[illegible] 97 (2013) 59 63

Contents lists available at SciVerse ScienceDirect

[illegible]

journal homepage: www.elsevier.com/locate/matlet

[illegible]

[illegible] D [illegible], G [illegible] *, J [illegible], L [illegible] *, Q [illegible], H [illegible]

School of Chemistry and Chemical Engineering, Engineering Technology Research Center of Motive Power and Key Materials of Henan Province, Henan Normal University, Xinxiang 453007, PR China

A R T I C L E I N F O

Article history:
R [illegible] 26 O [illegible] 2012
A [illegible] 2013
[illegible] 20 [illegible] 2013

Keywords:
[illegible]
S [illegible]
S [illegible]
F [illegible]
P [illegible]

A B S T R A C T

H [illegible] *via* [illegible] 160 °C [illegible] 6 [illegible] UV [illegible] F [illegible] 160 °C [illegible] 6 [illegible] B [illegible] UV [illegible] T [illegible]

1. Introduction

C [illegible] [1,2]. T [illegible] H [illegible] P [illegible] [3,4]. D [illegible] TiO_2 [illegible] [5,6]. R [illegible] *e.g.* [illegible] C S, [illegible] TiO_2 [7–10]. A [illegible] 3.5–3.7 V [illegible] 3.7–3.8 V [illegible] [11]. R [illegible] [12,13]. H [illegible]

H [illegible] S [illegible] (SSA) [illegible] T [illegible] 160 °C [illegible] 6 [illegible] B (R [illegible] B).

2. Materials and methods

F [illegible] $(C_6H_9N_3O_2)$ [illegible] 1:1 [illegible] 2 [illegible] T [illegible] S [illegible] T [illegible] 160 °C [illegible] 6 [illegible] F [illegible] 30 °C. F [illegible] 140 °C [illegible] 180 °C. T [illegible] S-140, S-160 [illegible] S-180 [illegible] 12 [illegible] 24 [illegible]

T [illegible] (SEM). T [illegible] RD [illegible] C [illegible] Kα [illegible] (λ = 1.5406 A). T [illegible] UV [illegible] T [illegible] SSA [illegible] B [illegible] E [illegible] T [illegible] (BET) [illegible] N_2 [illegible]

F [illegible] 20 L [illegible] (1 [illegible] / L) [illegible] 30 L [illegible] R B

* C [illegible] T [illegible]: +86 373 3325058; [illegible]: +86 373 3328507.
E-mail addresses: [illegible] @ [illegible] ([illegible] G [illegible]),
[illegible] 1819@163 [illegible] ([illegible]).

0167-577 [illegible] /$ - [illegible] © 2013 E [illegible] B.V. A [illegible]
[illegible]://[illegible]/10.1016/[illegible].2013.01.029

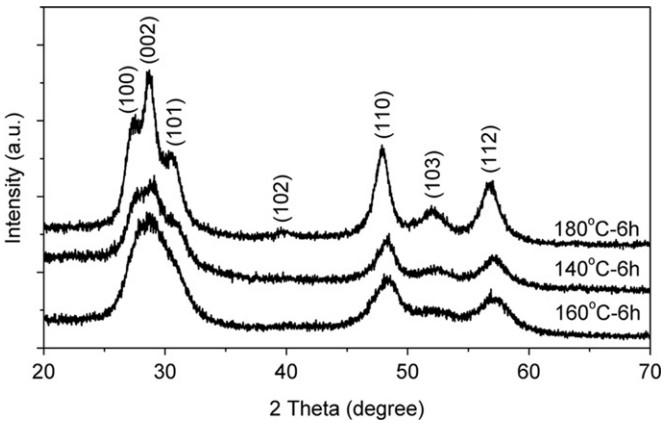

Fig. 1. RD [illegible] S-140, S-160 [illegible] S-180 [illegible].

[illegible] (200). T. [illegible] 1 [illegible] / [illegible] . T. [illegible] 300 [illegible] 365 [illegible] [illegible] . A [illegible] . T. R B [illegible] UV V [illegible] 554 . F [illegible] TiO_2 (D [illegible] P25) [illegible] .

T. [illegible] •OH [illegible] *in situ* [illegible] (TPA) [illegible] R B TPA. T. [illegible] . S [illegible] 425 [illegible] 315 [illegible] .

