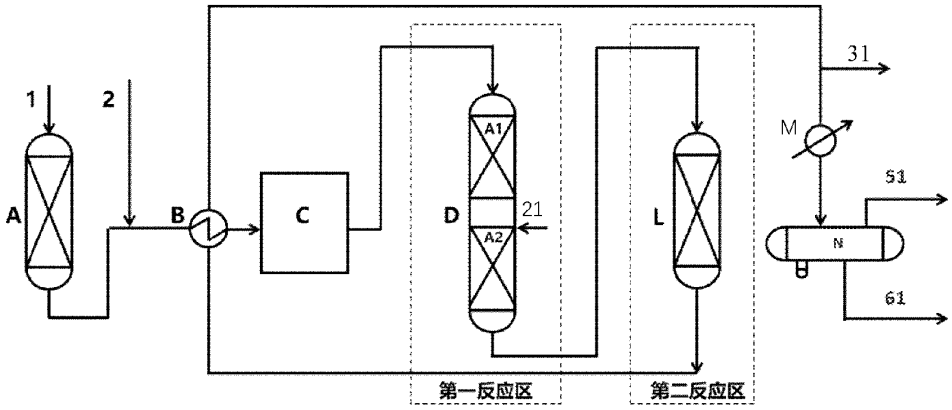

1
2
A
B
C
D
A1
A2
21
L
M
31
51
N
61
第一反应区
第二反应区

图 3

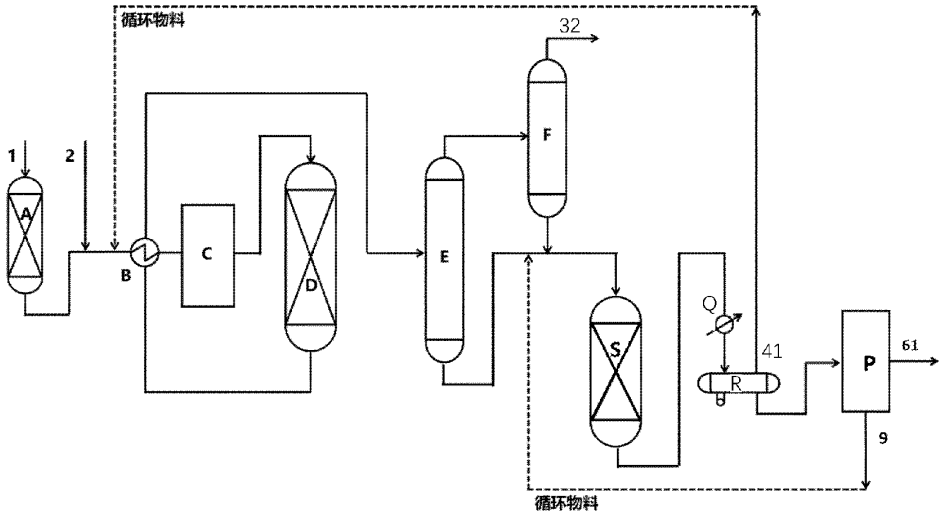

循环物料
32
1
2
A
B
C
D
E
F
S
Q
R
41
P
61
9
循环物料

图 4

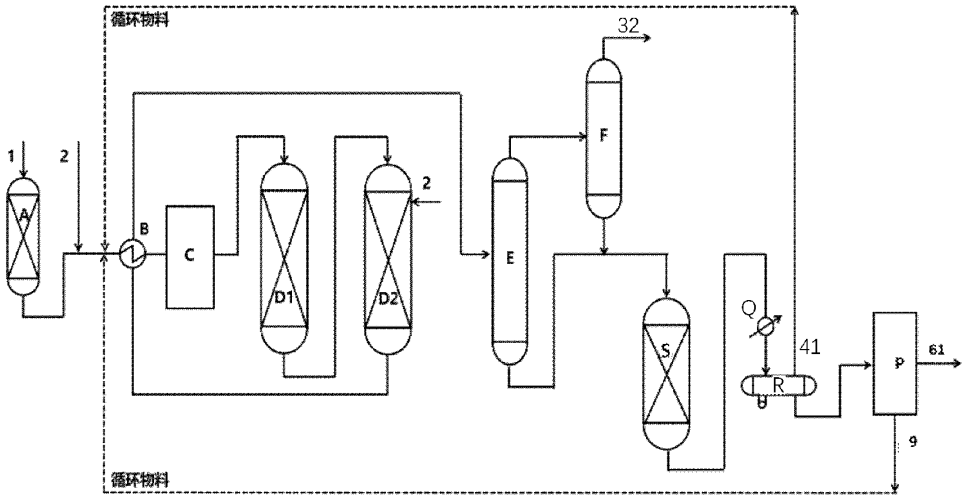

