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-11111.1SEÑORA JEFE DE LA DIVISION DE NUEVAS CREACIONES
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

E. _____ S. _____

D
SUPERINDUSTRIA Y COMERCIO

Radicación : 04110432 00000002

Folios: 92

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Tramite : 011 PCT-PATENT 379 FASE INCI 329 COMPLETEN

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

Re: Expediente No. 04.110.432

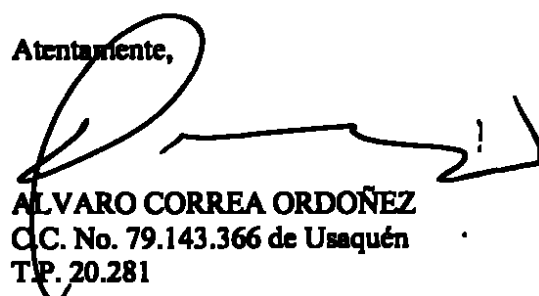
Solicitud de Patente de Invención: "COMPUESTOS DE AMIDINILFENILO Y SU
USO COMO FUNGICIDAS"

Solicitante: E.I. DU PONT DE NEMOURS AND COMPANY

ALVARO CORREA ORDOÑEZ, mayor de edad y vecino de Bogotá D.C., identificado tal como aparece al pie de mi firma, en mi carácter de apoderado de la sociedad en referencia, presento los siguientes documentos para complementar la solicitud de patente de la referencia:

1. Documento de cesión de los inventores a la sociedad solicitante, debidamente legalizado y traducido.
2. Copia certificada de la solicitud de patente No. 60/380.095 (03 de mayo de 2002) sobre la cual se reclama prioridad en la presente solicitud de patente. Las reivindicaciones de la solicitud colombiana son iguales a las de la solicitud sobre la cual se reclama prioridad; por tal razón, no se presenta traducción de las reivindicaciones del documento de prioridad.
3. Arte final de la figura representativa de la invención.
4. Traducción al español del Examen Preliminar Internacional.

Atentamente,


ALVARO CORREA ORDOÑEZ
C.C. No. 79.143.366 de Usaquén
T.P. 20.281

Anexos: Documento de Cesión de Inventores
Documento de Prioridad No. 60/380.095
Arte Final
Traducción del Examen Preliminar Internacional

=====

[Sello]

Estados Unidos de América)
)
Estado de Delaware)
)
Condado de New Castle)

A los 30 días del mes de septiembre de 2004, compareció personalmente ante mí Chi-Ping Tseng, a quien conozco y de quien me consta que es la persona descrita en el instrumento anterior, quien lo suscribió, y quien reconoció ante mí haber otorgado el mismo.

(Fdo.) Mirlam T. Reed
Notario Público

**MARIA TERESA LARA R.
TRADUCTORA GENERAL
RESOLUCION No. 07019
DE MICHUACATEPEC**

4777.3 309

APOSTILLE

(Convention de La Haye du 5 octobre 1961)

1. País: Estados Unidos de América
- Este documento público
2. ha sido firmado por Miriam T. Reed
3. actuando en calidad de Notario Público del Estado de Delaware
4. lleva el sello/timbre de Miriam T. Reed, Notario Público, Estado de Delaware

Certificado

5. en Dover, Delaware
6. el día 21 de octubre de 2004
7. por el Secretario de Estado, Departamento de Estado de Delaware
8. No. 0238007
9. Sello/Timbre
10. Firma

(Sello de la
Secretaría de Estado
del Estado de Delaware)

(Fdo.) Harriet Smith Windsor
Secretaria de Estado

=====

La anterior es traducción fiel y completa del documento en referencia, de la cual se deja copia en este archivo para su confrontación.

Maria Teresa Lara R.

María Teresa Lara R.
c.c. 41.568.055 de Bogotá
Traductora Oficial según
Resolución No. 01016 del
2 de octubre de 1998, del
Ministerio de Justicia

MARIA TERESA LARA R.
TRADUCTORA OFICIAL
RESOLUCION NO. 01016
DE OCTUBRE DE 1998

Apostille

(Convention de La Haye du 5 Octobre 1961)

1. Country: United States of America

This public document:

2. has been signed by Miriam T. Reed

3. acting in the capacity of Notary Public of the State of Delaware

4. bears the seal/stamp of Miriam T. Reed, Notary Public, State of Delaware

Certified

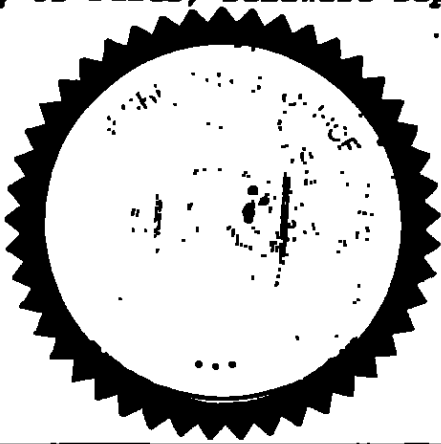
5. at Dover, Delaware

6. the twenty-first day of October, A.D. 2004

7. by Secretary of State, Delaware Department of State

8. No. 0238007

9. Seal/Stamp:



10. Signature:

Herriet Smith Windsor

Secretary of State

Noty cert.

PD664/0000017

Terresalva R.

ARIA TERESA LARA R.
TRADUCTORA OFICIAL
RESOLUCION No. 01010
DE MINISTERIA

289/04

ASSIGNMENT

Chi-Ping TSENG

by means of this document assign to
E. I. du Pont de Nemours and Company
a corporation organized under the laws of
Delaware
domiciled in

1007 Market Street
Wilmington, Delaware 19898
United States of America

(hereinafter referred to as the "ASSIGNEE"),
all my (our) rights, title and interest in and to my
(our) invention for a new and useful
improvement entitled and as fully set forth and
described in:

AMIDINYLPHENYL COMPOUNDS AND
THEIR USE AS FUNGICIDES

so far as the Republic of Colombia is concerned.

Place: Newark

Date: September 30, 2004

Chi-Ping Tseng
Chi-Ping Tseng

CESION

Chi-Ping TSENG

por medio de la presente cedo (cedemos) a
E. I. du Pont de Nemours and Company
una corporación organizada bajo las leyes de
Delaware
domiciliada en

1007 Market Street
Wilmington, Delaware 19898
Estados Unidos de América

(de ahora en adelante el "CESIONARIO"),
todos mis (nuestros) derechos, título e interés
sobre mi (nuestra) invención tal como describe
en:

COMPUESTOS DE AMIDINILFENILO Y
SU USO COMO FUNGICIDAS

en lo que concierne a la República de Colombia.

Lugar y fecha: Newark

Septiembre 30 de 2004

LEGALIZATION REQUIRED

United States of America

State of

Delaware

County of

New Castle

ss.

On this 30th day of September, 2009, personally appeared
before me Chi-Ping Tseng

to me known and known to me to be the individual__ described in and who executed the
foregoing instrument, and who acknowledged to me that __he__ executed the same.

Miriam T. Reed
Notary Public

392

PS 123277D



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

October 05, 2004

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 60/380,095

FILING DATE: May 03, 2002

**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**



N. Woodson
N. WOODSON
Certifying Officer

3508 U.S. PTO
05/02/02

503808-050302

05-07-02

Apr 30 2002

Please type a plus sign (+) inside this box → ☐

Approved for use through 10/31/2002 OMB 0851-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. **EU140615545US**

INVENTOR(S)					
Given Name (first and middle (if any))		Family Name or Surname		Residence (City and either State or Foreign Country)	
CHI-PING		TSENG		WILMINGTON, DE	
☐ Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
☒ Customer Number		23006			
OR		Type Customer Number Here			
☐ Firm or Individual Name					
Address					
Address					
City		State		ZIP	
Country		Telephone		Fax	
ENCLOSED APPLICATION PARTS (check all that apply)					
☒ Specification Number of Pages		65		☐ CD(s), Number _____	
☐ Drawing(s) Number of Sheets		_____		☐ Other (specify) _____	
☐ Application Data Sheet. See 37 CFR 1.78					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
☐ Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)	
☐ A check or money order is enclosed to cover the filing fee					
☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 04-1928				180.	
☐ Payment by credit card. Form PTO-2036 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
☒ No.					
☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,

Date **05/03/02**

SIGNATURE 

TYPED or PRINTED NAME **DAVID E. HEISER**

TELEPHONE **302 862 1928**

REGISTRATION NO. **31,388**

(If appropriate)

Docket Number

BA0302 US PRV

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is guaranteed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 5 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C., 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 100

Complete if Known

Application Number UNKNOWN

Filing Date HEREWITH

First Named Inventor CHI-PING TSENG

Examiner Name UNKNOWN

Group / Art Unit UNKNOWN

Attorney Doctet No. BA9302 US PRV

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account

Deposit
Account
Number

04-1828

Deposit
Account
Name

E. I. du Pont de Nemours and Company

The Commissioner is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments
☒ Charge any additional fee(s) during the pendency of this application
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	740	301	370	Utility filing fee	
108	330	308	165	Design filing fee	
107	810	307	255	Plant filing fee	
109	740	309	370	Reissue filing fee	
114	180	314	90	Provisional filing fee	180

SUBTOTAL (1) (\$ 180

2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
30	0	18	0
Independent Claims			
3	0	84	0
Multiple Dependent			
		280	0

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	303	9	Claims in excess of 20	
103	84	303	42	Independent claims in excess of 3	
104	280	304	140	Multiple dependent claims, if not paid	
108	84	308	42	-- Release independent claims over original patent	
110	18	310	9	-- Release claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$ 0

*or number previously paid, if greater; For Release, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
105	130	305	65	Surcharge - late filing fee or oath	
127	80	327	40	Surcharge - late provisional filing fee or cover sheet	
138	130	338	130	Non-English specification	
147	2,820	347	2,820	For filing a request for reexamination	
112	830*	312	830*	Requesting publication of ISR prior to Examiner action	
113	1,840*	313	1,840*	Requesting publication of ISR after Examiner action	
115	110	315	55	Extension for reply within first month	
116	400	316	200	Extension for reply within second month	
117	830	317	400	Extension for reply within third month	
118	1,440	318	720	Extension for reply within fourth month	
128	1,990	328	990	Extension for reply within fifth month	
119	320	319	160	Notice of Appeal	
120	320	320	160	Filing a brief in support of an appeal	
121	280	321	140	Request for oral hearing	
139	1,510	339	1,510	Petition to institute a public use proceeding	
140	110	340	55	Petition to revive - unavoidable	
141	1,280	341	640	Petition to revive - unintentional	
142	1,280	342	640	Utility issue fee (or reissue)	
143	480	343	240	Design issue fee	
144	880	344	310	Plant issue fee	
122	130	322	130	Petitions to the Commissioner	
125	80	325	80	Processing fee under 37 CFR 1.17(g)	
126	180	326	180	Submission of Information Disclosure Sheet	
881	40	381	40	Recording each patent assignment per property (does number of properties)	
148	740	348	370	Filing a maintenance after final rejection (37 CFR § 1.128(a))	
149	740	349	370	For each additional invention to be examined (37 CFR § 1.128(b))	
179	740	379	370	Request for Continued Examination (RCE)	
188	900	388	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) (\$ 0

SUBMITTED BY

Complete if applicable

Name (Print/Type)

DAVID E. HEBER

Registration No. Attorney/Agent

31,398

Telephone

302 882 1938

Signature

David E. Heber

Date

MAY 3, 2002

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-8538.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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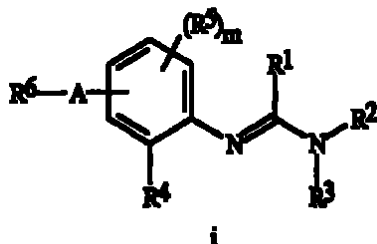
TITLE**AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES****FIELD OF THE INVENTION**

This invention relates to certain amidines, their agriculturally suitable salts and compositions, and methods of their use as fungicides.

BACKGROUND OF THE INVENTION

The control of plant diseases caused by fungal plant pathogens is extremely important in achieving high crop efficiency. Plant disease damage to ornamental, vegetable, field, cereal, and fruit crops can cause significant reduction in productivity and thereby result in increased costs to the consumer. Many products are commercially available for these purposes. The need continues for new compounds which are more effective, less costly, less toxic, environmentally safer and/or have different modes of action.

WO 00/46184 discloses certain phenylamidines of formula i as fungicides



wherein,

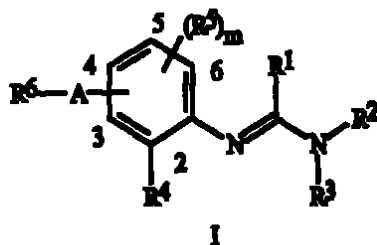
A and R¹ through R⁵ are as defined therein; and

R⁶ is optionally substituted carbocyclyl or heterocyclyl.

Various amidinyphenyl compounds are also disclosed in U.S. Patent No. 3,284,289, U.S. Patent No. 3,993,469, U.S. Patent No. 4,018,814, U.S. Patent No. 4,154,755, U.S. Patent No. 4,208,411, U.S. Patent No. 4,209,319 and U.S. Patent No. 5,219,868.

SUMMARY OF THE INVENTION

This invention is directed to compounds of Formula I (including all geometric and stereoisomers) and agriculturally suitable salts thereof, agricultural compositions containing them and their use as fungicides:



wherein

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R¹ is H, OH, SH, SO₃H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R¹ is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;

R² is H, CN, -OR⁷, or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₆ carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C₂-C₁₀ alkylcarbonyl, each optionally substituted;

R³ is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, a C₃-C₆ carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C₂-C₁₀ alkylcarbonyl, each optionally substituted; or

R² and R³ can be taken together with their interconnecting nitrogen to form a heterocyclic ring containing 3 to 7 atoms, said ring consisting of said interconnecting nitrogen atom, carbon and optionally one or two additional atoms selected from the group consisting of nitrogen, sulfur and oxygen, and said ring being optionally substituted with one or more R⁹;

R⁴ and each R⁵ are each independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₃-C₆ cycloalkyl, C₁-C₆ haloalkyl, C₂-C₆ haloalkenyl, C₂-C₆ haloalkynyl, C₃-C₆ halocycloalkyl, halogen, CO₂H, CONH₂, SF₅, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₁-C₄ alkylthio, C₁-C₄ alkylsulfinyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylthio, C₁-C₄ haloalkylsulfinyl, C₁-C₄ haloalkylsulfonyl, C₁-C₄ alkylamino, C₂-C₈ dialkylamino, C₃-C₆ cycloalkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxycarbonyl, C₂-C₆ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl or C₃-C₆ trialkylsilyl;

R⁶ is C₅-C₂₁ alkyl, C₅-C₂₁ alkenyl, C₅-C₂₁ alkynyl, C₄-C₉ alkoxycarbonyl, C₄-C₆ alkylaminocarbonyl, C₃-C₁₀ dialkylaminocarbonyl or C₃-C₁₂ trialkylsilyl, each optionally substituted; or R⁶ is C₁-C₄ alkyl or C₂-C₉ alkylcarbonyl, each substituted with one or more R¹²;

A is a direct bond, O, S(O)_n or NR¹⁰;

each R⁷ is independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted;

each R⁹ is independently halogen, CN, NO₂, C₁-C₄ alkoxy, C₁-C₄ alkyl, C₁-C₄ haloalkoxy or C₁-C₄ alkylthio;

R¹⁰ is H, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylsulfonyl, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxycarbonyl, C₂-C₆ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl or C₃-C₆ trialkylsilyl;

each R¹² is independently CO₂H, CONH₂, NO₂, C₁-C₆ haloalkoxy, C₂-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl, C₁-C₆ haloalkylthio, C₁-C₆

haloalkylsulfinyl, C₁-C₆ haloalkylsulfonyl, C₁-C₆ alkylamino, C₂-C₈
dialkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₃-C₉
alkoxyalkylcarbonyl, C₂-C₆ alkylaminocarbonyl, C₄-C₁₀
alkylaminoalkylcarbonyl, C₃-C₈ dialkylaminocarbonyl, C₃-C₈
dialkylaminoalkylcarbonyl, C₃-C₉ alkylthioalkylcarbonyl, C₃-C₉ trialkylsilyl or
C₃-C₉ trialkylsilyloxy;

n is 0, 1 or 2; and

m is 0, 1, 2 or 3.

DETAILS OF THE INVENTION

The compounds of Formula I as illustrated above can also be described as compounds of the formula (R⁵)_m-(R⁶A)-2-(R⁴)-1-[N=C(R¹)N(R²)(R³)]benzene, wherein R¹, R², R³, R⁴, R⁵, R⁶, A, m are as defined above.

In the above recitations, the term "alkyl", used either alone or in compound words such as "alkylthio" or "haloalkyl" includes straight-chain or branched alkyl, such as, methyl, ethyl, *n*-propyl, *i*-propyl, or the different butyl, pentyl or hexyl isomers. "Alkenyl" includes straight-chain or branched alkenes such as ethenyl, 1-propenyl, 2-propenyl, and the different butenyl, pentenyl and hexenyl isomers. "Alkenyl" also includes polyenes such as 1,2-propadienyl and 2,4-hexadienyl. "Alkynyl" includes straight-chain or branched alkynes such as ethynyl, 1-propynyl, 2-propynyl and the different butynyl, pentynyl and hexynyl isomers. "Alkynyl" can also include moieties comprised of multiple triple bonds such as 2,5-hexadiynyl. "Alkoxy" includes, for example, methoxy, ethoxy, *n*-propyloxy, isopropyloxy and the different butoxy, pentoxy and hexyloxy isomers. "Alkoxyalkyl" denotes alkoxy substitution on alkyl. Examples of "alkoxyalkyl" include CH₃OCH₂, CH₃OCH₂CH₂, CH₃CH₂OCH₂, CH₃CH₂CH₂CH₂OCH₂ and CH₃CH₂OCH₂CH₂. "Alkoxyalkoxy" denotes alkoxy substitution on alkoxy. "Alkylthio" includes branched or straight-chain alkylthio moieties such as methylthio, ethylthio, and the different propylthio, butylthio, pentylthio and hexylthio isomers. "Alkylthioalkyl" denotes alkylthio substitution on alkyl. Examples of "alkylthioalkyl" include CH₃SCH₂, CH₃SCH₂CH₂, CH₃CH₂SCH₂, CH₃CH₂CH₂CH₂SCH₂ and CH₃CH₂SCH₂CH₂. "Alkylthioalkoxy" denotes alkylthio substitution on alkoxy. "Alkylsulfinyl" includes both enantiomers of an alkylsulfinyl group. Examples of "alkylsulfinyl" include CH₃S(O), CH₃CH₂S(O), CH₃CH₂CH₂S(O), (CH₃)₂CHS(O) and the different butylsulfinyl, pentylsulfinyl and hexylsulfinyl isomers. Examples of "alkylsulfonyl" include CH₃S(O)₂, CH₃CH₂S(O)₂, CH₃CH₂CH₂S(O)₂, (CH₃)₂CHS(O)₂ and the different butylsulfonyl, pentylsulfonyl and hexylsulfonyl isomers. "Alkylamino", "dialkylamino", and the like, are defined analogously to the above examples.

The term "carbocycle" includes "aromatic carbocyclic ring system", which denotes fully aromatic carbocycles and carbocycles in which at least one ring of a polycyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied), and

"nonaromatic carbocyclic ring system", which denotes fully saturated carbocycles as well as partially or fully unsaturated carbocycles where the Hückel rule is not satisfied by any of the rings in the ring system. "Cycloalkyl" includes, for example, cyclopropyl, cyclobutyl, cyclopentyl, and cyclohexyl.

The term "hetero" in connection with rings refers to a ring in which at least one ring atom is not carbon and which can contain 1 to 4 heteroatoms independently selected from the group consisting of nitrogen, oxygen and sulfur, provided that each ring contains no more than 4 nitrogens, no more than 2 oxygens and no more than 2 sulfurs. "Heterocycle" includes "aromatic heterocyclic ring system", which denotes fully aromatic heterocycles and heterocycles in which at least one ring of a polycyclic ring system is aromatic (where aromatic indicates that the Hückel rule is satisfied), and "nonaromatic heterocyclic ring system", which denotes fully saturated heterocycles as well as partially or fully unsaturated heterocycles where the Hückel rule is not satisfied by any of the rings in the ring system. The heterocyclic ring systems can be attached through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

The term "halogen", either alone or in compound words such as "haloalkyl", includes fluorine, chlorine, bromine or iodine. Further, when used in compound words such as "haloalkyl", said alkyl may be partially or fully substituted with halogen atoms which may be the same or different. Examples of "haloalkyl" include F_3C , $ClCH_2$, CF_3CH_2 and CF_3CCl_2 . The terms "haloalkenyl", "haloalkynyl", "haloalkoxy", "haloalkylthio", and the like, are defined analogously to the term "haloalkyl". Examples of "haloalkenyl" include $(Cl)_2C=CHCH_2$ and $CF_3CH_2CH=CHCH_2$. Examples of "haloalkynyl" include $HC\equiv CCHCl$, $CF_3C\equiv C$, $CCl_3C\equiv C$ and $FCH_2C\equiv CCH_2$. Examples of "haloalkoxy" include CF_3O , CCl_3CH_2O , $HCF_2CH_2CH_2O$ and CF_3CH_2O . Examples of "haloalkylthio" include CCl_3S , CF_3S , CCl_3CH_2S and $ClCH_2CH_2CH_2S$. Examples of "haloalkylsulfinyl" include $CF_3S(O)$, $CCl_3S(O)$, $CF_3CH_2S(O)$ and $CF_3CF_2S(O)$. Examples of "haloalkylsulfonyl" include $CF_3S(O)_2$, $CCl_3S(O)_2$, $CF_3CH_2S(O)_2$ and $CF_3CF_2S(O)_2$.