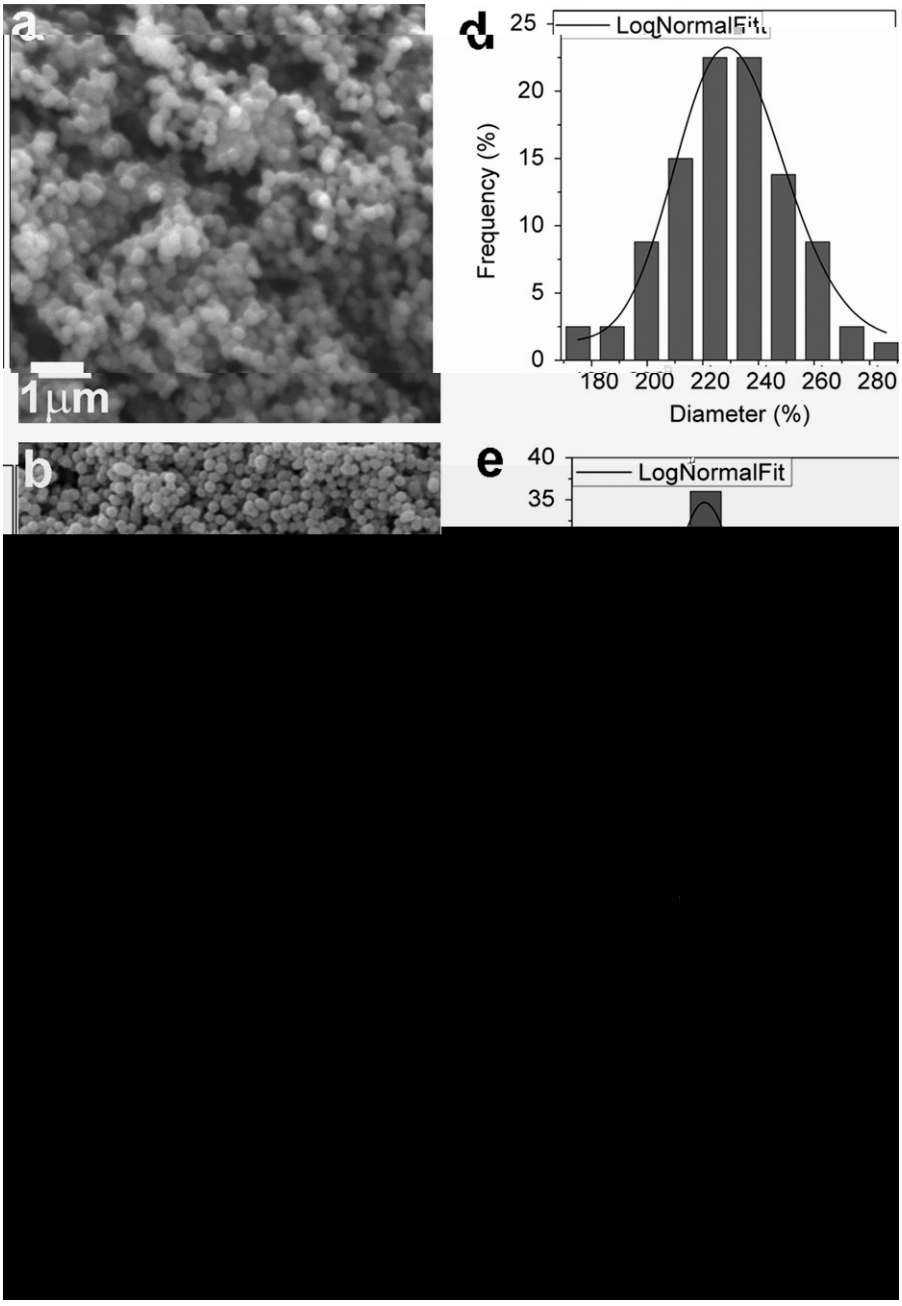

Fig. 2. (a, b) SEM [illegible] S-140, S-160 [illegible] S-180 [illegible]. ([illegible] PL [illegible] S-140, S-160 [illegible] S-180 [illegible].

3. Results and discussion

F RD (F . 1) RD 27.18, 28.64, 30.50, 39.62, 47.75, 52.02 56.53 (100), (002), (101), (102), (110), (103) (112) (JCPDF 36-1450), . I

F SEM (F . 2) . T S-140, S-160 S-180 230.3, 169.7 233.5 . T S-160 S-140 S-180 . T . F BET SSA S-140, S-160 S-180 131.2, 222.4 108.0 ^{2}/ . T SSA S-160 S-140 S-180 S-160

160 °C 12 24 . F (F . 3), 12 24 6 . H 203.1 (12) 268.5 (24) (F . 3), 6 . T

F UV (F . 4) 339 S-140, 326 S-160 340 S-180. T S-160 S-140 S-180 . T S-160 . R B UV . F (F . 4) 120 S-160 96.6%, S-140 (28.8%), S-180 (44.1%) P25 (75.7%). T S-160 SSA . T R B S-160 R B (F . 4). F (ICP MS) $^{2+}$. F ($^•$OH) 14 . T $^•$OH