循环物料
32
1
2
A
B
C
D1
D2
2
E
F
S
Q
41
R
P
61
9
循环物料

图 5

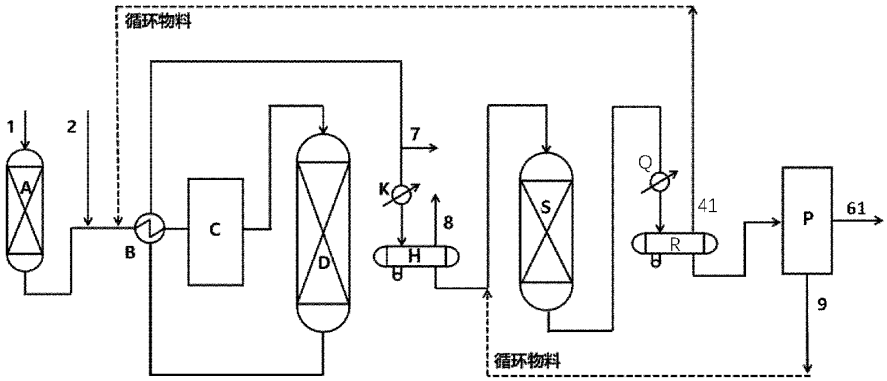

循环物料
1
2
A
B
C
D
7
K
8
H
S
Q
41
R
P
61
9
循环物料

图 6

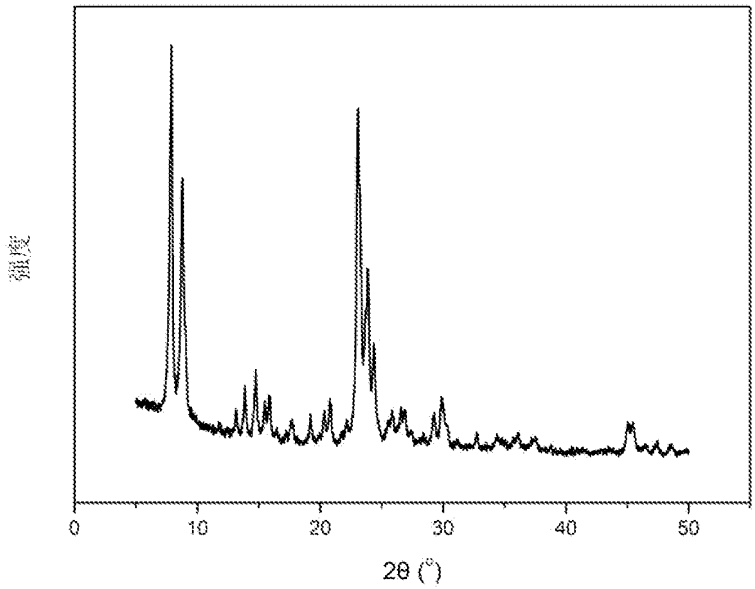


图 7