Examples of "alkylcarbonyl" include $C(O)CH_3$, $C(O)CH_2CH_2CH_3$ and $C(O)CH(CH_3)_2$. Examples of "alkoxycarbonyl" include $CH_3OC(=O)$, $CH_3CH_2OC(=O)$, $CH_3CH_2CH_2OC(=O)$, $(CH_3)_2CHOC(=O)$ and the different butoxy- or pentoxycarbonyl isomers. Examples of "alkylaminocarbonyl" include $CH_3NHC(=O)$, $CH_3CH_2NHC(=O)$, $CH_3CH_2CH_2NHC(=O)$, $(CH_3)_2CHNHC(=O)$ and the different butylamino- or pentylaminocarbonyl isomers. Examples of "dialkylaminocarbonyl" include $(CH_3)_2NC(=O)$, $(CH_3CH_2)_2NC(=O)$, $CH_3CH_2(CH_3)NC(=O)$, $CH_3CH_2CH_2(CH_3)NC(=O)$ and $(CH_3)_2CHN(CH_3)C(=O)$. Examples of "alkoxyalkylcarbonyl" include $CH_3OCH_2C(=O)$, $CH_3OCH_2CH_2C(=O)$, $CH_3CH_2OCH_2C(=O)$, $CH_3CH_2CH_2CH_2OCH_2C(=O)$ and $CH_3CH_2OCH_2CH_2C(=O)$. Examples of "alkylthioalkylcarbonyl" include $CH_3SCH_2C(=O)$, $CH_3SCH_2CH_2C(=O)$,

$\text{CH}_3\text{CH}_2\text{SCH}_2\text{C}(=\text{O})$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{SCH}_2\text{C}(=\text{O})$ and $\text{CH}_3\text{CH}_2\text{SCH}_2\text{CH}_2\text{C}(=\text{O})$.

Examples of "alkylaminoalkylcarbonyl" include $\text{CH}_3\text{NHCH}_2\text{C}(=\text{O})$, $\text{CH}_3\text{NHCH}_2\text{CH}_2\text{C}(=\text{O})$, $\text{CH}_3\text{CH}_2\text{NHCH}_2\text{C}(=\text{O})$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2\text{C}(=\text{O})$ and $\text{CH}_3\text{CH}_2\text{NHCH}_2\text{CH}_2\text{C}(=\text{O})$.

5 The total number of carbon atoms in a substituent group is indicated by the " $\text{C}_i\text{-C}_j$ " prefix where i and j are numbers from 1 to 21. For example, $\text{C}_1\text{-C}_3$ alkylsulfonyl designates methylsulfonyl through propylsulfonyl; C_2 alkoxyalkyl designates CH_3OCH_2 ; C_3 alkoxyalkyl designates, for example, $\text{CH}_3\text{CH}(\text{OCH}_3)$, $\text{CH}_3\text{OCH}_2\text{CH}_2$ or $\text{CH}_3\text{CH}_2\text{OCH}_2$; and C_4 alkoxyalkyl designates the various isomers of an alkyl group substituted with an alkoxy group containing a total of four carbon atoms, examples including
10 $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2$ and $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_2$. In the above recitations, when a compound of Formula I is comprised of one or more heterocyclic rings, all substituents are attached to these rings through any available carbon or nitrogen by replacement of a hydrogen on said carbon or nitrogen.

15 When a compound is substituted with a substituent bearing a subscript that indicates the number of said substituents can exceed 1, said substituents (when they exceed 1) are independently selected from the group of defined substituents. Further, when the subscript indicates a range, e.g. $(\text{R})_{i-j}$, then the number of substituents may be selected from the integers between i and j inclusive.

20 When a group contains a substituent which can be hydrogen, for example R^1 or R^2 , then, when this substituent is taken as hydrogen, it is recognized that this is equivalent to said group being unsubstituted.

Compounds of this invention can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers and geometric isomers. One
25 skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. Accordingly, the present invention comprises compounds selected from Formula I, N -oxides and agriculturally
30 suitable salts thereof. The compounds of the invention may be present as a mixture of stereoisomers, individual stereoisomers, or as an optically active form.

One skilled in the art will appreciate that not all nitrogen containing heterocycles can form N -oxides since the nitrogen requires an available lone pair for oxidation to the oxide; one skilled in the art will recognize those nitrogen containing heterocycles which can form
35 N -oxides. One skilled in the art will also recognize that tertiary amines can form N -oxides. Synthetic methods for the preparation of N -oxides of heterocycles and tertiary amines are very well known by one skilled in the art including the oxidation of heterocycles and tertiary amines with peroxy acids such as peracetic and m -chloroperoxybenzoic acid (MCPBA),

hydrogen peroxide, alkyl hydroperoxides such as *t*-butyl hydroperoxide, sodium perborate, and dioxiranes such as dimethyldioxirane. These methods for the preparation of *N*-oxides have been extensively described and reviewed in the literature, see for example:

T. L. Gilchrist in *Comprehensive Organic Synthesis*, vol. 7, pp 748-750, S. V. Ley, Ed., Pergamon Press; M. Tisler and B. Stanovnik in *Comprehensive Heterocyclic Chemistry*, vol. 3, pp 18-20, A. J. Boulton and A. McKillop, Eds., Pergamon Press; M. R. Grimmett and B. R. T. Keene in *Advances in Heterocyclic Chemistry*, vol. 43, pp 149-161, A. R. Katritzky, Ed., Academic Press; M. Tisler and B. Stanovnik in *Advances in Heterocyclic Chemistry*, vol. 9, pp 285-291, A. R. Katritzky and A. J. Boulton, Eds., Academic Press; and G. W. H. Cheeseman and E. S. G. Winstuk in *Advances in Heterocyclic Chemistry*, vol. 22, pp 390-392, A. R. Katritzky and A. J. Boulton, Eds., Academic Press.

The salts of the compounds of the invention include acid-addition salts with inorganic or organic acids such as hydrobromic, hydrochloric, nitric, phosphoric, sulfuric, acetic, butyric, fumaric, lactic, maleic, malonic, oxalic, propionic, salicylic, tartaric, 4-toluenesulfonic or valeric acids. The salts of the compounds of the invention also include those formed with organic bases (e.g., pyridine, ammonia, or triethylamine) or inorganic bases (e.g., hydrides, hydroxides, or carbonates of sodium, potassium, lithium, calcium, magnesium or barium) when the compound contains an acidic group such as a carboxylic acid or phenol.

Preferred compounds for reasons of cost, ease of synthesis and/or biological efficacy are:

Preferred 1. Compounds of Formula I above, and agriculturally suitable salts thereof, wherein

R^1 is H, SH, SO_3H , CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl or C_2-C_{10} alkynyl, each optionally substituted with one or more R^8 ; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9 ;

R^2 is H, CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8 ; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9 ;

R^3 is H; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl or C_2-C_{10} alkylcarbonyl, each optionally substituted with one or more R^8 ; or a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R^9 ;

R^6 is C_3-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxy carbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted with one or more R^{11} ; or R^6 is

C₁-C₄ alkyl or C₂-C₉ alkylcarbonyl, each substituted with one or more R¹²;

each R⁷ is independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, each optionally substituted with one or more R⁸; or a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R⁹;

each R⁸ is independently halogen, CN, NO₂, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy or C₁-C₄ alkylthio; and

each R¹¹ is independently halogen, CO₂H, CONH₂, NO₂, hydroxy, C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₂-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl, C₁-C₆ haloalkylthio, C₁-C₆ haloalkylsulfinyl, C₁-C₆ haloalkylsulfonyl, C₁-C₆ alkylamino, C₂-C₈ dialkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxycarbonyl, C₃-C₉ alkoxyalkylcarbonyl, C₂-C₆ alkylaminocarbonyl, C₄-C₁₀ alkylaminoalkylcarbonyl, C₃-C₈ dialkylaminocarbonyl, C₃-C₈ dialkylaminoalkylcarbonyl, C₃-C₉ alkylthioalkylcarbonyl, C₂-C₈ dialkylphosphoryl, C₂-C₈ dialkylphosphinyl, C₃-C₉ trialkylsilyl or C₃-C₉ trialkylsilyloxy.

Preferred 2. Compounds of Preferred 1 wherein

R¹ and R² are each independently H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, each optionally substituted with one or more R⁸; or phenyl optionally substituted with 1 to 3 R⁹;

R³ is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl, each optionally substituted with one or more R⁸; or phenyl optionally substituted with 1 to 3 R⁹;

R⁴ and R⁵ are each independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₆ haloalkyl, halogen, CO₂H, CONH₂, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₁-C₄ alkylthio, C₁-C₄ alkylsulfinyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylthio, C₁-C₄ haloalkylsulfinyl, C₁-C₄ haloalkylsulfonyl, C₁-C₆ alkylcarbonyl, C₁-C₆ alkoxycarbonyl, C₁-C₆ alkylaminocarbonyl or C₂-C₈ dialkylaminocarbonyl;

R⁶ is C₅-C₁₅ alkyl, C₅-C₁₅ alkenyl or C₅-C₁₅ alkynyl, each optionally substituted with one or more R¹¹; or R⁶ is C₁-C₄ alkyl substituted with one or more R¹²;

each R⁷ is independently C₁-C₆ alkyl, optionally substituted with one or more R⁸;

A is a direct bond, O or S(O)_m; and
m is 0 or 1.

Preferred 3. Compounds of Preferred 2 wherein

A is attached to the remainder of Formula I at the 4 position of the benzene ring.

Preferred 4. Compounds of Preferred 3 wherein

R^1 , R^2 and R^3 are each independently H or C_1 - C_{10} alkyl;

R^4 and R^5 are each independently, halogen, C_1 - C_6 alkyl or C_1 - C_6 haloalkyl;

R^5 is attached to the remainder of Formula I at the 5 position of the benzene ring; and

m is 1.

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is alkyl, optionally substituted with halogen or C_1 - C_6 alkoxy. Also of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is alkenyl, optionally substituted with halogen. Examples include compounds wherein R^6 is selected from the group consisting of (a) the branched alkyl moieties $CH(CH_3)(CH_2)_3CH_3$, $CH(CH_3)(CH_2)_4CH_3$, $CH(CH_3)(CH_2)_5CH_3$, $CH(CH_3)(CH_2)_6CH_3$, $CH(CH_3)(CH_2)_7CH_3$, $CH(CH_3)(CH_2)_8CH_3$, $CH(C_2H_5)(CH_2)_3CH_3$, $CH(C_2H_5)(CH_2)_4CH_3$, $CH_2CH(CH_3)(CH_2)_2CH_3$, $CH_2CH(CH_3)(CH_2)_4CH_3$, $CH_2CH(C_2H_5)CH_2CH_2CH_2CH_3$, $(CH_2)_2CH(CH_3)(CH_2)_3CH(CH_3)_2$, $(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$, $(CH_2)_2CH(CH_3)(CH_2)_3C(CH_3)_3$, $(CH_2)_2C(CH_3)_3$, $(CH_2)_3C(CH_3)_3$, $(CH_2)_3C(C_2H_5)_3$, $(CH_2)_3CH(C_2H_5)_3$, $(CH_2)_3CH(CH_3)_2$, $(CH_2)_4CH(CH_3)_2$, $(CH_2)_5CH(CH_3)_2$, $CH(CH_2CH_2CH_2CH_3)_2$, $CH(CH_2CH_2CH_3)(CH_2)_3CH_3$, $CH(CH_2CH_2CH_2CH_2CH_3)_2$, $CH(C_2H_5)CH_2CH_2CH(CH_3)_2$, $CH(CH_3)CH_2CH_2CH(CH_3)_2$, $CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$, $CH(CH_2CH_2CH(CH_3)_2)_2$, $CH(CH_2CH_2CH_3)_2$ and $CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$, (b) the linear alkyl moieties $(CH_2)_4CH_3$, $(CH_2)_5CH_3$, $(CH_2)_6CH_3$, $(CH_2)_7CH_3$, $(CH_2)_8CH_3$, $(CH_2)_9CH_3$, $(CH_2)_{10}CH_3$, (c) the branched alkenyl moieties $(CH_2)_2CH=C(CH_3)_2$, $(CH_2)_5C(CH_3)=CH_2$, $(CH_2)_6C(CH_3)=CH_2$, $(CH_2)_7C(CH_3)=CH_2$, $CH_2CH=C(CH_3)_2$, $CH_2CH=C(CH_3)(CH_2)_2CH=C(CH_3)_2$, $CH_2(CH=C(CH_3)(CH_2)_2)_2CH=C(CH_3)_2$, $(CH_2)_3C(=CH_2)CH(CH_3)_2$, $CH_2CH=CHCH(CH_3)_2$, $CH_2CH=CHCH_2CH(CH_3)_2$, $CH_2CH=CHC(CH_3)_3$ and $CH_2CH=CHCH_2C(CH_3)_3$ and (d) the linear alkenyl moieties $(CH_2)_3CH=CH_2$, $(CH_2)_4CH=CH_2$, $(CH_2)_5CH=CH_2$, $(CH_2)_6CH=CH_2$, $(CH_2)_7CH=CH_2$, $(CH_2)_8CH=CH_2$ and $(CH_2)_9CH=CH_2$. Examples further include such compounds wherein R^6 is selected from said alkyl and alkenyl moieties (a), (b), (c) and (d) wherein at least one hydrogen has been replaced by halogen (e.g., compounds wherein R^6 is selected from said alkyl moieties wherein a CH_3 group has been replaced by a CF_3 group; and compounds wherein R^6 is selected from said alkenyl moieties wherein a $=CH_2$ group has been replaced by a $=CF_2$ group). Examples also include such compounds wherein R^6 is selected from said

alkyl moieties (a) and (b) wherein at least one hydrogen has been replaced by OCH_3 , OC_2H_5 , $\text{OCH}(\text{CH}_3)_2$ or $\text{OC}(\text{CH}_3)_3$.

Of particular note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3 and Preferred 4) wherein R^6 is selected from the group consisting of $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{OCH}_3$, $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{OC}_2\text{H}_5$, $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{OCH}(\text{CH}_3)_2$, $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{OC}(\text{CH}_3)_3$, $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{F}$, $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{Cl}$ and $(\text{CH}_2)_3\text{C}(\text{CH}_3)_2\text{Br}$.

Preferred 5. Compounds of Preferred 4 wherein

R^1 is H;

R^2 , R^3 , R^4 and R^5 are each methyl; and

R^6 is C_6 - C_{15} alkyl wherein at least one of the fourth and fifth carbon from A has one or no hydrogen attached or C_5 - C_{15} 2-alkenyl wherein the fourth or fifth carbon from A has one or no hydrogen attached (In other words, R^6 is branched at the fourth and/or fifth carbon).

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 5) wherein R^6 is selected from the group consisting of (a) the alkyl moieties $(\text{CH}_2)_2\text{CH}(\text{CH}_3)\text{CH}_2\text{C}(\text{CH}_3)_3$, $(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$, $\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$, $\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$, $\text{CH}(\text{CH}_2\text{CH}_2\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2$ and $\text{CH}(\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)_2)_2$ and (b) the alkenyl moieties $\text{CH}_2\text{CH}=\text{CHCH}(\text{CH}_3)_2$, $\text{CH}_2\text{CH}=\text{CHCH}_2\text{CH}(\text{CH}_3)_2$, $\text{CH}_2\text{CH}=\text{CHC}(\text{CH}_3)_3$ and $\text{CH}_2\text{CH}=\text{CHCH}_2\text{C}(\text{CH}_3)_3$.

Preferred 6. Compounds of Preferred 4 wherein

R^1 is H;

R^2 , R^3 , R^4 and R^5 are each methyl; and

R^6 is C_1 - C_4 alkyl substituted with one or more substituents selected from the group consisting of C_2 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_2 - C_6 alkoxy carbonyl, C_2 - C_8 dialkylamino, C_2 - C_6 alkylcarbonyl, C_3 - C_9 alkoxyalkylcarbonyl, C_2 - C_6 alkylaminocarbonyl, C_3 - C_8 dialkylaminocarbonyl, C_3 - C_9 trialkylsilyl or C_3 - C_9 trialkylsilyloxy.

Of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 6) wherein R^6 is alkyltrialkylsilyl. Also of note are compounds of Formula I (including but not limited to compounds of Preferred 1, Preferred 2, Preferred 3, Preferred 4 and Preferred 6) wherein R^6 is alkyltrialkylsilyloxy. Examples include compounds wherein R^6 is selected from the group consisting of (c) the alkyltrialkylsilyl moieties $\text{CH}_2\text{Si}(\text{CH}_3)_3$, $\text{CH}_2\text{CH}_2\text{Si}(\text{CH}_3)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{CH}_3)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{CH}_3)_3$, $\text{CH}_2\text{Si}(\text{C}_2\text{H}_5)_3$, $\text{CH}_2\text{CH}_2\text{Si}(\text{C}_2\text{H}_5)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{C}_2\text{H}_5)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{C}_2\text{H}_5)_3$, $\text{CH}_2\text{Si}(\text{CH}(\text{CH}_3)_2)_3$, $\text{CH}_2\text{CH}_2\text{Si}(\text{CH}(\text{CH}_3)_2)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{CH}(\text{CH}_3)_2)_3$, $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{CH}(\text{CH}_3)_2)_3$.

CH₂Si(CH₃)₂C(CH₃)₃, CH₂CH₂Si(CH₃)₂C(CH₃)₃, CH₂CH₂CH₂Si(CH₃)₂C(CH₃)₃ and CH₂CH₂CH₂CH₂Si(CH₃)₂C(CH₃)₃ and (f) the alkyltrialkylsilyloxy moieties CH₂OSi(CH₃)₃, CH₂CH₂OSi(CH₃)₃, CH₂CH₂CH₂OSi(CH₃)₃, CH₂CH₂CH₂CH₂OSi(CH₃)₃, CH₂OSi(C₂H₅)₃, CH₂CH₂OSi(C₂H₅)₃, CH₂CH₂CH₂OSi(C₂H₅)₃, CH₂CH₂CH₂CH₂OSi(C₂H₅)₃, CH₂OSi(CH(CH₃)₂)₃, CH₂CH₂OSi(CH(CH₃)₂)₃, CH₂CH₂CH₂OSi(CH(CH₃)₂)₃, CH₂CH₂CH₂CH₂OSi(CH(CH₃)₂)₃, CH₂OSi(CH₃)₂C(CH₃)₃, CH₂CH₂OSi(CH₃)₂C(CH₃)₃, CH₂CH₂CH₂OSi(CH₃)₂C(CH₃)₃ and CH₂CH₂CH₂CH₂OSi(CH₃)₂C(CH₃)₃.

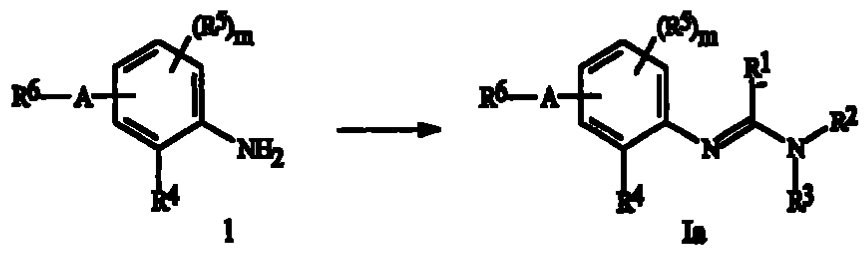
This invention also relates to fungicidal compositions comprising fungicidally effective amounts of the compounds of the invention and at least one additional component selected from the group consisting surfactants, solid diluents and liquid diluents. The preferred compositions of the present invention are those which comprise the above preferred compounds.

This invention also relates to a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of the compounds of the invention (e.g., as a composition described herein). The preferred methods of use are those involving the above preferred compounds.

The compounds of Formula I can be prepared by one or more of the following methods and variations as described in Schemes 1-9. The definitions of R¹ to R¹², A, m and n in the compounds of Formulae 1-13 below are as defined above in the Summary of the Invention unless otherwise stated. Compounds of Formulae Ia-Ie are various subsets of the compounds of Formula I, and all substituents for Formulae Ia-Ie are as defined above for Formula I unless otherwise stated.

As illustrated in Scheme 1, compounds of Formula Ia can be prepared from anilines of Formula 1. There are a variety of methods for this transformation. The following four methods are especially useful.

Scheme 1



wherein R¹ is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, a C₃-C₆ carbocycle or C₃-C₆ heterocycle.