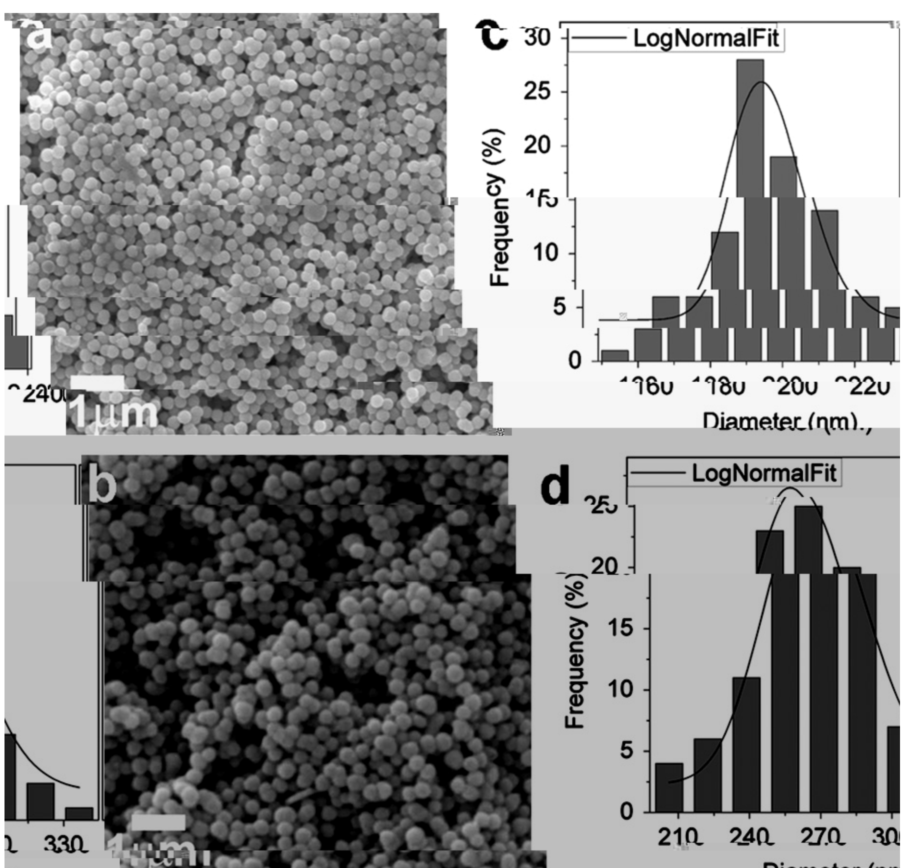

Fig. 3. ( ) SEM 12 24 160 °C. ( ) S 12 24 160 °C.

in situ 4,15 . F (F . 4), (PL) ˙OH. M , PL ˙OH S. T. ˙OH S-160 S-140 S-180 R. B S . F , (*vb*) (*cb*), (h^+_{vb}) (e^-_{cb}) (E . (1)). S , h^+_{vb} e^-_{cb} ˙OH (E . (2) (3)). , ˙OH R. B (E . (4)).

$$S + . \rightarrow S\,(e^-_{cb} + h^+_{vb}) \quad (1)$$

$$h^+_{vb} + H_2O \rightarrow H^+ + {}^{\bullet}OH \quad (2)$$

$$h^+_{vb} + OH^- \rightarrow {}^{\bullet}OH \quad (3)$$

$$^{\bullet}OH + \rightarrow \quad (4)$$

4. Conclusions

I , - S S S . T. - ˙OH, S - UV , .

Ackno ledgments

T. S S F C (21171051, 21271066, U1204516) P C S I R T U (IRT1064) I F O - S S H P (114200510004) K T P H P (2012GGJS-065) H N U .

References

1 M N, B P P, B MK. E E 2005;61:105 13.
2 V A AK D RR, B P. J E M 2012;93:154 68.
8)-68D (T)-32.2( ).J/20 :2.8127-338.1)T(D ( )-32.8(4262

7 C. D, J F, R G, L D, M, 2010;2:2062 4.
8 G J L L, S. Q L M L 2012;74:26 9.
9 G J T , D F, K , C E C 2012;14:1185 8.
10 L , H J, T, C. R, L J. C. 2011;21:16621 7.
11 M M, A R, M. ACS A I 2010;2:1817 23.
12 , H Q. C. C 2010;46:8941 3.
13 , , H GC, JQ. J A C. S 2004;126:6874 5.
14 K- , F A T K. E C 2000;2:207 10.
15 , S FN. J A C. S 2008;130:12566 7.