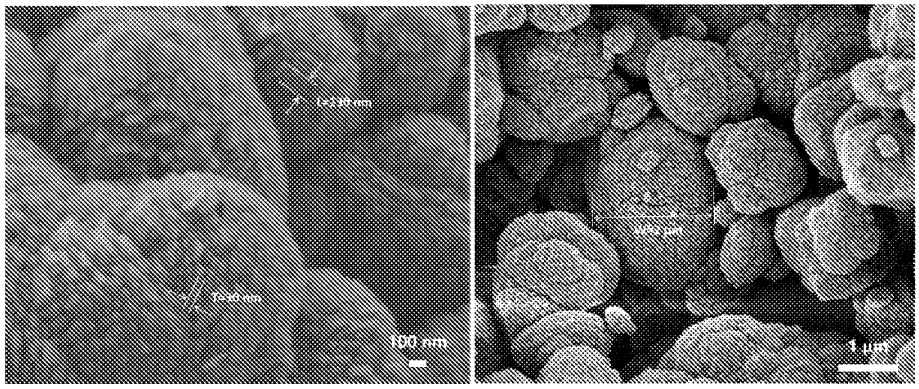


图 8

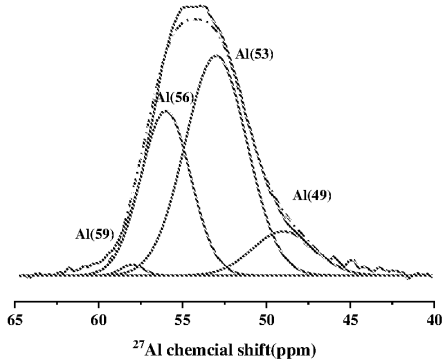

Al(53)
Al(56)
Al(49)
Al(59)
65
60
55
50
45
40
27Al chemcial shift(ppm)

图 9

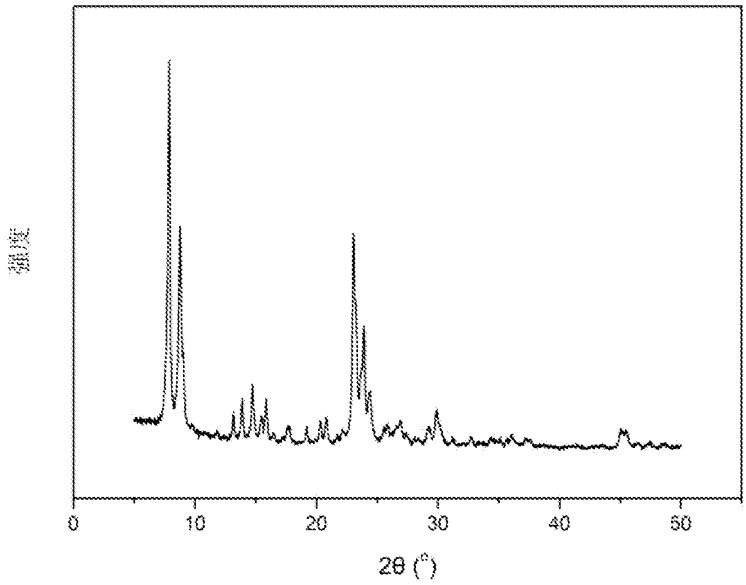

强度
0
10
20
30
40
50
2θ (°)