Method 1: Treatment of an aniline of Formula 1 with an acetal of formula $R^2R^3NC(R^1)(OR^{13})_2$, wherein R^{13} is an alkyl. For a leading reference to this method see, Toste et al, *Synth. Commun.* 1994, 24(11), 1617-1624.

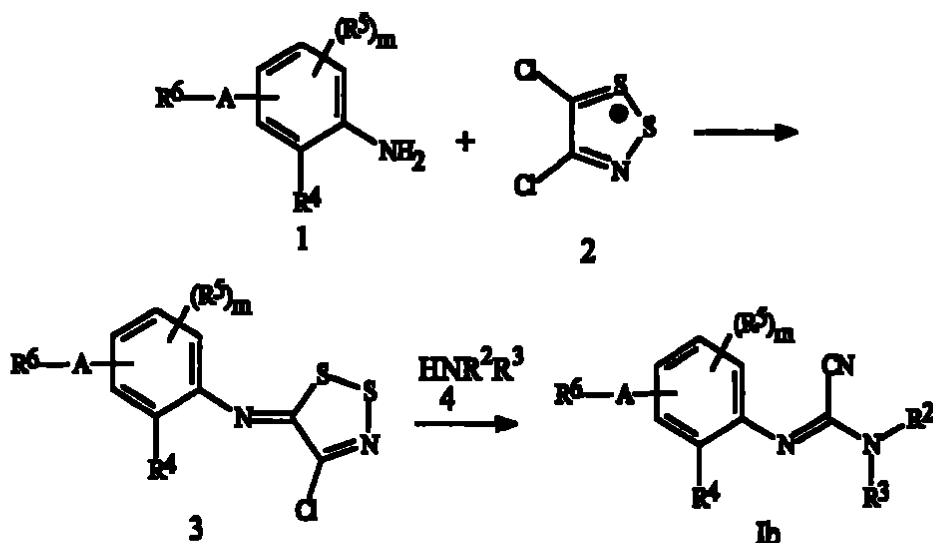
Method 2: Treatment of an aniline of Formula 1 with an amide of formula $R^1C(=O)NR^2R^3$ in the presence of a halogenating reagent such as, but not limited to, $POCl_3$ or $SOCl_2$. For a leading reference to this method see, Bergman et al, *Tetrahedron*, 1990, 46(17), 6058-6112.

Method 3: Treatment of an aniline of Formula 1 with an orthoester of formula $R^1C(OR^{13})_3$, wherein R^{13} is alkyl, to form a corresponding iminoether followed by heating the iminoether with an amine of formula HNR^2R^3 . For a leading reference to this method see, Pissiotas et al, US 4209319.

Method 4: Treatment of an aniline of Formula 1 with phosgene to form an isocyanate followed by reaction of the isocyanate with an amide of formula $R^1C(=O)NR^2R^3$. For a leading reference to this method see, Charles et al, WO 00/46184.

Compounds of Formula Ib, can be prepared by the method outlined in Scheme 2. Treatment of a compound of Formula 1 with 4,5-dichloro-1,2,3-dithiazolium chloride (Formula 2) affords the corresponding 4-chloro-5-(phenylimino)-5H-1,2,3-dithiazole (Formula 3). Reaction of the said dithiazole with an amine of Formula 4 in a suitable organic solvent such as, but not limited to, dichloromethane at room temperature provides the compound of Formula Ib. For a leading reference to this method see, Lee et al, *J. Org. Chem.*, 1993, 58(25), 7001-7008.

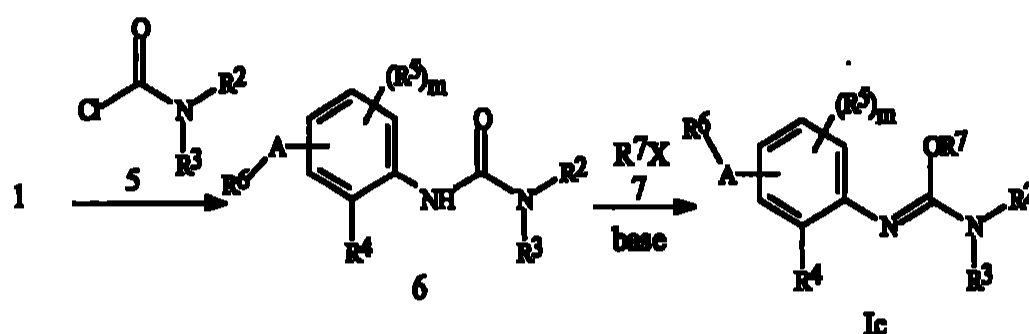
Scheme 2



Compounds of Formula Ic, can be prepared by the method outlined in Scheme 3. Reaction of an aniline of Formula 1 with a carbamoyl chloride of Formula 5 provides the

urea of Formula 6. The urea of Formula 6 is then *O*-alkylated to form the compound of Formula Ic by contact with an alkylating agent of Formula 7 (R^7X) in the presence of a base. In the alkylating agent of Formula 7, X is leaving group such as halogen (e.g., Br, I), $OS(O)_2CH_3$ (methanesulfonate), $OS(O)_2CF_3$, $OS(O)_2Ph-p-CH_3$ (*p*-toluenesulfonate), and the like. The suitable bases can be, for example but not limited to, potassium carbonate (K_2CO_3) or silver oxide (Ag_2O). For a leading reference to this method see, Curtis et al, *Aust. J. Chem.*, 1988, 41(4), 585-595.

Scheme 3

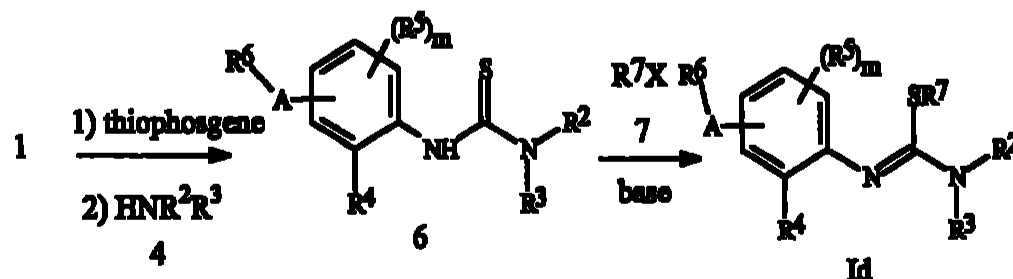


wherein X is a leaving group.

Compounds of Formula Id, can be prepared by the method outlined in Scheme 4.

Treatment of an aniline of Formula 1 with thiophosgene provides the corresponding isothiocyanate. The isothiocyanate is then reacted with an amine of Formula 4 to afford the thiourea of Formula 6. The thiourea of Formula 6 is then alkylated to give the compound of Formula Id by contact with an alkylating agent of Formula 7 (R^7X). The suitable bases can be, for example but not limited to, potassium hydroxide. For a leading reference to this method see, Filip et al, *Tetrahedron*, 1985, 41(24), 5981-5988.

Scheme 4



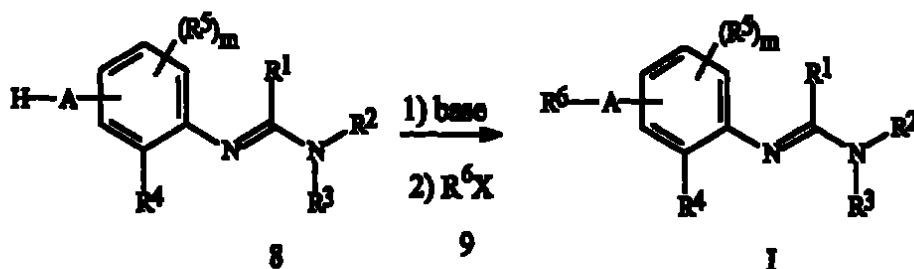
wherein X is a leaving group.

Of note is that R^2 and R^3 groups in compounds of Formula I can be converted to other R^2 and R^3 groups as defined above, by treatment with an appropriate amine or by acylation or alkylation when R^2 or R^3 is hydrogen.

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As illustrated in Scheme 5, a compound of Formula I can also be prepared by alkylation of a compound of Formula 8 with an alkylating agent of Formula 9 in the presence of a base. Compounds of Formula 8 are known compounds or can be prepared by literature procedures (*J. Med. Chem.*, 1984, 27(12), 1705-10; EP 94052 and WO 00/46184). In the alkylating agent of Formula 9, X is a nucleophilic reaction leaving group as defined above for Formula 7. The reaction is conducted in the presence of at least one equivalent of a base, preferably from 1 to 2 equivalents. Suitable bases include inorganic bases, such as alkali metal (such as lithium, sodium or potassium) hydrides, carbonates and hydroxides, and organic bases, such as triethylamine, diisopropylethylamine and 1,8-diazabicyclo-[5.4.0]undec-7-ene. The reaction is generally conducted in a solvent, which can comprise aromatic solvents, such as benzene and toluene, ethers, such as tetrahydrofuran and diethyl ether, and polar aprotic solvents, such as acetonitrile, *N,N*-dimethylformamide, and the like. The reaction is generally conducted between about -20 and 150 °C, and preferably between 20 and 140 °C. The reaction time can range from 1 hour to 7 days. The compound of Formula I can be isolated by conventional techniques such as extraction. Further experimental details for the method of Scheme 5 are illustrated in Example 1.

Scheme 5

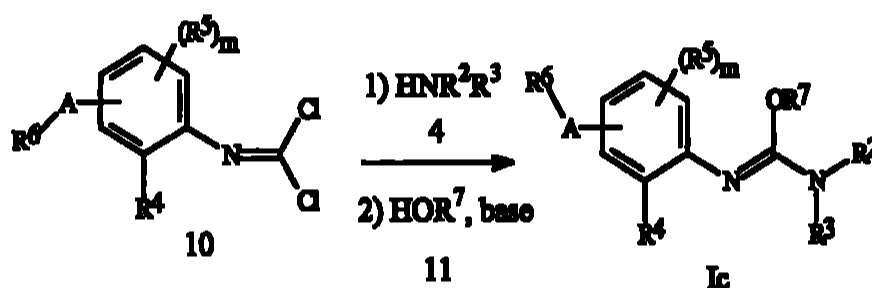


wherein A is O, S or NR¹⁰, and X is a leaving group.

In addition, reductive amination of a compound of Formula 8, wherein A is NH, in the presence of an aldehyde or a ketone can also provide the compound of Formula I, wherein R⁶ is an optionally substituted alkyl group. Reaction conditions for the reductive amination are taught in *J. Med. Chem.*, 1984, 17(12), 1705-1710, and references cited within.

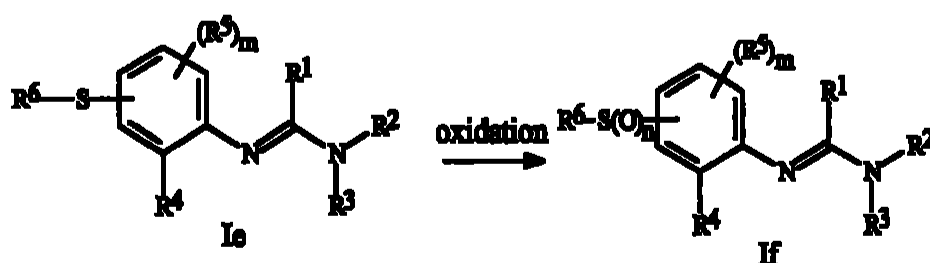
As an alternative to the method illustrated in Scheme 3, compounds of Formula Ic can also be prepared by the method outlined in Scheme 6. Heating a phenyl isocyanide dichloride of Formula 10 with an amine of Formula 4 provides the corresponding imidoyl intermediate. Treatment of the imidoyl intermediate with an alcohol of Formula 11 in the presence of an inert base such as, but not limited to, triethylamine, gives the compound of Formula Ic. For references to this method see, Filop et al, *Izv. Akad. Nauk SSSR, Ser. Khim.*, 1989, (11), 2596-2601, and references cited within. The phenyl isocyanide dichloride of Formula 10 can be prepared by literature procedures (*J. Chem. Soc., Perkin Trans. 1*, 1987, (5), 1069-1076; *Tetrahedron Lett.*, 1982, 23(35), 3539-3542; *Chem. Ber.*, 1987, 120(3), 421-424).

Scheme 6



Compounds of Formula If can be prepared by oxidation of compounds of Formula Ie as illustrated in Scheme 7. The oxidizing agent can be peracetic acid, hydrogen peroxide, potassium permanganate, sodium periodate or 3-chloroperoxybenzoic acid. The solvent can be, for example but not limited to, dichloromethane, acetic acid or water. Detailed conditions for this method can be found in *J. Med. Chem.*, 1996, 39(26), 5072-5082, *J. Med. Chem.*, 1983, 26(1), 107-110, and references cited within.

Scheme 7

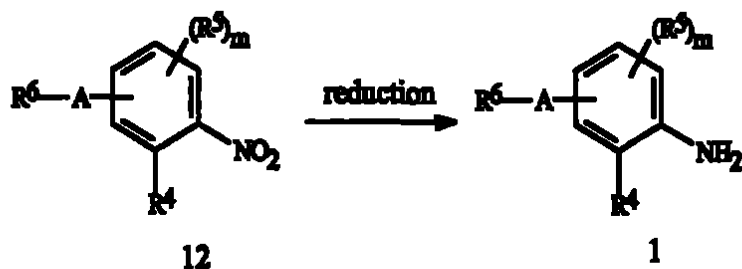


wherein n is 1 or 2.

Compounds of Formula 1 can be prepared by reduction of the nitro group in compounds of Formula 12. There are many methods for this reduction reaction. Preferred methods include stannous chloride reduction in concentrated hydrochloric acid (*J. Med.*

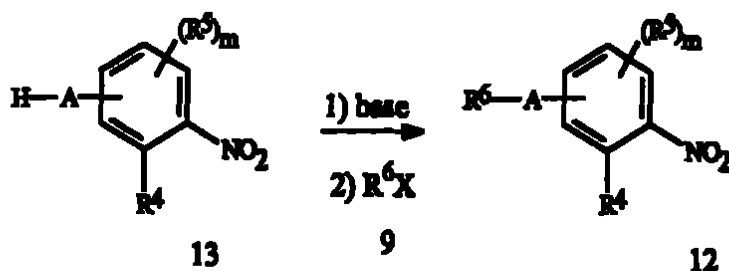
Chem., 1984, 24(12), 1705-1710) and iron powder reduction in a solution of acetic acid and water (*J. Org. Chem.*, 2001, 66(13), 4563-4575).

Scheme 8



As illustrated in Scheme 9, compounds of Formula 12 can be prepared by alkylation of compounds of Formula 13 with an alkylating agent of Formula 9 in the presence of a base. The reaction conditions for this alkylation are already described for the conversion of the compounds of Formula 8 to the compounds of Formula I in Scheme 5. Compounds of Formula 13 are known compounds or can be prepared by literature procedures (*Can. J. Chem.*, 1984, 62(8), 1446-51; *Aust. J. Chem.*, 1991, 44(1), 151-6).

Scheme 9



wherein A is O, S or NR¹⁰; and X is a leaving group.

Alternatively, compounds of Formula 12, wherein A is O, S or NR¹⁰ and R⁶ is an optionally substituted alkyl group, can also be prepared from compounds of Formula 13 through a Mitsunobu reaction, which involves reaction of a compound of Formula 13 with the appropriate alcohol R⁶OH. The general reaction conditions of Mitsunobu Reaction is well documented in the chemical literature. For a review of the Mitsunobu Reaction see Hughes, *Org. React.*, 1992, 42, 335-656 and references cited within.

Compounds of Formula 12, wherein A is a direct bond, are available by a variety of known methods. One skilled in art can prepare the compounds of Formula 12 by methods extensively described in the literature; see for example: *Synth. Commun.*, 2001, 31(14), 2113-2117; *Synth. Commun.*, 1999, 29(12), 2169-2174; *J. Chem. Res., Synop.*, 1998, (8), 410, 1701-1714; *J. Chem. Soc., Perkin Trans. 1*, 1998, (12), 1903-1912; *Synthesis*, 1982 (10), 836-9; *J. Org. Chem.*, 1977, 42(24), 3907-9.

It is recognized that some reagents and reaction conditions described above for preparing compounds of Formula I may not be compatible with certain functionalities present in the intermediates. In these instances, the incorporation of protection/deprotection sequences or functional group interconversions into the synthesis will aid in obtaining the desired products. The use and choice of the protecting groups will be apparent to one skilled in chemical synthesis (see, for example, Greene, T. W.; Wuts, P. G. M. *Protective Groups in Organic Synthesis*, 2nd ed.; Wiley: New York, 1991). One skilled in the art will recognize that, in some cases, after the introduction of a given reagent as it is depicted in any individual scheme, it may be necessary to perform additional routine synthetic steps not described in detail to complete the synthesis of compounds of Formula I. One skilled in the art will also recognize that it may be necessary to perform a combination of the steps illustrated in the above schemes in an order other than that implied by the particular sequence presented to prepare the compounds of Formula I.

One skilled in the art will also recognize that compounds of Formula I and the intermediates described herein can be subjected to various electrophilic, nucleophilic, radical, organometallic, oxidation, and reduction reactions to add substituents or modify existing substituents.

Without further elaboration, it is believed that one skilled in the art using the preceding description can utilize the present invention to its fullest extent. The following Examples are, therefore, to be construed as merely illustrative, and not limiting of the disclosure in any way whatsoever. Percentages are by weight except for chromatographic solvent mixtures or where otherwise indicated. Parts and percentages for chromatographic solvent mixtures are by volume unless otherwise indicated. ¹H NMR spectra are reported in ppm downfield from tetramethylsilane; s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, dd = doublet of doublets, dt = doublet of triplets, br s = broad singlet.

EXAMPLE 1

Preparation of *N'*-(2,5-Dimethyl-4-[(3-methyl-2-butenyl)-oxy]phenyl)-*N,N*-dimethylmethanimidamide

The title compound was prepared from *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (prepared as described in WO00/46184). To a suspension of *N'*-(4-hydroxy-2,5-dimethylphenyl)-*N,N*-dimethylmethanimidamide (0.77 g, 4 mmol) in tetrahydrofuran (34 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (170 mg, 4.25 mmol). The mixture was then stirred at room temperature for about 45 minutes followed by addition of 4-bromo-2-methyl-2-butene (0.72 g, 4.8 mmol). The resulting reaction mixture was stirred at room temperature for 2 days and then poured into diethyl ether (250 mL). The organic layer was then washed with 1*N* aqueous sodium hydroxide solution (2x200 mL). The organic layer was then dried over MgSO₄ and filtered.

The filtrate was concentrated to give the title compound (1.02 g), a compound of the present invention, as a brown oil.

¹H NMR (CDCl₃): δ 1.72 (s,3H), 1.78 (s,3H), 2.17 (s,3H), 2.24 (s,3H), 2.99 (s,6H), 4.46 (d,2H), 5.5 (t,1H), 6.55 (s,1H), 6.66 (s,1H), 7.38 (s,1H).

EXAMPLE 2

Preparation of N'-(2,5-Dimethyl-4-[(4-methylpentyl)oxy]-phenyl)-N,N-dimethylmethanimidamide

To a suspension of N'-(4-hydroxy-2,5-dimethylphenyl)-N,N-dimethylmethanimidamide (0.52 g, 2.7 mmol) in tetrahydrofuran (~10 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (120 mg, 3 mmol). After the addition, the mixture was stirred at room temperature for 30 minutes, and 1-bromo-4-methylpentane (0.55 g, 3.3 mmol) was added. The resulting reaction mixture was heated at reflux for 24 hours, cooled to room temperature and stirred at room temperature overnight. The reaction mixture was then poured into diethyl ether (100 mL). The organic layer was washed with 1N aqueous sodium hydroxide solution (3x100 mL), dried over MgSO₄ and filtered. The filtrate was concentrated to give the title compound (0.7 g), a compound of this invention, as an oil.

¹H NMR (CDCl₃): δ 0.91 (d,6H), 1.28-1.82 (m,5H), 2.16 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.89 (t,2H), 6.54 (s,1H), 6.63 (s,1H), 7.37 (s,1H).

EXAMPLE 3

Preparation of N'-(2,5-Dimethyl-4-[3-(trimethylsilyl)propoxy]phenyl)-N,N-dimethylmethanimidamide

To a suspension of N'-(4-hydroxy-2,5-dimethylphenyl)-N,N-dimethylmethanimidamide (0.52 g, 2.7 mmol) in *p*-dioxane (10 mL) under nitrogen at room temperature was added 60% sodium hydride in mineral oil (120 mg, 3 mmol). After the addition, the mixture was stirred at room temperature for 21 minutes, and (3-chloropropyl)trimethylsilane (0.5 g, 3.3 mmol) was added. The resulting reaction mixture was heated at reflux for 4 days and then cooled to room temperature. The reaction mixture was poured into diethyl ether (100 mL). The organic layer was washed with 1N aqueous sodium hydroxide solution (3x100 mL). The organic layer was then dried over MgSO₄ and filtered. The filtrate was concentrated and then dried in a vacuum oven at 90 °C overnight to give the title compound (0.16 g), a compound of this invention, as an oil.

