

(19) (KR)
(12) (A)

(51) 。 Int. Cl. ⁷
C09K 15/20

(11)
(43)

2002 - 0027528
2002 04 13

(21) 10 - 2002 - 7001664

(22) 2002 02 07

2002 02 07

(86) PCT/US2000/21030

(87)

WO 2001/12750

(86) 2000 08 02

(87)

2001 02 22

(81) : , , , , , 가

EP : , , , , , , , , , , , , , ,

(30) 09/375,033 1999 08 16 (US)

(71) , 06749 , ,

(72) , , 06716, , 79

, , 06770, 가 , 223

, , 06410, , 202

, , 06492, , 5

, , 06705, , 90

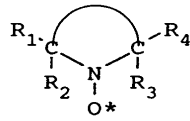
, , 06109, , , #1, 91

, , 06489, , 144

(74) :

(54)

가



, R₁ R₄ ,

-

, R₂ R₃



5 - , 6 - 7 -

1

C - -

, 4 -

- 2,2,6,6 -

- 1 -

가

, 가 , ,

가

positon)

(de

가 ,
가 .

가

()

3,163,677

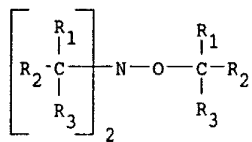
N,N,O-

-

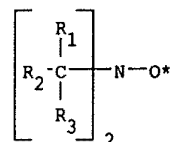
N,N-

가

1



및



, R₁, R₂ R₃

1

15

) N,N,O-

.

(N-O*
N,N-

3,334,103

가

가

).

3,163,677

N,N-

3,372,182

N,N-

가 O-C

(

- t-

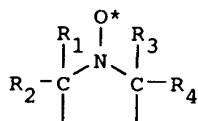
)

(pyrolyzing)

1,127,127

가

2



, R₁, R₂, R₃ R₄

가

. R₁,

6,6-

- 4 -

-

- 1 -

).

가

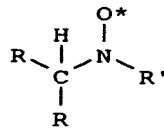
(

, 2,2,

3,422,144

가

3



, R

, R'

(trap)

3,494,930

(collector),

가

- 9 -

(3,3,1)

- 9

- 9 -

(3,3,1)

- 3 -

- 9,

3,873,564

가

가

2

3,966,711

1

4가

4 -

2,2,7,7 -

- 2,7 -

- 5 - - 1,4 -

4 -

N -

. 4 -

1 -

4,182,658

0 178 168 A2

4,665,185

5,254,760

5,545,782

5,545,786

가

0 765 856 A1

a) , (b) , (c) , (d) (b) (c) 가
 (MEHQ)). , (b) (c)
 - , (d) (b) (c) 가
 6 - - ; 4 - -2,2,6,6 - - ; 4 - -2,2,6,6 -
 - ; 4 - -2,2,6,6 - - ; 4 - -2,2,6,6 -
 ; 4 - -2,2,6,6 - - ; 2,2,5,5 - ; 3 - -
 2,2,5,5 - ; 2,2,5,5 - -1 - -3 - -3 - ; 2,2,5,5 -
 -1 - -3 - -1 - -3 - ; 2,2,3,3,5,5,6,6 - -1,4 - -1,4 -

WO 98/14416
가

CS - 260755 B1 4 - -2,2,6,6 -

SU - 334845 A1 (imminoxyl)

SU - 478838

, TEMPO 2,2,6,6 - -1 - , 4 -
 - TEMPO 4 - -2,2,6,6 - -1 - ; 4 - - TEMPO 4 - -2,2,
 6,6 - -1 - (HTEPO) ; 4 - - TEMPO 4 - -2,2,6,6 -
 -1 -

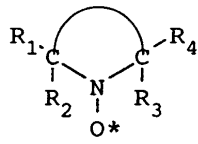
4 - - TEMPO

가 , 4 - - TEMPO

가 가 (plant upset situation)

가

4



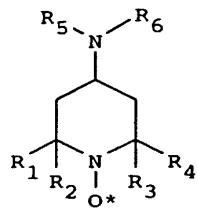
, R₁ R₄ , - , R₂ R₃



5 -, 6 - 7 - , ,

가

5



, R₁ R₄ , , - , R₅ R₆ , , R₂ R₃

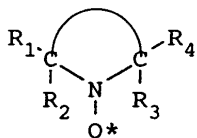
가 4 - - 2,2,6,6 - (, 4 - - TEMPO) .
1 2,000ppm ,

5 1,000ppm .

(a) ,

(b) :

6



, R₁ R₄ , - , R₂ R₃

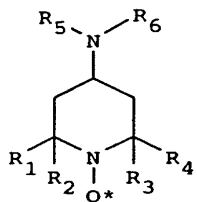


5 -, 6 - 7 -

(a)

(b)

7



, R₁ R₄ , , - , R₅ R₆ , , R₂ R₃

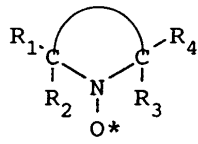
1

- TEMPO , C 4 - TEMPO , D TEMPO . , A 4 - TEMPO , B 4

가

:

8



, R₁ R₄ , - , R₂ R₃

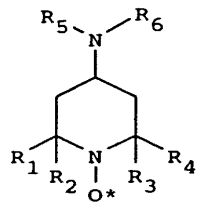


5 -, 6 - 7 - , 가 , O, N S ,

가 .

:

9



, R₁ R₄ , , - , R₅ R₆ , , R₂ R₃

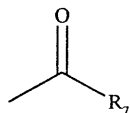
R₁, R₂, R₃, R₄가 , 1 15 (, , , , , , t- , 2-)가 .

R₅ / R₆가 , (, 1 4 , , ,)

R₅ / R₆가 , 6 10 , , , , , , 가 - , , , , .