图 10

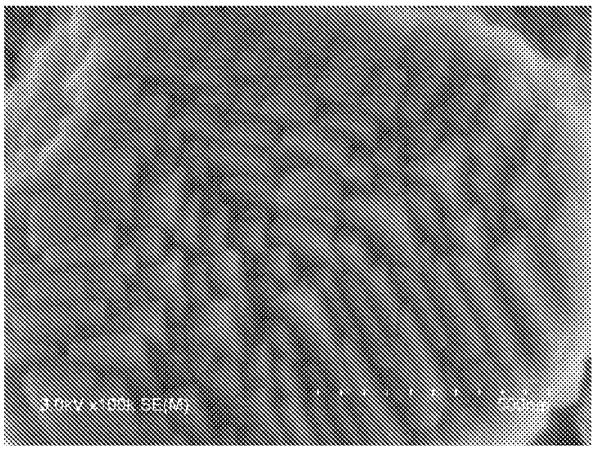


图 11

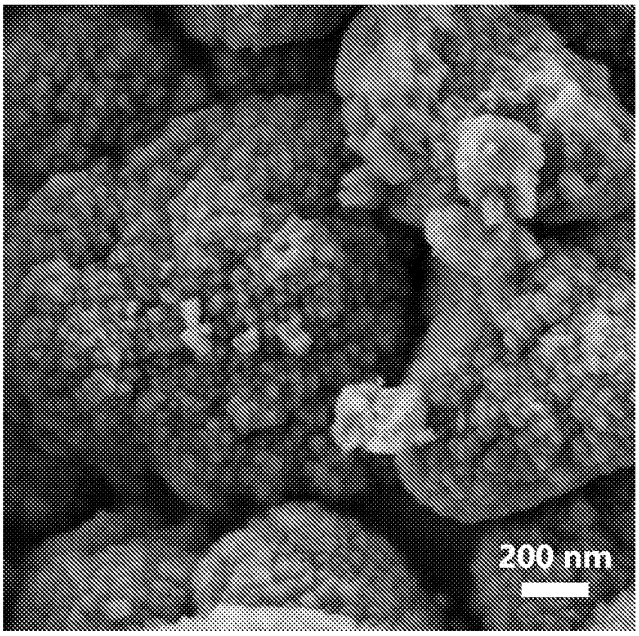


图 12

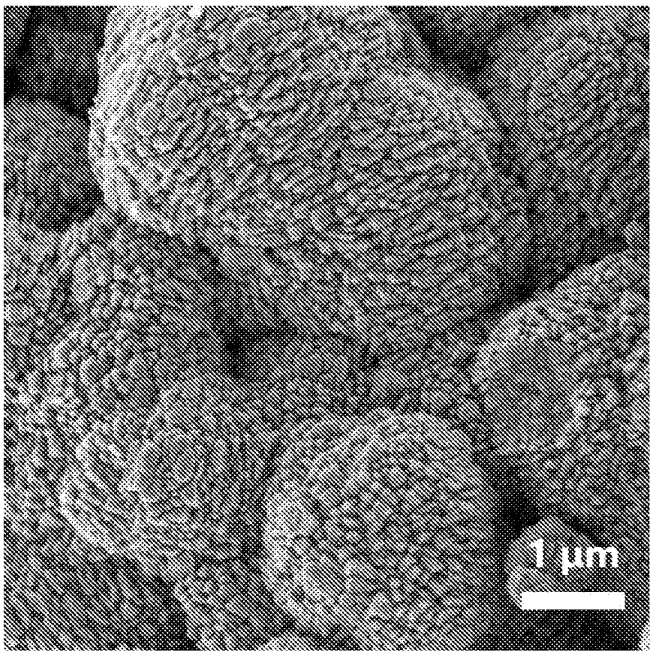


图 13

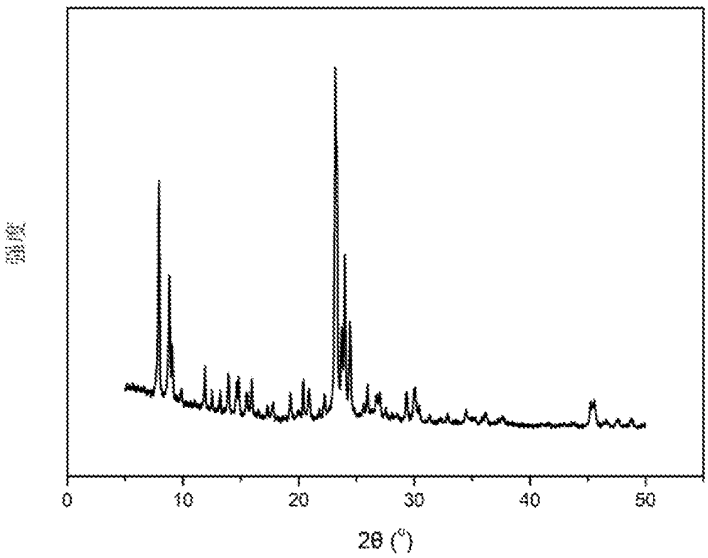