¹H NMR (CDCl₃): δ 0.02 (t,9H), 0.6 (m,2H), 1.7-1.82 (m,2H), 2.17 (s,3H), 2.23 (s,3H), 2.98 (s,6H), 3.87 (t,2H), 6.54 (s,1H), 6.62 (s,1H), 7.38 (s,1H).

EXAMPLE 4

Preparation of N'-[4-[(1-Butylpentyl)oxy]-2,5-dimethylphenyl]-N,N-dimethylmethanimidamide

Step A: Preparation of 1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzene

Diisopropyl azodicarboxylate (0.570 g, 2.82 mmol) was added to the solution of triphenylphosphine (0.739 g, 2.82 mmol) in tetrahydrofuran (15 mL) at 0 °C dropwise. The mixture was stirred at the 0 °C for additional 30 minutes. A mixture of 2,5-dimethyl-4-nitrophenol (0.315 g, 1.9 mmol) and 5-nonanol (0.288 g, 2 mmol) in tetrahydrofuran (10 mL) was added dropwise to the above cold solution. Then the reaction mixture was stirred at the 0 °C for 30 min and at room temperature for 1 hour. Tetrahydrofuran was removed under reduced pressure, and the residue was triturated with hexane (100 mL) and filtered. The precipitate was washed with hexane (50 mL). Hexane was removed under reduced pressure and the residue was purified by column chromatography eluted with dichloromethane to give the title compound (0.4 g) as an oil.

¹H NMR (CDCl₃): δ 0.9 (t, 6 H), 1.2-1.4 (m, 8 H), 1.6-1.7 (m, 4H), 2.15 (s, 3H), 2.6 (s, 3H), 4.35 (m, H), 6.6 (s, 1H), 7.9 (s, 1H).

Step B: Preparation of 1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzenamine

1-[(1-Butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzene (i.e. the product from Step A) (0.4 g, 1.39 mmol) was reduced by catalytic hydrogenation using palladium charcoal catalyst (10 wt %, 0.2 g) in ethanol (~20 mL) at 40 psi (276 KPa) hydrogen pressure above ambient for 8 hours. The catalyst was removed by filtration, and the filtrate was concentrated under reduced pressure. The residue was purified by column chromatography eluted with dichloromethane to give the title compound (0.35 g) as an oil.

¹H NMR (CDCl₃): δ 0.9 (t, 6 H), 1.2-1.4 (m, 8 H), 1.6-1.7 (m, 4H), 2.15 (s, 6H), 3.25 (m, 2H), 4.0 (m, H), 6.42s, 1H), 6.5 (s, H).

Step C: Preparation of N'-[4-[(1-Butylpentyl)oxy]-2,5-dimethylphenyl]-N,N-dimethylmethanimidamide

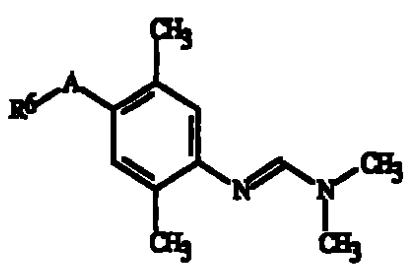
Dimethylformamide dimethyl acetal (~5 mL) was added to 1-[(1-butylpentyl)oxy]-2,5-dimethyl-4-nitrobenzenamine (i.e. the product from Step B) (350 mg) under argon, and the mixture was heated to 100 °C for two hours. The reaction mixture was cooled to room temperature and partitioned between ether (50 mL) and water (50 mL). The organic layer was washed sequentially with water (50 mL) and brine, dried (Na₂SO₄), filtered and concentrated to give the title compound (300 mg), a compound of this invention, as an reddish oil.

¹H NMR (CDCl₃): δ 0.9 (t, 6 H), 1.2-1.4 (m, 8 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 4.1 (m, H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).

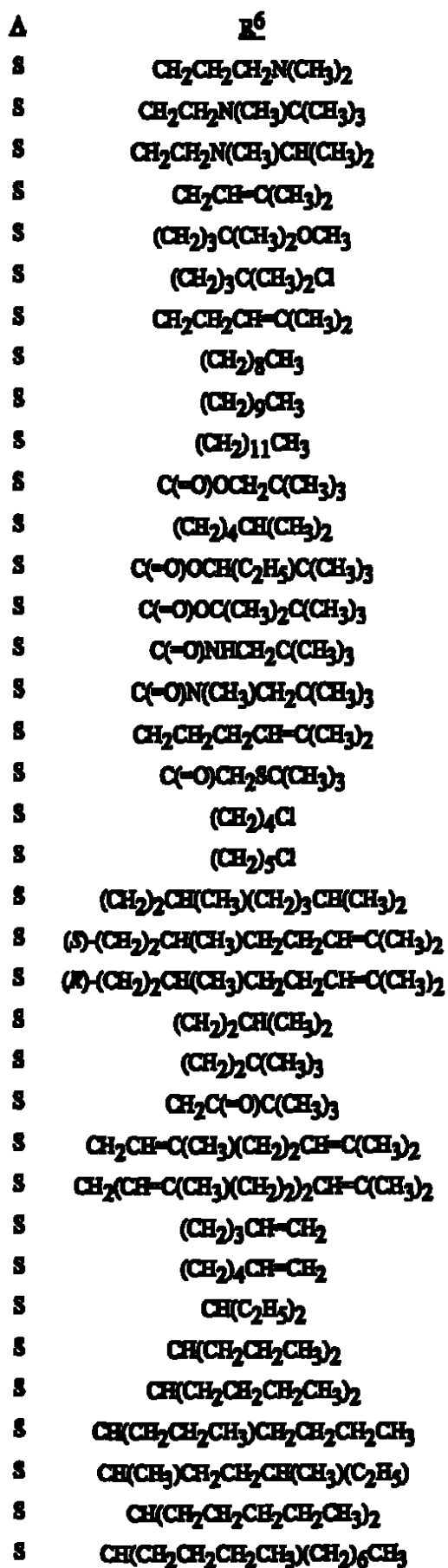
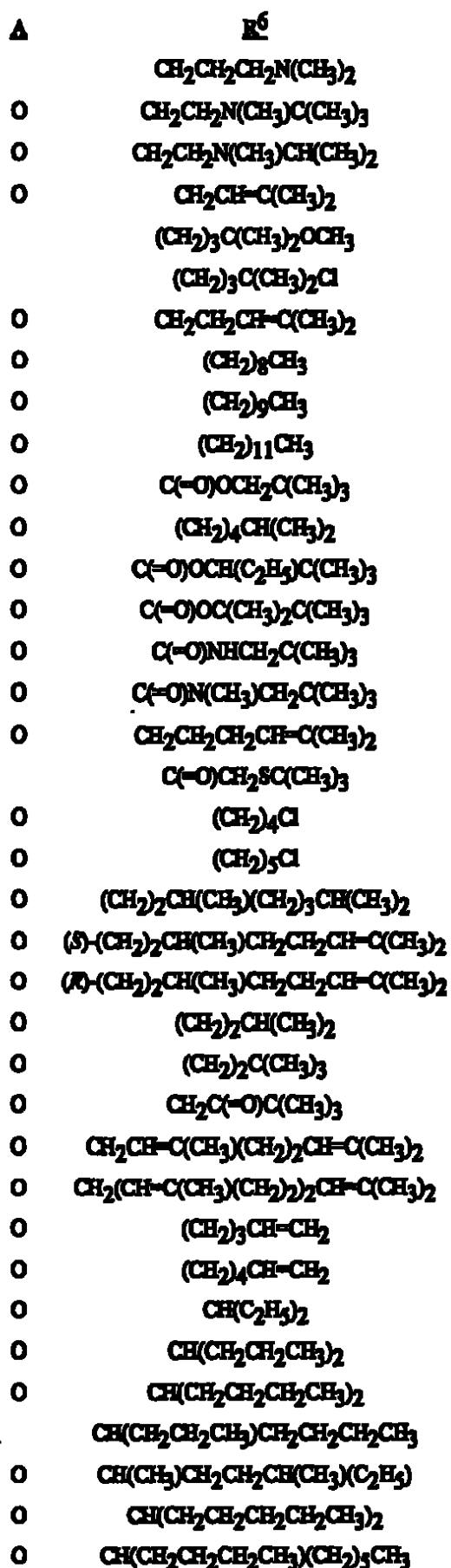
By the procedures described herein together with methods known in the art, the following compounds of Tables 1 to 8 can be prepared.

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TABLE 1

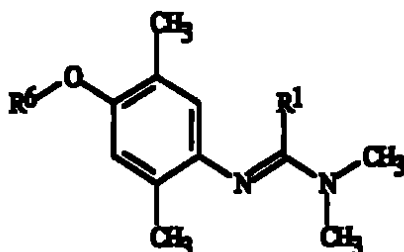


A	R ⁶	A	R ⁶
0	(CH ₂) ₄ CH ₃	S	(CH ₂) ₄ CH ₃
0	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅	S	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
0	(CH ₂) ₅ CH ₃	S	(CH ₂) ₅ CH ₃
0	(CH ₂) ₆ CH ₃	S	(CH ₂) ₆ CH ₃
0	(CH ₂) ₃ C(CH ₃) ₂ Br	S	(CH ₂) ₃ C(CH ₃) ₂ Br
0	(CH ₂) ₇ CH ₃	S	(CH ₂) ₇ CH ₃
0	(CH ₂) ₃ CH(CH ₃) ₂	S	(CH ₂) ₃ CH(CH ₃) ₂
0	(CH ₂) ₃ C(CH ₃) ₃	S	(CH ₂) ₃ C(CH ₃) ₃
0	(CH ₂) ₃ Si(CH ₃) ₃	S	(CH ₂) ₃ Si(CH ₃) ₃
0	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃	S	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
0	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂	S	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
0	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅	S	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
0	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃	S	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
0	(CH ₂) ₂ OC(CH ₃) ₃	S	(CH ₂) ₂ OC(CH ₃) ₃
0	(CH ₂) ₂ SC(CH ₃) ₃	S	(CH ₂) ₂ SC(CH ₃) ₃
0	(CH ₂) ₂ SCH(CH ₃) ₂	S	(CH ₂) ₂ SCH(CH ₃) ₂
0	CH ₂ CH=CHC(CH ₃) ₃	S	CH ₂ CH=CHC(CH ₃) ₃
0	CH ₂ CH=CHCH(CH ₃) ₂	S	CH ₂ CH=CHCH(CH ₃) ₂
0	(CH ₂) ₂ S(-O)C(CH ₃) ₃	S	(CH ₂) ₂ S(-O)C(CH ₃) ₃
0	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃	S	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
0	(CH ₂) ₂ OCH(CH ₃) ₂	S	(CH ₂) ₂ OCH(CH ₃) ₂
0	(CH ₂) ₃ OC(CH ₃) ₃	S	(CH ₂) ₃ OC(CH ₃) ₃
0	(CH ₂) ₃ P(-O)(CH ₃) ₂	S	(CH ₂) ₃ P(-O)(CH ₃) ₂
0	CH ₂ C(-O)CH ₂ C(CH ₃) ₃	S	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
0	CH(CH ₃)(CH ₂) ₃ CH ₃	S	CH(CH ₃)(CH ₂) ₃ CH ₃
0	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂	S	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃	S	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
0	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂	S	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂	S	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂	S	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂



Δ	R^6	Δ	R^6
O	$CH(C_2H_5)CH_2CH_2C(-CH_2)CH_3$	S	$CH(C_2H_5)CH_2CH_2C(-CH_2)CH_3$

TABLE 2



R^1	R^6	R^1	R^6
CH ₃	(CH ₂) ₄ CH ₃	OCH ₃	(CH ₂) ₄ CH ₃
CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅	OCH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
CH ₃	(CH ₂) ₅ CH ₃	OCH ₃	(CH ₂) ₅ CH ₃
CH ₃	(CH ₂) ₆ CH ₃	OCH ₃	(CH ₂) ₆ CH ₃
CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br	OCH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br
CH ₃	(CH ₂) ₇ CH ₃	OCH ₃	(CH ₂) ₇ CH ₃
CH ₃	(CH ₂) ₃ CH(CH ₃) ₂	OCH ₃	(CH ₂) ₃ CH(CH ₃) ₂
CH ₃	(CH ₂) ₃ C(CH ₃) ₃	OCH ₃	(CH ₂) ₃ C(CH ₃) ₃
CH ₃	(CH ₂) ₃ Si(CH ₃) ₃	OCH ₃	(CH ₂) ₃ Si(CH ₃) ₃
CH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃	OCH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
CH ₃	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂	OCH ₃	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
CH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅	OCH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
CH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃	OCH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	(CH ₂) ₂ OC(CH ₃) ₃	OCH ₃	(CH ₂) ₂ OC(CH ₃) ₃
CH ₃	(CH ₂) ₂ SC(CH ₃) ₃	OCH ₃	(CH ₂) ₂ SC(CH ₃) ₃
CH ₃	(CH ₂) ₂ SCH(CH ₃) ₂	OCH ₃	(CH ₂) ₂ SCH(CH ₃) ₂
CH ₃	CH ₂ CH=CHC(CH ₃) ₃	OCH ₃	CH ₂ CH=CHC(CH ₃) ₃
CH ₃	CH ₂ CH=CHCH(CH ₃) ₂	OCH ₃	CH ₂ CH=CHCH(CH ₃) ₂
CH ₃	(CH ₂) ₂ S(-O)C(CH ₃) ₃	OCH ₃	(CH ₂) ₂ S(-O)C(CH ₃) ₃
CH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃	OCH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	(CH ₂) ₂ OCH(CH ₃) ₂	OCH ₃	(CH ₂) ₂ OCH(CH ₃) ₂
CH ₃	(CH ₂) ₃ OC(CH ₃) ₃	OCH ₃	(CH ₂) ₃ OC(CH ₃) ₃
CH ₃	(CH ₂) ₃ P(-O)(CH ₃) ₂	OCH ₃	(CH ₂) ₃ P(-O)(CH ₃) ₂
CH ₃	CH ₂ C(-O)CH ₂ C(CH ₃) ₃	OCH ₃	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
CH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃	OCH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂	OCH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃	OCH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃

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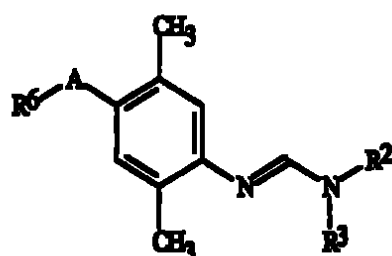
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R^1	R^6
CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	$CH_2CH=C(CH_3)_2$
CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	$CH_2CH_2CH=C(CH_3)_2$
C_2H_5	$(CH_2)_4CH_3$
C_2H_5	$(CH_2)_3C(CH_3)_2OC_2H_5$
C_2H_5	$(CH_2)_5CH_3$
C_2H_5	$(CH_2)_6CH_3$
C_2H_5	$(CH_2)_3C(CH_3)_2Br$
C_2H_5	$(CH_2)_7CH_3$
C_2H_5	$(CH_2)_3CH(CH_3)_2$
C_2H_5	$(CH_2)_3C(CH_3)_3$
C_2H_5	$(CH_2)_3Si(CH_3)_3$
C_2H_5	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
C_2H_5	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
C_2H_5	$(CH_2)_3CH(CH_3)C_2H_5$
C_2H_5	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
C_2H_5	$(CH_2)_2OC(CH_3)_3$
C_2H_5	$(CH_2)_2SC(CH_3)_3$
C_2H_5	$(CH_2)_2SCH(CH_3)_2$
C_2H_5	$CH_2CH=CHO(CH_3)_3$
C_2H_5	$CH_2CH=CHCH(CH_3)_2$
C_2H_5	$(CH_2)_2S(=O)C(CH_3)_3$
C_2H_5	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
C_2H_5	$(CH_2)_2OCH(CH_3)_2$
C_2H_5	$(CH_2)_3OC(CH_3)_3$
C_2H_5	$(CH_2)_3P(=O)(CH_3)_2$
C_2H_5	$CH_2C(=O)CH_2C(CH_3)_3$
C_2H_5	$CH(CH_3)(CH_2)_3CH_3$
C_2H_5	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
C_2H_5	$CH(CH_3)CH_2CH_2C(CH_3)_3$

R^1	R^6
OCH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
OCH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
OCH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
OCH_3	$CH_2CH_2CH_2N(CH_3)_2$
OCH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
OCH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
OCH_3	$CH_2CH=C(CH_3)_2$
OCH_3	$(CH_2)_3C(CH_3)_2OCH_3$
OCH_3	$(CH_2)_3C(CH_3)_2Cl$
OCH_3	$CH_2CH_2CH=C(CH_3)_2$
SCH_3	$(CH_2)_4CH_3$
SCH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
SCH_3	$(CH_2)_5CH_3$
SCH_3	$(CH_2)_6CH_3$
SCH_3	$(CH_2)_3C(CH_3)_2Br$
SCH_3	$(CH_2)_7CH_3$
SCH_3	$(CH_2)_3CH(CH_3)_2$
SCH_3	$(CH_2)_3C(CH_3)_3$
SCH_3	$(CH_2)_3Si(CH_3)_3$
SCH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
SCH_3	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
SCH_3	$(CH_2)_3CH(CH_3)C_2H_5$
SCH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
SCH_3	$(CH_2)_2OC(CH_3)_3$
SCH_3	$(CH_2)_2SC(CH_3)_3$
SCH_3	$(CH_2)_2SCH(CH_3)_2$
SCH_3	$CH_2CH=CHO(CH_3)_3$
SCH_3	$CH_2CH=CHCH(CH_3)_2$
SCH_3	$(CH_2)_2S(=O)C(CH_3)_3$
SCH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
SCH_3	$(CH_2)_2OCH(CH_3)_2$
SCH_3	$(CH_2)_3OC(CH_3)_3$
SCH_3	$(CH_2)_3P(=O)(CH_3)_2$
SCH_3	$CH_2C(=O)CH_2C(CH_3)_3$
SCH_3	$CH(CH_3)(CH_2)_3CH_3$
SCH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
SCH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$

R ¹	R ⁶	R ¹	R ⁶
C ₂ H ₅	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂	SCH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
C ₂ H ₅	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂	SCH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
C ₂ H ₅	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂	SCH ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
C ₂ H ₅	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂	SCH ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃	SCH ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂	SCH ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
C ₂ H ₅	CH ₂ CH=C(CH ₃) ₂	SCH ₃	CH ₂ CH=C(CH ₃) ₂
C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃	SCH ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ Cl	SCH ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl
C ₂ H ₅	CH ₂ CH ₂ CH=C(CH ₃) ₂	SCH ₃	CH ₂ CH ₂ CH=C(CH ₃) ₂

TABLE 3



A	R ²	R ³	R ⁶
0	CH ₃	C ₂ H ₅	(CH ₂) ₄ CH ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
0	CH ₃	C ₂ H ₅	(CH ₂) ₅ CH ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₆ CH ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ Br
0	CH ₃	C ₂ H ₅	(CH ₂) ₇ CH ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ Si(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ OC(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ SC(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ SCH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH ₂ CH=CHC(CH ₃) ₃
0	CH ₃	C ₂ H ₅	CH ₂ CH=CHCH(CH ₃) ₂

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A	R ²	R ³	R ⁶
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ Si(-O)C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₂ OCH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ OC(CH ₃) ₃
	CH ₃	C ₂ H ₅	(CH ₂) ₃ P(-O)(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	CH(CH ₃)(CH ₂) ₃ CH ₃
0	CH ₃	C ₂ H ₅	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
	CH ₃	C ₂ H ₅	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
0	CH ₃	C ₂ H ₅	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
0	CH ₃	C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
0	CH ₃	C ₂ H ₅	CH ₂ CH-C(CH ₃) ₂
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
0	CH ₃	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ Cl
0	CH ₃	C ₂ H ₅	CH ₂ CH ₂ CH-C(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₄ CH ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₅ CH ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₆ CH ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ Br
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₇ CH ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₃
	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ Si(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ OC(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ SC(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ SCH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH-CHC(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH-CHCH(CH ₃) ₂

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A	R ²	R ³	R ⁶
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ S(-O)C(CH ₃) ₃
	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₂ OCH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ OC(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ P(-O)(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	CH(CH ₃)(CH ₂) ₃ CH ₃
0	C ₂ H ₅	C ₂ H ₅	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
	C ₂ H ₅	C ₂ H ₅	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH=C(CH ₃) ₂
	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
0	C ₂ H ₅	C ₂ H ₅	(CH ₂) ₃ C(CH ₃) ₂ Cl
0	C ₂ H ₅	C ₂ H ₅	CH ₂ CH ₂ CH=C(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	(CH ₂) ₄ CH ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
NCH ₃	CH ₃	CH ₃	(CH ₂) ₅ CH ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₆ CH ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br
NCH ₃	CH ₃	CH ₃	(CH ₂) ₇ CH ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ Si(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ OC(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ SC(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ SCH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH ₂ CH-CHC(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	CH ₂ CH-CHCH(CH ₃) ₂