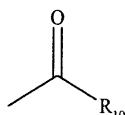
R₅ / R₆ , :

10



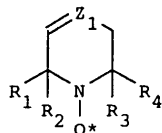
, R₇ , , OR₈ NR₈R₉ , R₈ R₉ , :

11



, R₁₀ , R₇, R₈, R₉, R₁₀ 가 , 1 15
 R₁₀ , , 6 10 4 , 15
 4 - - TEMPO .
 가 ,

12

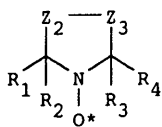


, Z₁ = C(NR₅R₆) - .

5 , .

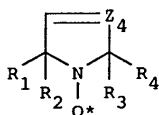
:

13



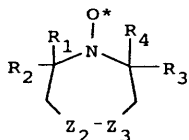
, Z₂ Z₃ > CNR₅R₆, Z₂ Z₃. Z₂ Z₃
 , , , > CH₂, > CHCH₃, > C=O, > C(CH₃)₂, > CHBr, > CHCl, > CHI,
 > CHF, > CHOH, > CHCN, > C(OH)CN, > CHCOOH, > CHCOOCH₃, > CHCOOC₂H₅, > C(OH)COOC₂H₅, > C(O
 H)COOCH₃, > C(OH)CHOHC₂H₅, > CNR₅R₆, > CCONR₅R₆, > CH=NOH, > C=C-C₆H₅, CF₂, CCl₂, CBr₂, Cl
 2, , , R₅ R₆.

14



, Z₄ =C(NR₇R₈) - , R₅ R₇

15



, Z₂ Z₃

R₂ R₃ , R₁ R₄ , -
) R₁ R₄ (1 15 . R₁ R₄
 1 4 (-) , , , ,
 , , . 가 R₁ R₄ .

. (3,163,
 677 ; 3,334,103 ; 3,372,182 ; 3,422,144 ; 3,494,930 ; 3,502,692 ; 3,873,564 ; 3,96
 6,711 ; 4,665,185)
 가 60 180 , 70
 165 , 가 80 150 . 10 1,200mmHg

가 /
 : , - , , , , , ,
 , 2-

가 , 가 , 가 , 가

가 (sacvengers)가,

, O₂가 가 , 가 , 5,545,782 5,545,786
5,254,760

0 765 856 A1

가

가 . 가,

가

가

가

가

가

T - (TBC)

TBC - TBC -
TBC -

. TBC 가
TBC -
가 .

(, " ") 가 , (116) 가 /
가 ,
가)
가

가

7

(methanol turbidit

y method)

가 (7) ,
 0
). (가 5
 " ")
 가
 4 - - TEMPO, 4 - - TEMPO, 4 - - TEMPO TEMPO
 1 , 4 - - TEMPO 가 1 1

[1]

가 116 /1 (%)	A(100ppm)	B(100ppm)	C(100ppm)	D(100pp)
()				
0	0	0	0	0
2	0.0003	0.0013	0.00038	0.00025
3	0.00037	0.0011	0.00068	0.00024
4	0.0004	0.0013	0.001	0.00024
5	0.00046	0.0017	0.0012	0.0003
6	0.00049	0.0017	0.0012	0.0004
7	0.00052	0.0017	0.0012	0.00037
(. F/SO)				
0	0	0	0	0
5	0.00064	0.0024	0.0012	0.00038
10	0.0004	0.0024	0.0012	0.00044
15	0.0135	0.043	0.002	0.00030
20	0.108	0.65	0.123	0.0013
25	0.25	1.03	0.45	0.117
30	0.35	1.38	1.12	0.545
35	0.44	2.12	1.68	1.27
40	0.69	3.1	2.32	1.96
45	1.17	3.85	3	2.3
50	1.28	4.25	3.2	3

A 4 - - TEMPO

B 4 - - TEMPO

C 4 - - TEMPO

D TEMPO

F/SO

가 .

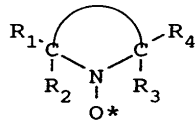
(57)

1.

가

:

1



, R₁ R₄ ,
-

-

, R₂ R₃



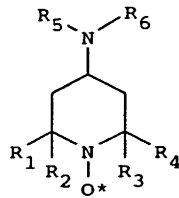
5 -, 6 - 7 -

2.

1 ,

:

2



, R₁ R₄ , ,
-

-

, R₅ R₆ , ,

, R₂ R₃

3.

2 , R₅ .

4.

3 , R₆ .

5.

2 , R₁, R₂, R₃, R₄ .

6.

5 , R₅ .

7.

6 , R₆ .

8.

6 , R₁, R₂, R₃, R₄ .

9.

7 , R₁, R₂, R₃, R₄ .

10.

1 , , 2 - , - , , , , , .

11.

1 , .

12.

2 , .

13.

9 , .

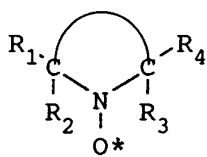
14.

(a) ;

(b)

:

3



, R₁ R₄ ,

-

, R₂ R₃

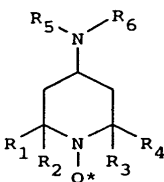


5 - , 6 - 7 -

15.

14

4



, R₁ R₄ ,

-

, R₅ R₆ ,

, R₂ R₃

16.

15 , R₅

17.

16 , R₆

18.

15 , $R_1, R_2, R_3,$ R_4 .

19.

18 , R_5 .

20.

19 , R_6 .

21.

19 , $R_1, R_2, R_3,$ R_4 .

22.

20 , $R_1, R_2, R_3,$ R_4 .

23.

14 , , 2 - , - , , , , , , .

24.

14 , .

25.

15 , .

26.

22 , .