图 14

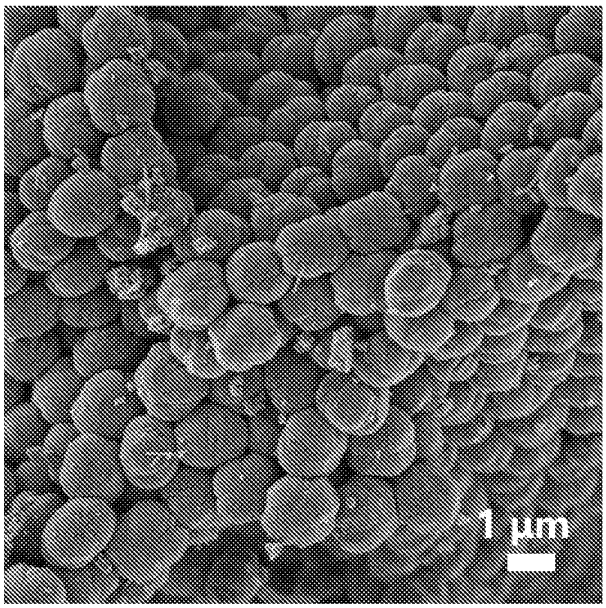


图 15

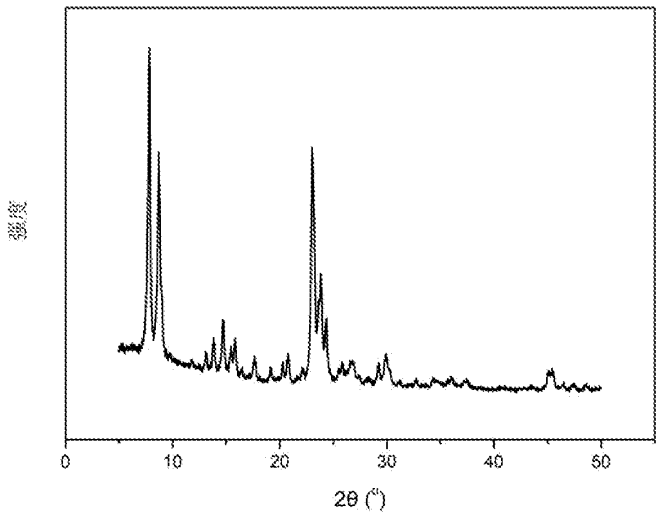


图 16

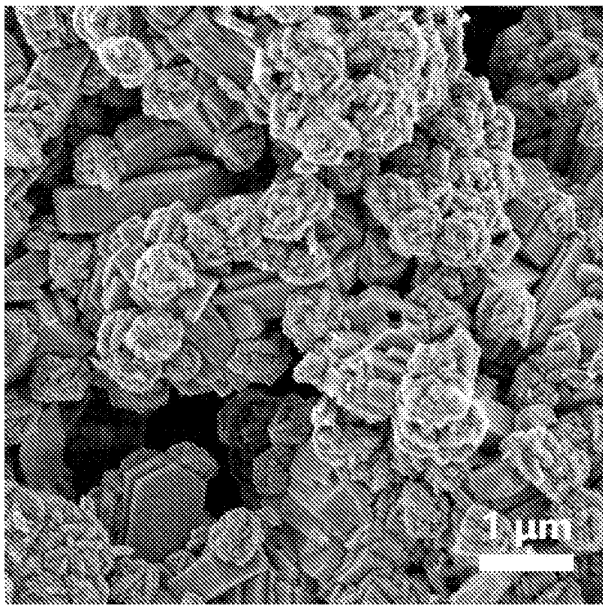


图 17

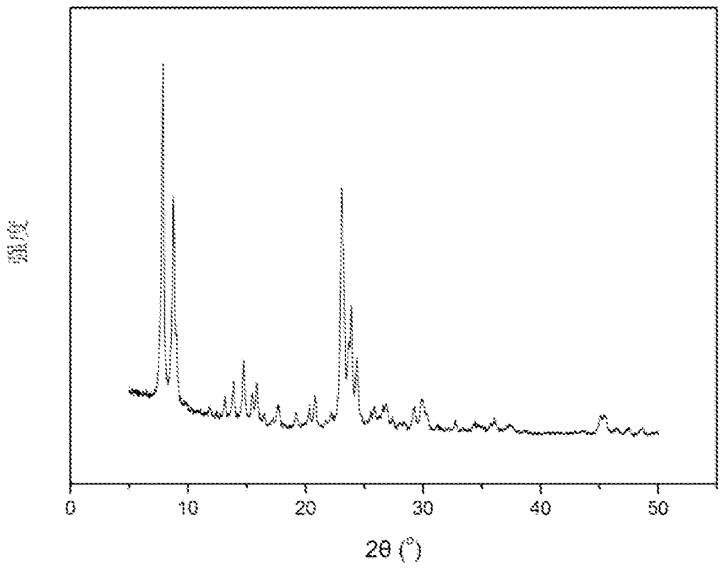