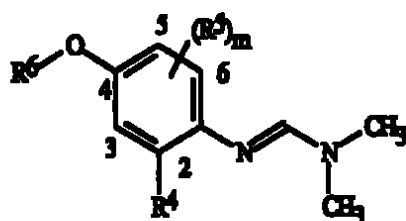
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A	R ²	R ³	R ⁶
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ S(-O)C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₂ OCH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ OC(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ P(-O)(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
NCH ₃	CH ₃	CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
NCH ₃	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
NCH ₃	CH ₃	CH ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	CH ₂ CH-C(CH ₃) ₂
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
NCH ₃	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl
NCH ₃	CH ₃	CH ₃	CH ₂ CH ₂ CH-C(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₄ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
NH	CH ₃	CH ₃	(CH ₂) ₅ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₆ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br
NH	CH ₃	CH ₃	(CH ₂) ₇ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ CH(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ Si(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
NH	CH ₃	CH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₂ OC(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₂ SC(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₂ SCH(CH ₃) ₂
NH	CH ₃	CH ₃	CH ₂ CH-CHC(CH ₃) ₃
NH	CH ₃	CH ₃	CH ₂ CH-CHCH(CH ₃) ₂

Δ	R^2	R^3	R^6
NH	CH ₃	CH ₃	(CH ₂) ₂ S(=O)C(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₂ OCH(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₃ OC(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ P(=O)(CH ₃) ₂
NH	CH ₃	CH ₃	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
NH	CH ₃	CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
NH	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
NH	CH ₃	CH ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
NH	CH ₃	CH ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
NH	CH ₃	CH ₃	CH ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
NH	CH ₃	CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl
NH	CH ₃	CH ₃	CH ₂ CH ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₈ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₉ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₁₁ CH ₃
NH	CH ₃	CH ₃	(CH ₂) ₄ CH(CH ₃) ₂
NH	CH ₃	CH ₃	C(=O)OCH(C ₂ H ₅)C(CH ₃) ₃
NH	CH ₃	CH ₃	C(=O)OC(CH ₃) ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	C(=O)CH ₂ SC(CH ₃) ₃
NH	CH ₃	CH ₃	(CH ₂) ₄ Cl
NH	CH ₃	CH ₃	(CH ₂) ₅ Cl
NH	CH ₃	CH ₃	(CH ₂) ₂ CH(CH ₃)(CH ₂) ₃ CH(CH ₃) ₂
NH	CH ₃	CH ₃	(S)-(CH ₂) ₂ CH(CH ₃)CH ₂ CH ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	(R)-(CH ₂) ₂ CH(CH ₃)CH ₂ CH ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₂ CH(CH ₃) ₂
NH	CH ₃	CH ₃	(CH ₂) ₂ C(CH ₃) ₃
NH	CH ₃	CH ₃	CH ₂ C(=O)C(CH ₃) ₃
NH	CH ₃	CH ₃	CH ₂ CH=C(CH ₃)(CH ₂) ₂ CH=C(CH ₃) ₂
NH	CH ₃	CH ₃	CH ₂ (CH=C(CH ₃)(CH ₂) ₂) ₂ CH=C(CH ₃) ₂

A	R ²	R ³	R ⁶
NH	CH ₃	CH ₃	(CH ₂) ₃ CH=CH ₂
NH	CH ₃	CH ₃	(CH ₂) ₄ CH=CH ₂
NH	CH ₃	CH ₃	CH(C ₂ H ₅) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₂ CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH ₂ CH ₃
NH	CH ₃	CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃)(C ₂ H ₅)
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₂ CH ₂ CH ₃) ₂
NH	CH ₃	CH ₃	CH(CH ₂ CH ₂ CH ₂ CH ₃)(CH ₂) ₅ CH ₃
NH	CH ₃	CH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ C(=CH ₂)CH ₃

TABLE 4



R ⁴	m	R ⁵	R ⁶
CH ₃	1	5-Cl	(CH ₂) ₄ CH ₃
CH ₃	1	5-Cl	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
CH ₃	1	5-Cl	(CH ₂) ₅ CH ₃
CH ₃	1	5-Cl	(CH ₂) ₆ CH ₃
CH ₃	1	5-Cl	(CH ₂) ₃ C(CH ₃) ₂ Br
CH ₃	1	5-Cl	(CH ₂) ₇ CH ₃
CH ₃	1	5-Cl	(CH ₂) ₃ CH(CH ₃) ₂
CH ₃	1	5-Cl	(CH ₂) ₃ C(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₃ Si(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
CH ₃	1	5-Cl	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
CH ₃	1	5-Cl	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₂ OC(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₂ SC(CH ₃) ₃
CH ₃	1	5-Cl	(CH ₂) ₂ SCH(CH ₃) ₂
CH ₃	1	5-Cl	CH ₂ CH=CHC(CH ₃) ₃
CH ₃	1	5-Cl	CH ₂ CH=CHCH(CH ₃) ₂
CH ₃	1	5-Cl	(CH ₂) ₂ S(=O)C(CH ₃) ₃

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R^4	m	R^5	R^6
CH_3	1	$S-Cl$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	$S-Cl$	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	$S-Cl$	$(CH_2)_3OC(CH_3)_3$
CH_3	1	$S-Cl$	$(CH_2)_3P(-O)(CH_3)_2$
CH_3	1	$S-Cl$	$CH_2C(-O)CH_2C(CH_3)_3$
CH_3	1	$S-Cl$	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	$S-Cl$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	$S-Cl$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	$S-Cl$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	$S-Cl$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	$S-Cl$	$CH(CH_2CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	$S-Cl$	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	$S-Cl$	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	$S-Cl$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	$S-Cl$	$CH_2CH=CH(CH_3)_2$
CH_3	1	$S-Cl$	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	$S-Cl$	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	$S-Cl$	$CH_2CH_2CH=CH(CH_3)_2$
Cl	1	$S-CH_3$	$(CH_2)_4CH_3$
Cl	1	$S-CH_3$	$(CH_2)_3C(CH_3)_2OC_2H_5$
Cl	1	$S-CH_3$	$(CH_2)_5CH_3$
Cl	1	$S-CH_3$	$(CH_2)_6CH_3$
Cl	1	$S-CH_3$	$(CH_2)_3C(CH_3)_2Br$
Cl	1	$S-CH_3$	$(CH_2)_7CH_3$
Cl	1	$S-CH_3$	$(CH_2)_3CH(CH_3)_2$
Cl	1	$S-CH_3$	$(CH_2)_3C(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_3Si(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
Cl	1	$S-CH_3$	$(CH_2)_3CH(CH_3)C_2H_5$
Cl	1	$S-CH_3$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_2OC(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_2SC(CH_3)_3$
Cl	1	$S-CH_3$	$(CH_2)_2SCH(CH_3)_2$
Cl	1	$S-CH_3$	$CH_2CH=CHC(CH_3)_3$
Cl	1	$S-CH_3$	$CH_2CH=CHCH(CH_3)_2$
Cl	1	$S-CH_3$	$(CH_2)_2S(-O)C(CH_3)_3$

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R^4	m	R^5	R^6
Cl	1	$5-CH_3$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
Cl	1	$5-CH_3$	$(CH_2)_2OCH(CH_3)_2$
Cl	1	$5-CH_3$	$(CH_2)_3OC(CH_3)_3$
Cl	1	$5-CH_3$	$(CH_2)_3P(=O)(CH_3)_2$
Cl	1	$5-CH_3$	$CH_2C(=O)CH_2C(CH_3)_3$
Cl	1	$5-CH_3$	$CH(CH_3)(CH_2)_3CH_3$
Cl	1	$5-CH_3$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	$5-CH_3$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
Cl	1	$5-CH_3$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
Cl	1	$5-CH_3$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
Cl	1	$5-CH_3$	$CH(CH_2CH_2CH(CH_3)_2)_2$
Cl	1	$5-CH_3$	$CH_2CH_2CH_2N(CH_3)_2$
Cl	1	$5-CH_3$	$CH_2CH_2N(CH_3)C(CH_3)_3$
Cl	1	$5-CH_3$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
Cl	1	$5-CH_3$	$CH_2CH=C(CH_3)_2$
Cl	1	$5-CH_3$	$(CH_2)_3C(CH_3)_2OCH_3$
Cl	1	$5-CH_3$	$(CH_2)_3C(CH_3)_2Cl$
Cl	1	$5-CH_3$	$CH_2CH_2CH=C(CH_3)_2$
Cl	1	$5-Cl$	$(CH_2)_4CH_3$
Cl	1	$5-Cl$	$(CH_2)_3C(CH_3)_2OC_2H_5$
Cl	1	$5-Cl$	$(CH_2)_5CH_3$
Cl	1	$5-Cl$	$(CH_2)_6CH_3$
Cl	1	$5-Cl$	$(CH_2)_3C(CH_3)_2Br$
Cl	1	$5-Cl$	$(CH_2)_7CH_3$
Cl	1	$5-Cl$	$(CH_2)_3CH(CH_3)_2$
Cl	1	$5-Cl$	$(CH_2)_3C(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_3Si(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
Cl	1	$5-Cl$	$(CH_2)_3CH(CH_3)C_2H_5$
Cl	1	$5-Cl$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_2OC(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_2SC(CH_3)_3$
Cl	1	$5-Cl$	$(CH_2)_2SCH(CH_3)_2$
Cl	1	$5-Cl$	$CH_2CH=CHO(CH_3)_3$
Cl	1	$5-Cl$	$CH_2CH=CHCH(CH_3)_2$
Cl	1	$5-Cl$	$(CH_2)_2S(-O)C(CH_3)_3$

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R ⁴	m	R ⁵	R ⁶
Cl	1	S-Cl	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
Cl	1	S-Cl	(CH ₂) ₂ OCH(CH ₃) ₂
Cl	1	S-Cl	(CH ₂) ₃ OC(CH ₃) ₃
Cl	1	S-Cl	(CH ₂) ₃ P(=O)(CH ₃) ₂
Cl	1	S-Cl	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
Cl	1	S-Cl	CH(CH ₃)(CH ₂) ₃ CH ₃
Cl	1	S-Cl	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	1	S-Cl	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
Cl	1	S-Cl	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	1	S-Cl	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	1	S-Cl	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
Cl	1	S-Cl	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
Cl	1	S-Cl	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
Cl	1	S-Cl	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
Cl	1	S-Cl	CH ₂ CH=C(CH ₃) ₂
Cl	1	S-Cl	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
Cl	1	S-Cl	(CH ₂) ₃ C(CH ₃) ₂ Cl
Cl	1	S-Cl	CH ₂ CH ₂ CH=C(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₄ CH ₃
CH ₃	0	-	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
CH ₃	0	-	(CH ₂) ₅ CH ₃
CH ₃	0	-	(CH ₂) ₆ CH ₃
CH ₃	0	-	(CH ₂) ₃ C(CH ₃) ₂ Br
CH ₃	0	-	(CH ₂) ₇ CH ₃
CH ₃	0	-	(CH ₂) ₃ CH(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₃ C(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₃ Si(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
CH ₃	0	-	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₂ OC(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₂ SC(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₂ SC(CH ₃) ₂
CH ₃	0	-	CH ₂ CH=CHC(CH ₃) ₃
CH ₃	0	-	CH ₂ CH=CHCH(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₂ S(=O)C(CH ₃) ₃

R^4	m	R^5	R^6
CH ₃	0	-	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₂ OCH(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₃ OC(CH ₃) ₃
CH ₃	0	-	(CH ₂) ₃ P(=O)(CH ₃) ₂
CH ₃	0	-	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
CH ₃	0	-	CH(CH ₃)(CH ₂) ₃ CH ₃
CH ₃	0	-	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	0	-	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
CH ₃	0	-	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	0	-	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	0	-	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
CH ₃	0	-	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
CH ₃	0	-	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
CH ₃	0	-	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
CH ₃	0	-	CH ₂ CH=C(CH ₃) ₂
CH ₃	0	-	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
CH ₃	0	-	(CH ₂) ₃ C(CH ₃) ₂ Cl
CH ₃	0	-	CH ₂ CH ₂ CH=C(CH ₃) ₂
CF ₃	1	5-CH ₃	(CH ₂) ₄ CH ₃
CF ₃	1	5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
CF ₃	1	5-CH ₃	(CH ₂) ₅ CH ₃
CF ₃	1	5-CH ₃	(CH ₂) ₆ CH ₃
CF ₃	1	5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br
CF ₃	1	5-CH ₃	(CH ₂) ₇ CH ₃
CF ₃	1	5-CH ₃	(CH ₂) ₃ CH(CH ₃) ₂
CF ₃	1	5-CH ₃	(CH ₂) ₃ C(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₃ Si(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
CF ₃	1	5-CH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
CF ₃	1	5-CH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₂ OC(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₂ SC(CH ₃) ₃
CF ₃	1	5-CH ₃	(CH ₂) ₂ SCH(CH ₃) ₂
CF ₃	1	5-CH ₃	CH ₂ CH=CHC(CH ₃) ₃
CF ₃	1	5-CH ₃	CH ₂ CH=CHCH(CH ₃) ₂
CF ₃	1	5-CH ₃	(CH ₂) ₂ S(=O)C(CH ₃) ₃

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R^4	m	R^5	R^6
CF_3	1	$5-CH_3$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CF_3	1	$5-CH_3$	$(CH_2)_2OCH(CH_3)_2$
CF_3	1	$5-CH_3$	$(CH_2)_3OC(CH_3)_3$
CF_3	1	$5-CH_3$	$(CH_2)_3P(-O)(CH_3)_2$
CF_3	1	$5-CH_3$	$CH_2C(-O)CH_2C(CH_3)_3$
CF_3	1	$5-CH_3$	$CH(CH_3)(CH_2)_3CH_3$
CF_3	1	$5-CH_3$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CF_3	1	$5-CH_3$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CF_3	1	$5-CH_3$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CF_3	1	$5-CH_3$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CF_3	1	$5-CH_3$	$CH(CH_2CH_2CH(CH_3)_2)_2$
CF_3	1	$5-CH_3$	$CH_2CH_2CH_2N(CH_3)_2$
CF_3	1	$5-CH_3$	$CH_2CH_2N(CH_3)C(CH_3)_3$
CF_3	1	$5-CH_3$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CF_3	1	$5-CH_3$	$CH_2CH=CH(CH_3)_2$
CF_3	1	$5-CH_3$	$(CH_2)_3C(CH_3)_2OCH_3$
CF_3	1	$5-CH_3$	$(CH_2)_3C(CH_3)_2Cl$
CF_3	1	$5-CH_3$	$CH_2CH_2CH=CH(CH_3)_2$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_4CH_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_5CH_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_6CH_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3C(CH_3)_2Br$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_7CH_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3CH(CH_3)_2$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3C(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3Si(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2OC(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2SC(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2SCH(CH_3)_2$
CH_3	2	$5-CH_3-6-Cl$	$CH_2CH=CHO(CH_3)_3$
CH_3	2	$5-CH_3-6-Cl$	$CH_2CH=CHCH(CH_3)_2$
CH_3	2	$5-CH_3-6-Cl$	$(CH_2)_2S(-O)C(CH_3)_3$

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R^4	m	R^5	R^6
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_2OCH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_3OC(CH_3)_3$
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	2	5- CH_3 -6-Cl	$CH(CH_3)(CH_2)_3CH_3$
CH_3	2	5- CH_3 -6-Cl	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	2	5- CH_3 -6-Cl	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	2	5- CH_3 -6-Cl	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	2	5- CH_3 -6-Cl	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$CH_2CH=CH(CH_3)_2$
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	2	5- CH_3 -6-Cl	$(CH_2)_3C(CH_3)_2Cl$
CH_3	2	5- CH_3 -6-Cl	$CH_2CH_2CH=CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_4CH_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	2	3,5-di- CH_3	$(CH_2)_5CH_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_6CH_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	2	3,5-di- CH_3	$(CH_2)_7CH_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(=CH_2)CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	2	3,5-di- CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	2	3,5-di- CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_2S(=O)C(CH_3)_3$

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R^4	m	R^5	R^6
CH_3	2	3,5-di- CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	2	3,5-di- CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	2	3,5-di- CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	2	3,5-di- CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	2	3,5-di- CH_3	$CH_2CH=C(CH_3)_2$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	2	3,5-di- CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	2	3,5-di- CH_3	$CH_2CH_2CH=C(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_4CH_3$
CH_3	1	3- CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	3- CH_3	$(CH_2)_5CH_3$
CH_3	1	3- CH_3	$(CH_2)_6CH_3$
CH_3	1	3- CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	3- CH_3	$(CH_2)_7CH_3$
CH_3	1	3- CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	3- CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	3- CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	1	3- CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_2S(-O)C(CH_3)_3$

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R^4	m	R^5	R^6
CH_3	1	3- CH_3	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_3OC(CH_3)_3$
CH_3	1	3- CH_3	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	3- CH_3	$CH_2C(-O)CH_2C(CH_3)_3$
CH_3	1	3- CH_3	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	3- CH_3	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	3- CH_3	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	3- CH_3	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	3- CH_3	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	3- CH_3	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	3- CH_3	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	3- CH_3	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	3- CH_3	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	3- CH_3	$CH_2CH=CH(CH_3)_2$
CH_3	1	3- CH_3	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	3- CH_3	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	3- CH_3	$CH_2CH_2CH=CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_4CH_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_5CH_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_6CH_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3C(CH_3)_2Br$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_7CH_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3C(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3Si(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2OC(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2SC(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2SCH(CH_3)_2$
CH_3	3	3,6-di-Cl-5- CH_3	$CH_2CH=CHC(CH_3)_3$
CH_3	3	3,6-di-Cl-5- CH_3	$CH_2CH=CHCH(CH_3)_2$
CH_3	3	3,6-di-Cl-5- CH_3	$(CH_2)_2S(-O)C(CH_3)_3$

R ⁴	m	R ⁵	R ⁶
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₂ OCH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₃ OC(CH ₃) ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₃ P(=O)(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ CH=CH(CH ₃) ₂
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
CH ₃	3	3,6-di-Cl-5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl
CH ₃	3	3,6-di-Cl-5-CH ₃	CH ₂ CH ₂ CH=O(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₄ CH ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
F	3	3,5,6-tri-F	(CH ₂) ₅ CH ₃
F	3	3,5,6-tri-F	(CH ₂) ₆ CH ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ C(CH ₃) ₂ Br
F	3	3,5,6-tri-F	(CH ₂) ₇ CH ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ CH(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₃ C(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ Si(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
F	3	3,5,6-tri-F	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₂ OC(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₂ SC(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₂ SCH(CH ₃) ₂
F	3	3,5,6-tri-F	CH ₂ CH=CHC(CH ₃) ₃
F	3	3,5,6-tri-F	CH ₂ CH=CHCH(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₂ S(=O)C(CH ₃) ₃

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R ⁴	m	R ⁵	R ⁶
F	3	3,5,6-tri-F	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₂ OCH(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₃ OC(CH ₃) ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ P(-O)(CH ₃) ₂
F	3	3,5,6-tri-F	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
F	3	3,5,6-tri-F	CH(CH ₃)(CH ₂) ₃ CH ₃
F	3	3,5,6-tri-F	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
F	3	3,5,6-tri-F	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
F	3	3,5,6-tri-F	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
F	3	3,5,6-tri-F	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
F	3	3,5,6-tri-F	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
F	3	3,5,6-tri-F	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
F	3	3,5,6-tri-F	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
F	3	3,5,6-tri-F	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
F	3	3,5,6-tri-F	CH ₂ CH=C(CH ₃) ₂
F	3	3,5,6-tri-F	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
F	3	3,5,6-tri-F	(CH ₂) ₃ C(CH ₃) ₂ Cl
F	3	3,5,6-tri-F	CH ₂ CH ₂ CH=C(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₄ CH ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
Cl	3	3,5,6-tri-Cl	(CH ₂) ₅ CH ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₆ CH ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ C(CH ₃) ₂ Br
Cl	3	3,5,6-tri-Cl	(CH ₂) ₇ CH ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ Si(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ OC(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ SC(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ SCH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH ₂ CH=CHC(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	CH ₂ CH=CHCH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ S(-O)C(CH ₃) ₃

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R ⁴	m	R ⁵	R ⁶
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₂ OCH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ OC(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ P(=O)(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	CH(CH ₃)(CH ₂) ₃ CH ₃
Cl	3	3,5,6-tri-Cl	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
Cl	3	3,5,6-tri-Cl	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
Cl	3	3,5,6-tri-Cl	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	CH ₂ CH=O(CH ₃) ₂
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ O(CH ₃) ₂ OCH ₃
Cl	3	3,5,6-tri-Cl	(CH ₂) ₃ O(CH ₃) ₂ Cl
Cl	3	3,5,6-tri-Cl	CH ₂ CH ₂ CH=O(CH ₃) ₂
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₄ CH ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₅ CH ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₆ CH ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ C(CH ₃) ₂ Br
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₇ CH ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ CH(CH ₃) ₂
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ C(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ Si(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ OC(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ SC(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ SCH(CH ₃) ₂
CH ₃	1	5-CH(CH ₃) ₂	CH ₂ CH=CHC(CH ₃) ₃
CH ₃	1	5-CH(CH ₃) ₂	CH ₂ CH=CHCH(CH ₃) ₂
CH ₃	1	5-CH(CH ₃) ₂	(CH ₂) ₂ S(=O)C(CH ₃) ₃

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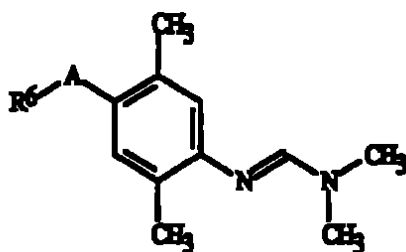
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R^4	m	R^5	R^6
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_2OCH(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_3OC(CH_3)_3$
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_3P(=O)(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH_2C(=O)CH_2C(CH_3)_3$
CH_3	1	$5-CH(CH_3)_2$	$CH(CH_3)(CH_2)_3CH_3$
CH_3	1	$5-CH(CH_3)_2$	$CH(CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH(CH_3)CH_2CH_2C(CH_3)_3$
CH_3	1	$5-CH(CH_3)_2$	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH(CH_2CH_2CH(CH_3)_2)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH_2CH_2CH_2N(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH_2CH_2N(CH_3)C(CH_3)_3$
CH_3	1	$5-CH(CH_3)_2$	$CH_2CH_2N(CH_3)CH(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$CH_2CH=C(CH_3)_2$
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2OCH_3$
CH_3	1	$5-CH(CH_3)_2$	$(CH_2)_3C(CH_3)_2Cl$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_4CH_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3C(CH_3)_2OC_2H_5$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_5CH_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_6CH_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3C(CH_3)_2Br$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_7CH_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3CH(CH_3)_2$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3C(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3Si(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2CH(CH_3)CH_2C(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3C(-CH_2)CH(CH_3)_2$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3CH(CH_3)C_2H_5$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2OSi(CH_3)_2C(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2OC(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2SC(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2SCH(CH_3)_2$
CH_3	1	$5-C(CH_3)_3$	$CH_2CH=CHC(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$CH_2CH=CHCH(CH_3)_2$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_2S(-O)C(CH_3)_3$
CH_3	1	$5-C(CH_3)_3$	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$

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X35

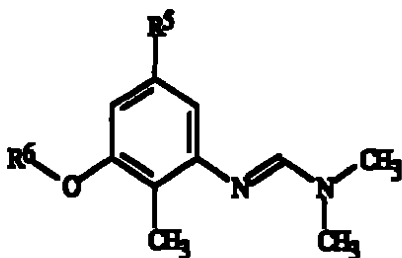
R^4	m	R^5	R^6
CH ₃	1	5-C(CH ₃) ₃	(CH ₂) ₂ OCH(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	(CH ₂) ₃ OC(CH ₃) ₃
CH ₃	1	5-C(CH ₃) ₃	(CH ₂) ₃ P(=O)(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH ₂ C(=O)CH ₂ C(CH ₃) ₃
CH ₃	1	5-C(CH ₃) ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
CH ₃	1	5-C(CH ₃) ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
CH ₃	1	5-C(CH ₃) ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂
CH ₃	1	5-C(CH ₃) ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
CH ₃	1	5-C(CH ₃) ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	CH ₂ CH=C(CH ₃) ₂
CH ₃	1	5-C(CH ₃) ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
CH ₃	1	5-C(CH ₃) ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl

TABLE 5



Δ	R^6
NH	C(=O)CH ₂ SC(CH ₃) ₃
NH	C(=O)CH ₂ S(=O)C(CH ₃) ₃
NH	C(=O)CH ₂ S(=O) ₂ C(CH ₃) ₃
NH	C(=O)OCH ₂ C(CH ₃) ₃
NH	C(=O)NHCH ₂ C(CH ₃) ₃
NH	C(=O)N(CH ₃)CH ₂ C(CH ₃) ₃
NH	C(=O)OCH ₂ CH(CH ₃) ₂
NH	C(=O)NHCH ₂ CH(CH ₃) ₂
NH	C(=O)N(CH ₃)CH ₂ CH(CH ₃) ₂
O	C(CH ₃) ₂ CH ₂ CH ₂ CH(CH ₃) ₂
O	C(CH ₃)(CH ₂ CH ₂ CH ₂ CH ₃) ₂
O	C(CH ₃)(CH ₂ CH ₂ CH ₃) ₂

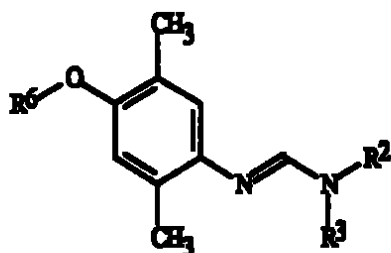
TABLE 6



R ⁵	R ⁶
5-CH ₃	(CH ₂) ₄ CH ₃
5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
5-CH ₃	(CH ₂) ₅ CH ₃
5-CH ₃	(CH ₂) ₆ CH ₃
5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Br
5-CH ₃	(CH ₂) ₇ CH ₃
5-CH ₃	(CH ₂) ₃ CH(CH ₃) ₂
5-CH ₃	(CH ₂) ₃ C(CH ₃) ₃
5-CH ₃	(CH ₂) ₃ Si(CH ₃) ₃
5-CH ₃	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
5-CH ₃	(CH ₂) ₃ C(=CH ₂)CH(CH ₃) ₂
5-CH ₃	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
5-CH ₃	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
5-CH ₃	(CH ₂) ₂ OC(CH ₃) ₃
5-CH ₃	(CH ₂) ₂ SC(CH ₃) ₃
5-CH ₃	(CH ₂) ₂ SCH(CH ₃) ₂
5-CH ₃	CH ₂ CH=CHC(CH ₃) ₃
5-CH ₃	CH ₂ CH=CHCH(CH ₃) ₂
5-CH ₃	(CH ₂) ₂ S(-O)C(CH ₃) ₃
5-CH ₃	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
5-CH ₃	(CH ₂) ₂ OCH(CH ₃) ₂
5-CH ₃	(CH ₂) ₃ OC(CH ₃) ₃
5-CH ₃	(CH ₂) ₃ P(-O)(CH ₃) ₂
5-CH ₃	CH ₂ C(-O)CH ₂ C(CH ₃) ₃
5-CH ₃	CH(CH ₃)(CH ₂) ₃ CH ₃
5-CH ₃	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
5-CH ₃	CH(CH ₃)CH ₂ CH ₂ C(CH ₃) ₃
5-CH ₃	CH(C ₂ H ₅)CH ₂ CH ₂ CH(CH ₃) ₂
5-CH ₃	CH(CH ₂ CH ₂ CH ₃)CH ₂ CH ₂ CH(CH ₃) ₂
5-CH ₃	CH(CH ₂ CH ₂ CH(CH ₃) ₂) ₂

R^5	R^6
5-CH ₃	CH ₂ CH ₂ CH ₂ N(CH ₃) ₂
5-CH ₃	CH ₂ CH ₂ N(CH ₃)C(CH ₃) ₃
5-CH ₃	CH ₂ CH ₂ N(CH ₃)CH(CH ₃) ₂
5-CH ₃	CH ₂ CH=C(CH ₃) ₂
5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ OCH ₃
5-CH ₃	(CH ₂) ₃ C(CH ₃) ₂ Cl
5-CH ₃	CH ₂ CH ₂ CH=C(CH ₃) ₂

TABLE 7



R^2+R^3	R^6
-(CH ₂) ₄ -	(CH ₂) ₄ CH ₃
-(CH ₂) ₄ -	(CH ₂) ₃ C(CH ₃) ₂ OC ₂ H ₅
-(CH ₂) ₄ -	(CH ₂) ₅ CH ₃
-(CH ₂) ₄ -	(CH ₂) ₆ CH ₃
-(CH ₂) ₄ -	(CH ₂) ₃ C(CH ₃) ₂ Br
-(CH ₂) ₄ -	(CH ₂) ₇ CH ₃
-(CH ₂) ₄ -	(CH ₂) ₃ CH(CH ₃) ₂
-(CH ₂) ₄ -	(CH ₂) ₃ C(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₃ Si(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂
-(CH ₂) ₄ -	(CH ₂) ₃ CH(CH ₃)C ₂ H ₅
-(CH ₂) ₄ -	(CH ₂) ₂ OSi(CH ₃) ₂ C(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₂ OC(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₂ SC(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₂ SCH(CH ₃) ₂
-(CH ₂) ₄ -	CH ₂ CH=CHC(CH ₃) ₃
-(CH ₂) ₄ -	CH ₂ CH=CHCH(CH ₃) ₂
-(CH ₂) ₄ -	(CH ₂) ₂ S(-O)C(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₃ OSi(CH ₃) ₂ C(CH ₃) ₃
-(CH ₂) ₄ -	(CH ₂) ₂ OCH(CH ₃) ₂

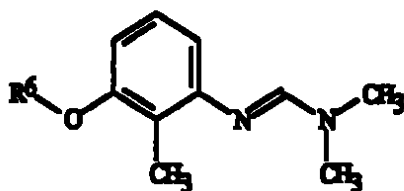
$R^2 + R^3$

- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-
- (CH₂)₅-

R^6

- (CH₂)₃OC(CH₃)₃
- (CH₂)₃P(=O)(CH₃)₂
- CH₂C(=O)CH₂C(CH₃)₃
- CH(CH₃)(CH₂)₃CH₃
- CH(CH₃)CH₂CH₂CH(CH₃)₂
- CH(CH₃)CH₂CH₂C(CH₃)₃
- CH(C₂H₅)CH₂CH₂CH(CH₃)₂
- CH(CH₂CH₂CH₃)CH₂CH₂CH(CH₃)₂
- CH(CH₂CH₂CH(CH₃)₂)₂
- CH₂CH₂CH₂N(CH₃)₂
- CH₂CH₂N(CH₃)C(CH₃)₃
- CH₂CH₂N(CH₃)CH(CH₃)₂
- CH₂CH=C(CH₃)₂
- (CH₂)₃C(CH₃)₂OCH₃
- (CH₂)₃C(CH₃)₂Cl
- CH₂CH₂CH=C(CH₃)₂

TABLE 8

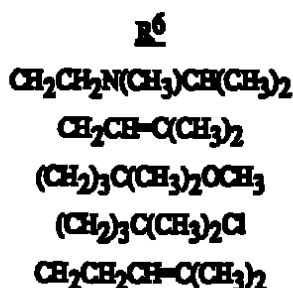
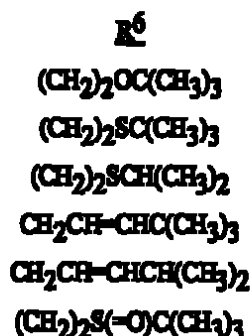


R^6

- (CH₂)₄CH₃
- (CH₂)₃C(CH₃)₂OC₂H₅
- (CH₂)₅CH₃
- (CH₂)₆CH₃
- (CH₂)₃C(CH₃)₂Br
- (CH₂)₇CH₃
- (CH₂)₃CH(CH₃)₂
- (CH₂)₃C(CH₃)₃
- (CH₂)₃Si(CH₃)₃
- (CH₂)₂CH(CH₃)CH₂C(CH₃)₃
- (CH₂)₃C(-CH₂)CH(CH₃)₂
- (CH₂)₃CH(CH₃)C₂H₅
- (CH₂)₂OSi(CH₃)₂C(CH₃)₃

R^6

- (CH₂)₃OSi(CH₃)₂C(CH₃)₃
- (CH₂)₂OCH(CH₃)₂
- (CH₂)₃OC(CH₃)₃
- (CH₂)₃P(=O)(CH₃)₂
- CH₂C(=O)CH₂C(CH₃)₃
- CH(CH₃)(CH₂)₃CH₃
- CH(CH₃)CH₂CH₂CH(CH₃)₂
- CH(CH₃)CH₂CH₂C(CH₃)₃
- CH(C₂H₅)CH₂CH₂CH(CH₃)₂
- CH(CH₂CH₂CH₃)CH₂CH₂CH(CH₃)₂
- CH(CH₂CH₂CH(CH₃)₂)₂
- CH₂CH₂CH₂N(CH₃)₂
- CH₂CH₂N(CH₃)C(CH₃)₃



Formulation/Utility

Compounds of this invention will generally be used as a formulation or composition with an agriculturally suitable carrier comprising at least one of a liquid diluent, a solid diluent or a surfactant. Accordingly, compositions are provided which comprise, in addition to a fungicidally effective amount of the active compound(s), at least one additional component selected from the group consisting surfactants, solid diluents and liquid diluents. The formulation or composition ingredients are selected to be consistent with the physical properties of the active ingredient, mode of application and environmental factors such as soil type, moisture and temperature. Useful formulations include liquids such as solutions (including emulsifiable concentrates), suspensions, emulsions (including microemulsions and/or suspoemulsions) and the like which optionally can be thickened into gels. Useful formulations further include solids such as dusts, powders, granules, pellets, tablets, films, and the like which can be water-dispersible ("wettable") or water-soluble. Active ingredient can be (micro)encapsulated and further formed into a suspension or solid formulation; alternatively the entire formulation of active ingredient can be encapsulated (or "overcoated"). Encapsulation can control or delay release of the active ingredient. Sprayable formulations can be extended in suitable media and used at spray volumes from about one to several hundred liters per hectare. High-strength compositions are primarily used as intermediates for further formulation.

The formulations will typically contain effective amounts of active ingredient, diluent and/or surfactant within the following approximate ranges which add up to 100 percent by weight.

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	Weight Percent		
	Active Ingredient	Diluent	Surfactant
Water-Dispersible and Water-soluble Granules, Tablets and Powders.	5-90	0-94	1-15
Suspensions, Emulsions, Solutions (including Emulsifiable Concentrates)	5-50	40-95	0-15
Dusts	1-25	70-99	0-5
Granules and Pellets	0.01-99	5-99.99	0-15
High Strength Compositions	90-99	0-10	0-2

Typical solid diluents are described in Watkins, et al., *Handbook of Insecticide Dust Diluents and Carriers*, 2nd Ed., Dorland Books, Caldwell, New Jersey. Typical liquid diluents are described in Marsden, *Solvents Guide*, 2nd Ed., Interscience, New York, 1950. *McCutcheon's Detergents and Emulsifiers Annual*, Allured Publ. Corp., Ridgewood, New Jersey, as well as Sisely and Wood, *Encyclopedia of Surface Active Agents*, Chemical Publ. Co., Inc., New York, 1964, list surfactants and recommended uses. All formulations can contain minor amounts of additives to reduce foam, caking, corrosion, microbiological growth and the like, or thickeners to increase viscosity.

Surfactants include, for example, polyethoxylated alcohols, polyethoxylated alkylphenols, polyethoxylated sorbitan fatty acid esters, dialkyl sulfosuccinates, alkyl sulfates, alkylbenzene sulfonates, organosilicones, *N,N*-dialkyltartrates, lignin sulfonates, naphthalene sulfonate formaldehyde condensates, polycarboxylates, and polyoxyethylene/polyoxypropylene block copolymers. Solid diluents include, for example, clays such as bentonite, montmorillonite, attapulgite and kaolin, starch, sugar, silica, talc, diatomaceous earth, urea, calcium carbonate, sodium carbonate and bicarbonate, and sodium sulfate. Liquid diluents include, for example, water, *N,N*-dimethylformamide, dimethyl sulfoxide, *N*-alkylpyrrolidone, ethylene glycol, polypropylene glycol, paraffins, alkylbenzenes, alkylnaphthalenes, oils of olive, castor, linseed, tung, sesame, corn, peanut, cotton-seed, soybean, rape-seed and coconut, fatty acid esters, ketones such as cyclohexanone, 2-heptanone, isophorone and 4-hydroxy-4-methyl-2-pentanone, and alcohols such as methanol, cyclohexanol, decanol and tetrahydrofurfuryl alcohol.

Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. Dusts and powders can be prepared by blending and, usually, grinding as in a hammer mill or fluid-energy mill. Suspensions are usually prepared by wet-milling; see, for example, U.S. 3,060,084. Granules and pellets can be prepared by spraying the active material upon preformed granular carriers or by agglomeration techniques. See Browning, "Agglomeration", *Chemical Engineering*, December 4, 1967, pp 147-48, *Perry's Chemical*

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Engineer's Handbook, 4th Ed., McGraw-Hill, New York, 1963, pages 8-57 and following, and WO 91/13546. Pellets can be prepared as described in U.S. 4,172,714.

Water-dispersible and water-soluble granules can be prepared as taught in U.S. 4,144,050, U.S. 3,920,442 and DE 3,246,493. Tablets can be prepared as taught in U.S. 5,180,587, U.S. 5,232,701 and U.S. 5,208,030. Films can be prepared as taught in GB 2,095,558 and U.S. 3,299,566.

For further information regarding the art of formulation, see T. S. Woods, "The Formulator's Toolbox - Product Forms for Modern Agriculture" in *Pesticide Chemistry and Bioscience, The Food-Environment Challenge*, T. Brooks and T. R. Roberts, Eds., Proceedings of the 9th International Congress on Pesticide Chemistry, The Royal Society of Chemistry, Cambridge, 1999, pp. 120-133. See also U.S. 3,235,361, Col. 6, line 16 through Col. 7, line 19 and Examples 10-41; U.S. 3,309,192, Col. 5, line 43 through Col. 7, line 62 and Examples 8, 12, 15, 39, 41, 52, 53, 58, 132, 138-140, 162-164, 166, 167 and 169-182; U.S. 2,891,855, Col. 3, line 66 through Col. 5, line 17 and Examples 1-4; Klingman, *Weed Control as a Science*, John Wiley and Sons, Inc., New York, 1961, pp 81-96; and Hance et al., *Weed Control Handbook*, 8th Ed., Blackwell Scientific Publications, Oxford, 1989.

In the following Examples, all percentages are by weight and all formulations are prepared in conventional ways. Compound numbers refer to compounds in Index Table A.

Example A

Wettable Powder

Compound 13	65.0%
dodecylphenol polyethylene glycol ether	2.0%
sodium ligninsulfonate	4.0%
sodium silicoaluminate	6.0%
montmorillonite (calcined)	23.0%

Example B

Granule

Compound 13	10.0%
attapulgit granules (low volatile matter, 0.71/0.30 mm; U.S.S. No. 25-50 sieves)	90.0%

Example C

Extruded Pellet

Compound 13	25.0%
anhydrous sodium sulfate	10.0%
crude calcium ligninsulfonate	5.0%
sodium alkynaphthalenesulfonate	1.0%
calcium/magnesium bentonite	59.0%

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Example D

Emulsifiable Concentrate

Compound 13	20.0%
blend of oil soluble sulfonates	
and polyoxyethylene ethers	10.0%
isophorons	70.0%.

The compounds of this invention are useful as plant disease control agents. The present invention therefore further comprises a method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof to be protected, or to the plant seed or seedling to be protected, an effective amount of a compound of the invention or a fungicidal composition containing said compound. The compounds and compositions of this invention provide control of diseases caused by a broad spectrum of fungal plant pathogens in the Basidiomycete, Ascomycete, Oomycete and Deuteromycete classes. They are effective in controlling a broad spectrum of plant diseases, particularly foliar pathogens of ornamental, vegetable, field, cereal, and fruit crops. These pathogens include *Plasmopara viticola*, *Phytophthora infestans*, *Peronospora tabacina*, *Pseudoperonospora cubensis*, *Pythium aphanidermatum*, *Alternaria brassicae*, *Septoria nodorum*, *Septoria tritici*, *Cercosporidium personatum*, *Cercospora arachidicola*, *Pseudocercospora herpotrichoides*, *Cercospora beticola*, *Botrytis cinerea*, *Monilinia fructicola*, *Pyricularia oryzae*, *Podosphaera leucotricha*, *Venturia inaequalis*, *Erysiphe graminis*, *Uncinula necator*, *Puccinia recondita*, *Puccinia graminis*, *Hemileia vastatrix*, *Puccinia striiformis*, *Puccinia arachidis*, *Rhizoctonia solani*, *Sphaerotheca fuliginea*, *Fusarium oxysporum*, *Verticillium dahliae*, *Pythium aphanidermatum*, *Phytophthora megasperma*, *Sclerotinia sclerotiorum*, *Sclerotium rolfsii*, *Erysiphe polygoni*, *Pyrenophora teres*, *Gaeumannomyces graminis*, *Rhynchosporium secalis*, *Fusarium roseum*, *Bremia lactucae* and other genera and species closely related to these pathogens.