图 18

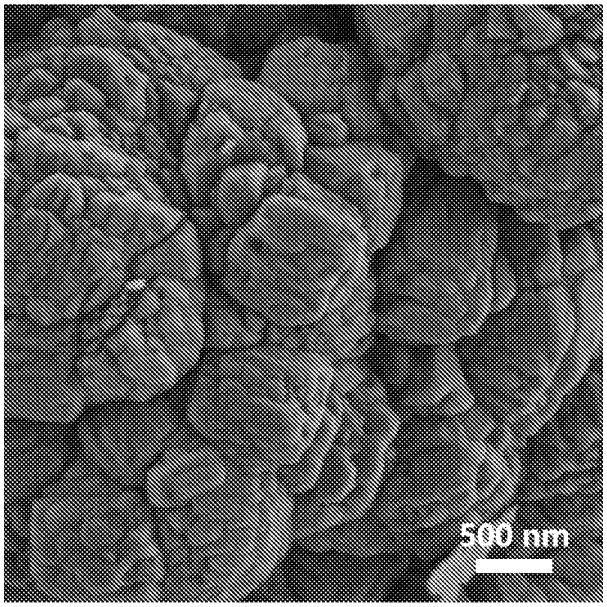


图 19

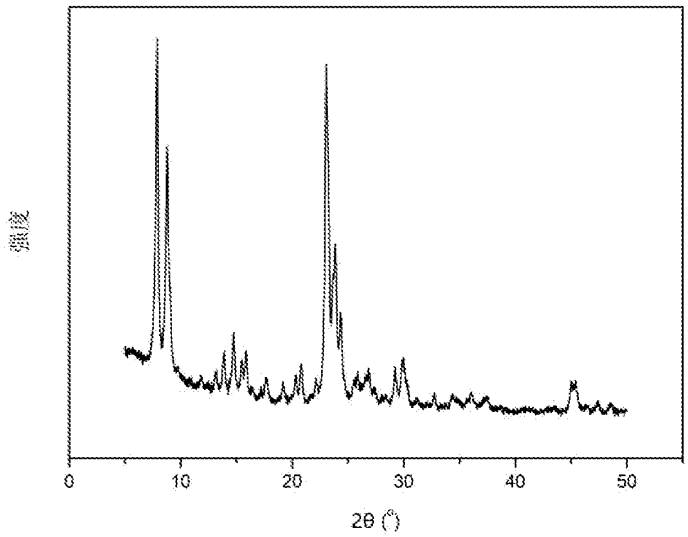


图 20

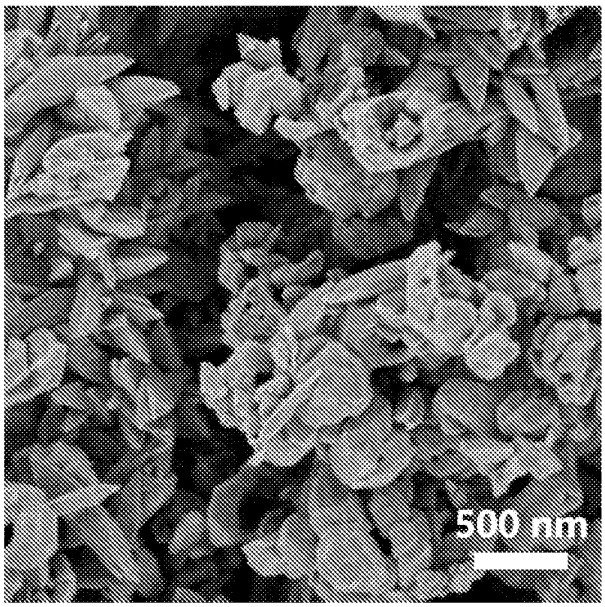


图 21

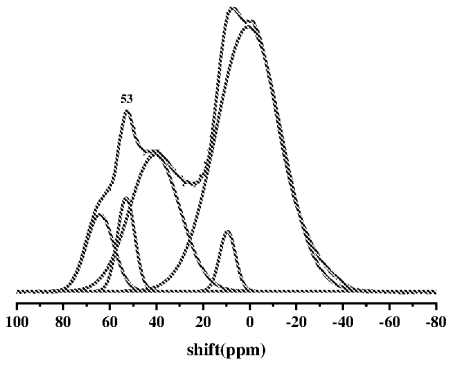


图 22