Compounds of this invention can also be mixed with one or more other insecticides, fungicides, nematocides, bactericides, acaricides, growth regulators, chemosterilants, semiochemicals, repellents, attractants, pheromones, feeding stimulants or other biologically active compounds to form a multi-component pesticide giving an even broader spectrum of agricultural protection. Examples of such agricultural protectants with which compounds of this invention can be formulated are: insecticides such as abamectin, acephate, azinphos-methyl, bifenthrin, buprofezin, carbofuran, chlorfenapyr, chlorpyrifos, chlorpyrifos-methyl, cyfluthrin, beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, deltamethrin, diafenthiuron, diazinon, diflubenzuron, dimethoate, esfenvalerate, fenoxycarb, fenpropathrin, fenvalerate, fipronil, flucythrinate, tau-fluvalinate, fonophos, imidacloprid, indoxacarb, isofenphos, malathion, metaldehyde, methamidophos, methidathion, methomyl, methoprene, methoxychlor, monocrotophos, oxamyl, parathion, parathion-methyl,

permethrin, phorate, phosalone, phosmet, phosphamidon, pirimicarb, profenofos, rotenone, sulprofos, tebufenozide, tefluthrin, terbufos, tetrachlorvinphos, thiodicarb, tralomethrin, trichlorfon and triflumuron; fungicides such as acibenzolar, azoxystrobin, binomial, blasticidin-S, Bordeaux mixture (Tribasic copper sulfate), bromuconazole, buthiobate, carpropamid (KTU 3616), captan, captan, carbendazim, chloroneb, chlorothalonil, clotrimazole, copper oxychloride, copper salts, cymoxamil, cyproconazole, cyprodinil (CGA 219417), (S)-3,5-dichloro-N-(3-chloro-1-ethyl-1-methyl-2-oxopropyl)-4-methylbenzamide (RH 7281), diclocymet (S-2900), diclomezine, dicloran, difenoconazole, (S)-3,5-dihydro-5-methyl-2-(methylthio)-5-phenyl-3-(phenylamino)-4H-imidazol-4-one (RP 407213), dimethomorph, dimoxystrobin (SSF-126), dimiconazole, dimiconazole-M, dodine, econazole, edifenphos, epoxiconazole (BAS 480F), famoxadone, fenarimol, fenbuconazole, fencaramid (SZX0722), fenpiclonil, fenpropidin, fenpropimorph, fentin acetate, fentin hydroxide, fluazinam, fludioxonil, flumetover (RPA 403397), fluquinconazole, flusilazole, flutolanil, flutriafol, folpet, fosetyl-aluminum, furalaxyl, furametapyr (S-82658), hexaconazole, imazalil, 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone, ipconazole, iprobenfos, iprodione, isaconazole, isoprothiolane, kasugamycin, kresoxim-methyl, mancozeb, maneb, mefenoxam, mepronil, metalaxyl, metconazole, metominostrobin/fenominostrobin (SSF-126), miconazole, myclobutanil, neo-asoxin (ferric methanearsonate), marimol, oxadixyl, penconazole, pencycuron, picoxystrobin, probenazole, prochloraz, propamocarb, propiconazole, pyraclostrobin, pyrifenoxy, pyrimethanil, prochloraz, pyrifenoxy, pyroquilon, quinoxifen, spiroxamine, sulfur, tebuconazole, tetraconazole, thiabendazole, thifluzamide, thiophanate-methyl, thiram, triadimefon, triadimenol, triarimol, tricyclazole, triforin, triticonazole, uniconazole, validamycin and vinclozolin; nematocides such as aldoxycarb and fenamiphos; bactericides such as streptomycin; acaricides such as amitraz, chinomethionat, chlorobenzilate, cyhexatin, dicofol, dinoclor, etoxazole, fenazaquin, fenbutatin oxide, fenpropathrin, fenpyroximate, hexythiazox, propargite, pyridaben and tebufenpyrad; and biological agents such as *Bacillus thuringiensis*, *Bacillus thuringiensis* delta endotoxin, baculovirus, and entomopathogenic bacteria, virus and fungi. The weight ratios of these various mixing partners to compounds of this invention typically are between 100:1 and 1:100, preferably between 30:1 and 1:30, more preferably between 10:1 and 1:10, and most preferably between 4:1 and 1:4.

Compounds such as Compound 1 of this invention are considered to inhibit C24 transmethylese in the ergosterol biosynthesis pathway. In certain instances, combinations with other fungicides having a similar spectrum of control but a different mode of action will be particularly advantageous for resistance management (especially if the other fungicide also has a similar spectrum of control). Examples of other fungicides having different mode of actions include compounds acting at the bc₁ complex of the fungal mitochondrial respiratory electron transfer site, compounds acting at the demethylase enzyme of the sterol

biosynthesis pathway, morpholine and piperidine compounds that act on the sterol biosynthesis pathway and pyrimidinone fungicides.

The *bc*₁ Complex Fungicides

Strobilurin fungicides such as azoxystrobin, kresoxim-methyl, metominostrobin/fenominostrobin (SSF-126), picoxystrobin, pyraclostrobin and trifloxystrobin are known to have a fungicidal mode of action which inhibits the *bc*₁ complex in the mitochondrial respiration chain (*Angew. Chem. Int. Ed.*, 1999, 38, 1328-1349). Methyl (*E*)-2-[[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy]- α -(methoxyimino)benzeneacetate (also known as azoxystrobin) is described as a *bc*₁ complex inhibitor in *Biochemical Society Transactions* 1993, 22, 68S. Methyl (*E*)- α -(methoxyimino)-2-[(2-methylphenoxy)methyl]benzeneacetate (also known as kresoxim-methyl) is described as a *bc*₁ complex inhibitor in *Biochemical Society Transactions* 1993, 22, 64S. (*E*)-2-[(2,5-Dimethylphenoxy)methyl]- α -(methoxyimino)-*N*-methylbenzeneacetamide is described as a *bc*₁ complex inhibitor in *Biochemistry and Cell Biology* 1995, 85(3), 306-311. Other compounds that inhibit the *bc*₁ complex in the mitochondrial respiration chain include famoxadone and fenamidone.

The *bc*₁ complex is sometimes referred to by other names in the biochemical literature, including complex III of the electron transfer chain, and ubiquinol:cytochrome c oxidoreductase. It is uniquely identified by the Enzyme Commission number EC1.10.2.2.

The *bc*₁ complex is described in, for example, *J. Biol. Chem.* 1989, 264, 14543-38; *Methods Enzymol.* 1986, 126, 253-71; and references cited therein.

The Sterol Biosynthesis Inhibitor Fungicides

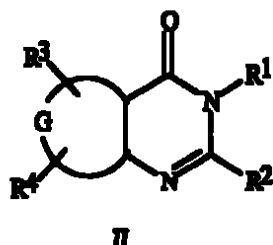
The class of sterol biosynthesis inhibitors includes DMI and non-DMI compounds, that control fungi by inhibiting enzymes in the sterol biosynthesis pathway. DMI fungicides have a common site of action within the fungal sterol biosynthesis pathway; that is, an inhibition of demethylation at position 14 of lanosterol or 24-methylene dihydrolanosterol, which are precursors to sterols in fungi. Compounds acting at this site are often referred to as demethylase inhibitors, DMI fungicides, or DMIs. The demethylase enzyme is sometimes referred to by other names in the biochemical literature, including cytochrome P-450 (14DM). The demethylase enzyme is described in, for example, *J. Biol. Chem.* 1992, 267, 13175-79 and references cited therein. DMI fungicides fall into several classes: azoles (including triazoles and imidazoles), pyrimidines, piperazines and pyridines. The triazoles includes bromuconazole, cyproconazole, difenoconazole, dimiconazole, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, ipconazole, metconazole, penconazole, propiconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole and uniconazole. The imidazoles include clotrimazole, econazole, imazalil, isoconazole, miconazole and prochloraz. The pyrimidines include fenarimol, nuarimol and triarimol. The piperazines include triforine. The pyridines include buthiobate

and pyrifenox. Biochemical investigations have shown that all of the above mentioned fungicides are DMI fungicides as described by K. H. Kuck, et al. in *Modern Selective Fungicides - Properties, Applications and Mechanisms of Action*, Lyr, H., Ed.; Gustav Fischer Verlag: New York, 1995, 205-258.

The DMI fungicides have been grouped together to distinguish them from other sterol biosynthesis inhibitors, such as the morpholine and piperidine fungicides. The morpholines and piperidines are also sterol biosynthesis inhibitors but have been shown to inhibit other steps in the sterol biosynthesis pathway. The morpholines include aldimorph, dodemorph, fenpropimorph, tridemorph and trimorphamide. The piperidines include fenpropidin. Biochemical investigations have shown that all of the above mentioned morpholine and piperidine fungicides are sterol biosynthesis inhibitor fungicides as described by K. H. Kuck, et al. in *Modern Selective Fungicides - Properties, Applications and Mechanisms of Action*, Lyr, H., Ed.; Gustav Fischer Verlag: New York, 1995, 185-204.

Pyrimidinone Fungicides

Pyrimidinone fungicides include compounds of Formula II



wherein

G is a fused phenyl, thiophene or pyridine ring;

R¹ is C₁-C₆ alkyl;

R² is C₁-C₆ alkyl or C₁-C₆ alkoxy;

R³ is halogen; and

R⁴ is hydrogen or halogen.

Pyrimidinone fungicides are described in International Patent Application WO94/26722, U.S. Patent No. 6,066,638, U.S. Patent No. 6,245,770, U.S. Patent No. 6,262,058 and U.S. Patent No. 6,277,858.

Of note are pyrimidinone fungicides selected from the group:

- 6-bromo-3-propyl-2-propyloxy-4(3H)-quinazolinone,
- 6,8-diiodo-3-propyl-2-propyloxy-4(3H)-quinazolinone,
- 6-iodo-3-propyl-2-propyloxy-4(3H)-quinazolinone,
- 6-chloro-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one,
- 6-bromo-2-propoxy-3-propylthieno[2,3-d]pyrimidin-4(3H)-one,
- 7-bromo-2-propoxy-3-propylthieno[3,2-d]pyrimidin-4(3H)-one,
- 6-bromo-2-propoxy-3-propylpyrido[2,3-d]pyrimidin-4(3H)-one,

6,7-dibromo-2-propoxy-3-propylthieno[3,2-*d*]pyrimidin-4(3*H*)-one, and
 3-(cyclopropylmethyl)-6-iodo-2-(propylthio)pyrido[2,3-*d*]pyrimidin-4(3*H*)-one.

Of note are combinations of compounds of Formula I (e.g. Compound 13) with
 azoxystrobin, kresoxim-methyl, trifloxystrobin, pyraclostrobin, picoxystrobin, dimoxystrobin
 (SSF-129), metominostrobin/ fenominostrobin (SSF-126), carbendazim, chlorothalonil,
 quinoxifen, metrafenone, cyflufenamid, fenpropidine, fenpropimorph, bromuconazole,
 cyproconazole, difenoconazole, epoxiconazole, fenbuconazole, flusilazole, hexaconazole,
 ipconazole, metconazole, penconazole, propiconazole, tebuconazole, triticonazole,
 prochloraz, nicobifen.

Preferred for better control of plant diseases caused by fungal plant pathogens (e.g.,
 lower use rate or broader spectrum of plant pathogens controlled) or resistance management
 are mixtures of a compound of this invention with a fungicide selected from the group:
 azoxystrobin, kresoxim-methyl, trifloxystrobin, pyraclostrobin, picoxystrobin, dimoxystrobin
 (SSF-129), metominostrobin/ fenominostrobin (SSF-126), quinoxifen, metrafenone,
 cyflufenamid, fenpropidine, fenpropimorph, cyproconazole, epoxiconazole, flusilazole,
 metconazole, propiconazole, tebuconazole, triticonazole.

Specifically preferred mixtures (compound numbers refer to compounds in Index
 Tables A) are selected from the group: combinations of Compound 11, Compounds 13,
 Compound 17 or Compound 27 with azoxystrobin, combinations of Compound 11,
 Compound 13, Compound 17 or Compound 27 with kresoxim-methyl, combinations of
 Compound 11, Compound 13, Compound 17 or Compound 27 with trifloxystrobin,
 combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with
 pyraclostrobin, combinations of Compound 11, Compound 13, Compound 17 or Compound
 27 with picoxystrobin, combinations of Compound 11, Compound 13, Compound 17 or
 Compound 27 with dimoxystrobin (SSF-129), combinations of Compound 11, Compound
 13, Compound 17 or Compound 27 with metominostrobin/ fenominostrobin (SSF-126),
 combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with
 quinoxifen, combinations of Compound 11, Compound 13, Compound 17 or Compound 27
 with metrafenone, combinations of Compound 11, Compound 13, Compound 17 or
 Compound 27 with cyflufenamid, combinations of Compound 11, Compound 13,
 Compound 17 or Compound 27 with fenpropidine, combinations of Compound 11,
 Compound 13, Compound 17 or Compound 27 with fenpropimorph, combinations of
 Compound 11, Compound 13, Compound 17 or Compound 27 with cyproconazole,
 combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with
 epoxiconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound
 27 with flusilazole, combinations of Compound 11, Compound 13, Compound 17 or
 Compound 27 with metconazole, combinations of Compound 11, Compound 13, Compound
 17 or Compound 27 with propiconazole, combinations of Compound 11, Compound 13,

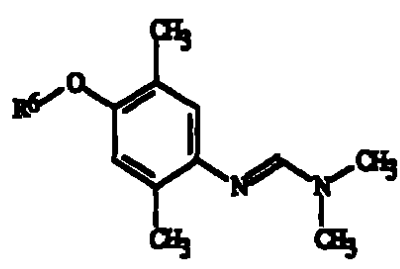
Compound 17 or Compound 27 with tebuconazole, combinations of Compound 11, Compound 13, Compound 17 or Compound 27 with triticonazole.

Plant disease control is ordinarily accomplished by applying an effective amount of a compound of this invention either pre- or post-infection, to the portion of the plant to be protected such as the roots, stems, foliage, fruit, seeds, tubers or bulbs, or to the media (soil or sand) in which the plants to be protected are growing. The compounds can also be applied to the seed to protect the seed and seedling.

Rates of application for these compounds can be influenced by many factors of the environment and should be determined under actual use conditions. Foliage can normally be protected when treated at a rate of from less than 1 g/ha to 5,000 g/ha of active ingredient. Seed and seedlings can normally be protected when seed is treated at a rate of from 0.1 to 10 g per kilogram of seed.

The following TESTS demonstrate the control efficacy of compounds of this invention on specific pathogens. The pathogen control protection afforded by the compounds is not limited, however, to these species. See Index Tables A for compound descriptions. The following abbreviations are used in the Index Tables which follow: The abbreviation "Ex." stands for "Example" and is followed by a number indicating in which example the compound is prepared.

INDEX TABLE A



Compound Number	R ⁶	m.p. (°C.)
1 (Ex. 1)	CH ₂ CH-C(CH ₃) ₂	*
2	CH ₂ CH-C(CH ₃)(CH ₂) ₂ CH-C(CH ₃) ₂	*
3	CH ₂ (CH-C(CH ₃)(CH ₂) ₂) ₂ CH-C(CH ₃) ₂	*
4	CH ₂ C(=O)C(CH ₃) ₃	*
5	(CH ₂) ₄ CH-CH ₂	*
6	(CH ₂) ₃ CH-CH ₂	*
7	(CH ₂) ₄ C(OCH ₃) ₂	*
8	(CH ₂) ₂ CH(CH ₃) ₂	*
9	(CH ₂) ₃ C(-CH ₂)CH(CH ₃) ₂	*
10	(CH ₂) ₂ CH(CH ₃)(CH ₂) ₃ CH(CH ₃) ₂	*
11	(CH ₂) ₂ CH(CH ₃)CH ₂ C(CH ₃) ₃	*

12	$(CH_2)_2C(CH_3)_3$	*
13 (Ex. 2)	$(CH_2)_3CH(CH_3)_2$	*
14	$(S)-(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$	*
15	$(R)-(CH_2)_2CH(CH_3)CH_2CH_2CH=C(CH_3)_2$	*
16	$(CH_2)_3CH_2Cl$	*
17	$(CH_2)_4CH_2Cl$	*
18	$CH(CH_3)(CH_2)_3CH_3$	*
19	$(CH_2)_4CH_3$	*
20	$(CH_2)_5CH_3$	*
21	$(CH_2)_6CH_3$	*
22	$(CH_2)_7CH_3$	*
23	$(CH_2)_8CH_3$	*
24	$(CH_2)_9CH_3$	*
25	$(CH_2)_{11}CH_3$	53-54*
26 (Ex. 3)	$(CH_2)_3Si(CH_3)_3$	*
27	$(CH_2)_3OSi(CH_3)_2C(CH_3)_3$	*
28 (Ex. 4)	$CH(CH_2CH_2CH_2CH_3)_2$	*
29	$CH(CH_2CH_2CH_3)CH_2CH_2CH_2CH_3$	*
30	$CH(CH_2CH_2CH_2CH_2CH_3)_2$	*
31	$CH(C_2H_5)CH_2CH_2CH(CH_3)_2$	*
32	$CH(CH_3)CH_2CH_2CH(CH_3)_2$	*
33	$CH(CH_2CH_2CH_3)CH_2CH_2CH(CH_3)_2$	*
34	$CH(C_2H_5)_2$	*
35	$CH(CH_2CH_2CH(CH_3)_2)_2$	*
36	$CH(CH_2CH_2CH_3)_2$	*
37	$CH(CH_2CH_2CH_2CH_3)(CH_2)_5CH_3$	*

*See Index Table B for 1H NMR data.

INDEX TABLE B

Compd No.	1H NMR Data ($CDCl_3$ solution unless indicated otherwise) ^a
1	δ 1.72 (s, 3H), 1.78 (s, 3H), 2.17 (s, 3H), 2.24 (s, 3H), 2.99 (s, 6H), 4.46 (d, 2H), 5.5 (t, 1H), 6.55 (s, 1H), 6.66 (s, 1H), 7.38 (s, 1H).
2	δ 1.6-1.8 (m, 9H), 1.9-2.5 (m, 10H), 2.98 (s, 6H), 4.46 (d, 2H), 5.1 (m, 1H), 5.5 (m, 1H), 6.54 (s, 1H), 6.66 (s, 1H), 7.38 (s, 1H).
3	δ 1.6-2.4 (m, 26H), 2.99 (s, 6H), 4.5 (d, 2H), 5-5.2 (m, 2H), 5.5 (m, 1H), 6.54 (s, 1H), 6.66 (s, 1H), 7.38 (s, 1H).

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Compd No.	¹ H NMR Data (CDCl ₃ solution unless indicated otherwise) ^a
4	δ 1.25 (s, 9H), 2.21 (s, 3H), 2.23 (s, 3H), 2.99 (s, 6H), 4.79 (s, 2H), 6.50 (s, 1H), 6.55 (s, 1H), 7.37 (s, 1H).
5	δ 1.5-2.3 (m, 12H), 2.98 (s, 6H), 3.92 (t, 2H), 4.95-5.1 (m, 2H), 5.7-5.9 (m, 1H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
6	δ 1.8-1.92 (m, 2H), 2.17-2.3 (m, 8H), 2.98 (s, 6H), 3.92 (t, 2H), 4.97-5.13 (m, 2H), 5.8-5.95 (m, 1H), 5.55 (s, 1H), 6.64 (s, 1H), 7.37 (s, 1H).
7	δ 1.6-2.04 (m, 6H), 2.17 (s, 3H), 2.22 (s, 3H), 2.99 (s, 6H), 3.26 (s, 9H), 3.97 (t, 2H), 6.54 (s, 1H), 6.64 (s, 1H), 7.38 (s, 1H).
8	δ 0.96 (d, 6H), 1.67 (q, 2H), 1.87 (m, 1H), 2.15 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.93 (t, 2H), 6.54 (s, 1H), 6.64 (s, 1H), 7.37 (s, 1H).
9	δ 1.04 (d, 6H), 1.8-2.35 (m, 11H), 2.98 (s, 6H), 3.93 (t, 2H), 4.72 (d, 1H), 4.98 (d, 1H), 6.55 (s, 1H), 6.64 (s, 1H), 7.38 (s, 1H).
10	δ 0.87 (d, 6H), 0.94 (d, 3H), 1.1-1.9 (m, 10H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.93 (m, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.38 (s, 1H).
11	δ 0.91 (s, 9H), 0.98 (d, 3H), 1.05-1.35 (m, 2H), 1.5-1.9 (m, 3H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.92 (t, 3H), 6.54 (s, 1H), 6.62 (s, 1H), 7.38 (s, 1H).
12	δ 0.99 (s, 9H), 1.72 (t, 2H), 2.15 (s, 3H), 2.24 (s, 3H), 2.98 (s, 6H), 3.96 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.38 (s, 1H).
13	δ 0.91 (d, 6H), 1.28-1.82 (m, 5H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.89 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
14	δ 0.95 (d, 3H), 1.18-2.1 (m, 13H), 2.15 (s, 3H), 2.23 (s, 3H), 2.97 (s, 6H), 3.93 (m, 2H), 5.1 (t, 1H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
15	δ 0.95 (d, 3H), 1.18-2.1 (m, 13H), 2.15 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.94 (m, 2H), 5.1 (t, 1H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
16	δ 1.9-2.1 (m, 4H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.63 (t, 2H), 3.95 (t, 2H), 6.55 (s, 1H), 6.62 (s, 1H), 7.37 (s, 1H).
17	δ 1.6-2 (m, 6H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.57 (t, 2H), 3.92 (t, 2H), 6.54 (s, 1H), 6.62 (s, 1H), 7.37 (s, 1H).
18	δ 0.91 (m, 3H), 1.2-1.8 (m, 9H), 2.15 (s, 3H), 2.22 (s, 3H), 2.98 (s, 6H), 4.21 (m, 1H), 6.53 (s, 1H), 6.64 (s, 1H), 7.39 (s, 1H).
19	δ 0.93 (t, 3H), 1.3-1.55 (m, 4H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
20	δ 0.9 (t, 3H), 1.3-1.56 (m, 6H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.55 (s, 1H), 6.63 (s, 1H), 7.38 (s, 1H).
21	δ 0.89 (t, 3H), 1.2-1.6 (m, 8H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.64 (s, 1H), 7.37 (s, 1H).

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Compd No.	¹ H NMR Data (CDCl ₃ solution unless indicated otherwise) ^a
22	δ 0.89 (t, 3H), 1.2-1.56 (m, 10H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.38 (s, 1H).
23	δ 0.88 (t, 3H), 1.2-1.56 (m, 12H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
24	δ 0.88 (t, 3H), 1.2-1.56 (m, 14H), 1.7-1.82 (m, 2H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
25	δ 0.88 (t, 3H), 1.2-1.82 (m, 20H), 2.16 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.9 (t, 2H), 6.54 (s, 1H), 6.63 (s, 1H), 7.37 (s, 1H).
26	δ 0.02 (t, 9H), 0.6 (m, 2H), 1.7-1.82 (m, 2H), 2.17 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.87 (t, 2H), 6.54 (s, 1H), 6.62 (s, 1H), 7.38 (s, 1H).
27	δ 0.05 (s, 6H), 0.9 (s, 9H), 1.97 (m, 2H), 2.15 (s, 3H), 2.23 (s, 3H), 2.98 (s, 6H), 3.82 (t, 2H), 4.0 (t, 2H), 6.54 (s, 1H), 6.64 (s, 1H), 7.37 (s, 1H).
28	δ 0.9 (t, 6H), 1.2-1.4 (m, 8 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
29	δ 0.9 (t, 6H), 1.2-1.4 (m, 6 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
30	δ 0.9 (m, 6 H), 1.2-1.4 (m, 12 H), 1.5-1.7 (m, 4H), 2.1 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.45 (s, 1H), 6.6 (s, 1H), 7.35 (s, 1H).
31	δ 0.8 (d, 6H), 0.9 (t, 3H), 1.2-1.4 (m, 2 H), 1.5-1.7 (m, 4H), 2.1 (s, 3H), 2.2 (s, 3H), 3.0 (s, 6H), 3.95-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
32	δ 0.8 (d, 6H), 1.2 (d, 3H), 1.4-1.6 (m, 2 H), 1.6-1.75 (m, 2H), 2.15 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 4.10-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
33	δ 0.8 (d, 6H), 0.9 (t, 3H), 1.2-1.4 (m, 6 H), 1.5-1.7 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
34	δ 0.9 (t, 6H), 1.55-1.75 (m, 4 H), 2.1 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 3.95-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
35	δ 0.85 (d, 6H), 0.95 (d, 6H), 1.2-1.4 (m, 4 H), 1.5-1.8 (m, 6H), 2.1 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 3.8-3.95 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
36	δ 0.8-0.9 (t, 6H), 1.3-1.5 (m, 4 H), 1.5-1.65 (m, 4H), 2.15 (s, 3H), 2.25 (s, 3H), 3.0 (s, 6H), 4.05-4.2 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).
37	δ 0.8-0.9 (s, 6H), 1.2-1.4 (m, 14 H), 1.5-1.7 (m, 4H), 2.1 (s, 3H), 2.2 (s, 3H), 2.95 (s, 6H), 4.05-4.1 (m, 1H), 6.5 (s, 1H), 6.6 (s, 1H), 7.4 (s, 1H).

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¹H NMR data are in ppm downfield from tetramethylsilane. Couplings are designated by (s)-singlet, (d)-doublet, (t)-triplet, (q)-quartet, (m)-multiplet, (dd)-doublet of doublets, (dt)-doublet of triplets, (tr s)-broad singlet.

BIOLOGICAL EXAMPLES OF THE INVENTION

General protocol for preparing test suspensions: Test compounds are first dissolved in acetone in an amount equal to 3% of the final volume and then suspended at the desired concentration (in ppm) in acetone and purified water (50/50 mix) containing 250 ppm of the surfactant Trem[®] 014 (polyhydric alcohol esters). The resulting test suspensions are then used in the following tests. Spraying a 200 ppm test suspension to the point of run-off on the test plants is the equivalent of a rate of 500 g/ha.

TEST A

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore dust of *Erysiphe graminis* f. sp. *tritici*, (the causal agent of wheat powdery mildew) and incubated in a growth chamber at 20 °C for 7 days, after which disease ratings were made.

TEST B

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore suspension of *Puccinia recondita* (the causal agent of wheat leaf rust) and incubated in a saturated atmosphere at 20 °C for 24 h, and then moved to a growth chamber at 20 °C for 6 days, after which disease ratings were made.

TEST C

The test suspension was sprayed to the point of run-off on wheat seedlings. The following day the seedlings were inoculated with a spore suspension of *Septoria nodorum* (the causal agent of *Septoria glume* blotch) and incubated in a saturated atmosphere at 20 °C for 48 h, and then moved to a growth chamber at 20 °C for 9 days, after which disease ratings were made.

Results for Tests A-C are given in Table A. In the table, a rating of 100 indicates 100% disease control and a rating of 0 indicates no disease control (relative to the controls). A dash (-) indicates no test results.

Table A

Cmpd No.	Test A	Test B	Test C
1	32	100	92
2	95	100	36
3	0	87	0

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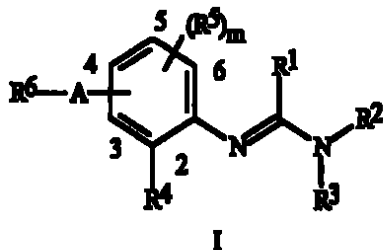
Cmpd No.	Test A	Test B	Test C
4	0	92	0
5	0	100	89
6	0	100	60
7	0	0	0
8	97	100	98
9	98	100	97
10	97	100	0
11	97	100	100
12	97	100	80
13	97	100	100
14	90	100	0
15	94	100	0
16	88	100	97
17	92	100	100
18	98	100	98
19	-	-	-
20	-	-	-
21	98	100	96
22	-	-	-
23	-	-	-
24	-	-	-
25	0	90	0
26	-	-	-
27	99	100	100
28	-	-	-
29	-	-	-
30	-	-	-
31	-	-	-
32	-	-	-
33	-	-	-
34	-	-	-
35	-	-	-
36	-	-	-
37	-	-	-

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CLAIMS

What is claimed is:

1. A compound of Formula I and or an agriculturally suitable salt thereof,



wherein:

- R¹** is H, OH, SH, SO₃H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R¹ is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;
- R²** is H, CN, -OR⁷, or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₃-C₆ carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C₂-C₁₀ alkylcarbonyl, each optionally substituted;
- R³** is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, a C₃-C₆ carbocycle, a 3-, 4-, 5- or 6-membered heterocycle or C₂-C₁₀ alkylcarbonyl, each optionally substituted; or
- R²** and **R³** can be taken together with their interconnecting nitrogen to form a heterocyclic ring containing 3 to 7 atoms, said ring consisting of said interconnecting nitrogen atom, carbon and optionally one or two additional atoms selected from the group consisting of nitrogen, sulfur and oxygen, and said ring being optionally substituted with one or more R⁹;
- R⁴** and each **R⁵** are each independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₃-C₆ cycloalkyl, C₁-C₆ haloalkyl, C₂-C₆ haloalkenyl, C₂-C₆ haloalkynyl, C₃-C₆ halocycloalkyl, halogen, CO₂H, CONH₂, SF₃, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₁-C₄ alkylthio, C₁-C₄ alkylsulfinyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylthio, C₁-C₄ haloalkylsulfinyl, C₁-C₄ haloalkylsulfonyl, C₁-C₄ alkylamino, C₂-C₈ dialkylamino, C₃-C₆ cycloalkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₂-C₆ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl or C₃-C₆ trialkylsilyl;
- R⁶** is C₃-C₂₁ alkyl, C₃-C₂₁ alkenyl, C₃-C₂₁ alkynyl, C₄-C₉ alkoxy carbonyl, C₄-C₆ alkylaminocarbonyl, C₃-C₁₀ dialkylaminocarbonyl or C₃-C₁₂ trialkylsilyl, each optionally substituted; or **R⁶** is C₁-C₄ alkyl or C₂-C₉ alkylcarbonyl, each substituted with one or more R¹²;

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A is a direct bond, O, S(O)_n or NR¹⁰;

each R⁷ is independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted;

each R⁹ is independently halogen, CN, NO₂, C₁-C₄ alkoxy, C₁-C₄ alkyl, C₁-C₄ haloalkoxy or C₁-C₄ alkylthio;

R¹⁰ is H, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylsulfonyl, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₂-C₆ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl or C₃-C₆ trialkylsilyl;

each R¹² is independently CO₂H, CONH₂, NO₂, C₁-C₆ haloalkoxy, C₂-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl, C₁-C₆ haloalkylthio, C₁-C₆ haloalkylsulfinyl, C₁-C₆ haloalkylsulfonyl, C₁-C₆ alkylamino, C₂-C₈ dialkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₃-C₉ alkoxyalkylcarbonyl, C₂-C₆ alkylaminocarbonyl, C₄-C₁₀ alkylaminoalkylcarbonyl, C₃-C₈ dialkylaminocarbonyl, C₃-C₈ dialkylaminoalkylcarbonyl, C₃-C₉ alkylthioalkylcarbonyl, C₃-C₉ trialkylsilyl or C₃-C₉ trialkylsilyloxy;

n is 0, 1 or 2; and

m is 0, 1, 2 or 3.

2. A compound of Claim 1 wherein:

R¹ is H, SH, SO₃H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl, each optionally substituted with one or more R⁸; or a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R⁹;

R² is H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl or C₂-C₁₀ alkylcarbonyl, each optionally substituted with one or more R⁸; or a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R⁹;

R³ is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl or C₂-C₁₀ alkylcarbonyl, each optionally substituted with one or more R⁸; or a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R⁹;

R⁶ is C₃-C₂₁ alkyl, C₃-C₂₁ alkenyl, C₃-C₂₁ alkynyl, C₄-C₉ alkoxy carbonyl, C₄-C₆ alkylaminocarbonyl, C₃-C₁₀ dialkylaminocarbonyl or C₃-C₁₂ trialkylsilyl, each optionally substituted with one or more R¹¹; or R⁶ is C₁-C₄ alkyl or C₂-C₉ alkylcarbonyl, each substituted with one or more R¹²;

each R⁷ is independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, each optionally substituted with one or more R⁸; or a C₃-C₆ carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted with one or more R⁹;

each R⁸ is independently halogen, CN, NO₂, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy or C₁-C₄ alkylthio; and

each R¹¹ is independently halogen, CO₂H, CONH₂, NO₂, hydroxy, C₁-C₆ alkoxy, C₁-C₆ haloalkoxy, C₂-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₁-C₆ alkylsulfonyl, C₁-C₆ haloalkylthio, C₁-C₆ haloalkylsulfinyl, C₁-C₆ haloalkylsulfonyl, C₁-C₆ alkylamino, C₂-C₈ dialkylamino, C₂-C₆ alkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₃-C₉ alkoxyalkylcarbonyl, C₂-C₆ alkylaminocarbonyl, C₄-C₁₀ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl, C₃-C₈ dialkylaminoalkylcarbonyl, C₃-C₉ alkylthioalkylcarbonyl, C₂-C₈ dialkylphosphoryl, C₂-C₈ dialkylphosphinyl, C₃-C₉ trialkylsilyl or C₃-C₉ trialkylsilyloxy.

3. A compound of Claim 2 wherein

R¹ and R² are each independently H, CN, -OR⁷ or -SR⁷; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, each optionally substituted with one or more R⁸; or phenyl optionally substituted with 1 to 3 R⁹;

R³ is H; C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl or C₂-C₁₀ alkynyl, each optionally substituted with one or more R⁸; or phenyl optionally substituted with 1 to 3 R⁹;

R⁴ and R⁵ are each independently C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₆ haloalkyl, halogen, CO₂H, CONH₂, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₁-C₄ alkylthio, C₁-C₄ alkylsulfinyl, C₁-C₄ alkylsulfonyl, C₁-C₄ haloalkylthio, C₁-C₄ haloalkylsulfinyl, C₁-C₄ haloalkylsulfonyl, C₁-C₆ alkylcarbonyl, C₁-C₆ alkoxy carbonyl, C₁-C₆ alkylaminocarbonyl or C₂-C₈ dialkylaminocarbonyl;

R⁶ is C₅-C₁₅ alkyl, C₅-C₁₅ alkenyl or C₅-C₁₅ alkynyl, each optionally substituted with one or more R¹¹; or R⁶ is C₁-C₄ alkyl substituted with one or more R¹²;

each R⁷ is independently C₁-C₆ alkyl, optionally substituted with one or more R⁸;

A is a direct bond, O or S(O)_n; and

m is 0 or 1.

4. A compound of Claim 3 wherein

A is attached to the remainder of Formula I at the 4 position of the benzene ring.

5. A compound of Claim 4 wherein

R¹, R² and R³ are each independently H or C₁-C₁₀ alkyl;

R⁴ and R⁵ are each independently, halogen, C₁-C₆ alkyl or C₁-C₆ haloalkyl;

R⁵ is attached to the remainder of Formula I at the 5 position of the benzene ring; and m is 1.

6. A compound of Claim 5 wherein

R¹ is H;

R², R³, R⁴ and R⁵ are each methyl; and

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R⁶ is C₆-C₁₅ alkyl wherein at least one of the fourth and fifth carbon from A has one or no hydrogen attached or C₅-C₁₅ 2-alkenyl wherein the fourth or fifth carbon from A has one or no hydrogen attached.

7. A compound of Claim 5 wherein

R¹ is H;

R², R³, R⁴ and R⁵ are each methyl; and

R⁶ is C₁-C₄ alkyl substituted with one or more substituents selected from the group consisting of C₂-C₆ alkylthio, C₁-C₆ alkylsulfinyl, C₂-C₆ alkoxy carbonyl, C₂-C₆ dialkylamino, C₂-C₆ alkyl carbonyl, C₃-C₉ alkoxyalkyl carbonyl, C₂-C₆ alkylaminocarbonyl, C₃-C₈ dialkylaminocarbonyl, C₃-C₉ trialkylsilyl or C₃-C₉ trialkylsilyloxy.

8. A fungicidal composition comprising a fungicidally effective amount of a compound of Claim 1 and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents.

9. A fungicidal composition comprising a mixture of a compound of Claim 1 and at least one other fungicide having a different mode of action.

10. A method for controlling plant diseases caused by fungal plant pathogens comprising applying to the plant or portion thereof, or to the plant seed or seedling, a fungicidally effective amount of a compound of Claim 1.

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TITLE

AMIDINYLPHENYL COMPOUNDS AND THEIR USE AS FUNGICIDES

ABSTRACT OF THE DISCLOSURE

Compounds of the formula $(R^5)_m-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]$ benzene and
5 their agriculturally suitable salts, are disclosed which are useful as fungicides, wherein

R^1 is H, OH, SH, SO_3H , CN, $-OR^7$ or $-SR^7$; C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, a C_3-C_6 carbocycle or a 3-, 4-, 5- or 6-membered heterocycle, each optionally substituted; provided that when R^1 is a heterocycle containing nitrogen as a ring member, it is not attached to the remainder of Formula I through said nitrogen ring member;

R^6 is C_5-C_{21} alkyl, C_5-C_{21} alkenyl, C_5-C_{21} alkynyl, C_4-C_9 alkoxy carbonyl, C_4-C_6 alkylaminocarbonyl, C_3-C_{10} dialkylaminocarbonyl or C_3-C_{12} trialkylsilyl, each optionally substituted; or R^6 is C_1-C_4 alkyl or C_2-C_9 alkylcarbonyl, each substituted with one or more R^{12} ;

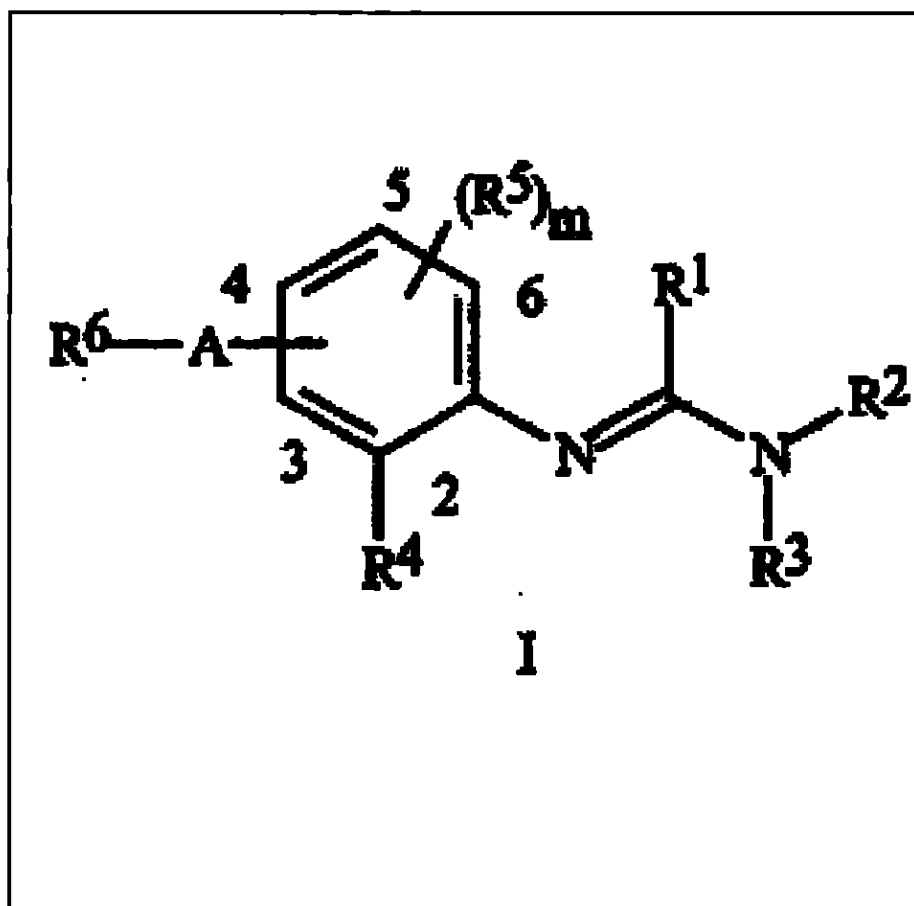
A is a direct bond, O, $S(O)_n$, or NR^{10} ; n is 0, 1 or 2; m is 0, 1, 2 or 3; and R^2 , R^3 , R^4 , R^5 , R^7 , R^{10} and R^{12} are as defined in the disclosure.

Also disclosed are compositions containing the compounds of the formula $(R^5)_m-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]$ benzene and a method for controlling plant diseases caused by fungal plant pathogens which involves applying an effective amount of a
20 compound of the formula $(R^5)_m-(R^6A)-2-(R^4)-1-[N=C(R^1)N(R^2)(R^3)]$ benzene.

204050-5-08504

TITULO: COMPUESTOS DE AMIDINILFENILO Y SU USO COMO FUNGICIDAS.

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TRADUCCIÓN OFICIAL No. 04-377

Efectuada el día 19 de noviembre de 2004, de un documento escrito en Inglés, al cual para su identificación se le estampa el sello de María del Pilar Iglesias, Traductora e Intérprete Oficial por Resolución No. 819 de abril de 1971 expedida por el Ministerio de Justicia de la República de Colombia.

TRATADO DE COOPERACIÓN DE PATENTES

De la
AUTORIDAD INTERNACIONAL DEL EXAMEN PRELIMINAR

Para: Heiser David E. E.I. DUPONT DE NEMOURS AND COMPANY Departamento Legal para el Registro de Patentes 4417 Lankaster Pike Wilmington, Delaware 19805 Estados Unidos de América		NOTIFICACIÓN DE LA TRANSMISIÓN DEL INFORME DEL EXAMEN PRELIMINAR INTERNACIONAL (PCT Regla 71.1)	
		Fecha de porte: 06.07.2004	
Referencia del Expediente del Solicitante o del Agente: BA9302PCT		NOTIFICACIÓN IMPORTANTE	
Solicitud Internacional No. PCT/US03/13371	Fecha de Presentación Internacional: 30/04/2003	Fecha de Prioridad: 03/05/2002	
Solicitante: E.I. DU PONT DE NEMOURS AND COMPANY			

1. Al solicitante por el presente se le notifica que esta Autoridad Internacional del Examen Preliminar transmite con el presente el informe del examen preliminar y sus anexos, si los hubiere, establecidos sobre la solicitud internacional.

M. P. Iglesias
MARÍA DEL PILAR IGLESIAS
TRADUCTORA E
INTERPRETE OFICIAL
Resolución No. 819 de 1971

2. Una copia de este informe con sus anexos, si los hubiere, está siendo transmitida a la Oficina Internacional para que se comuniquen a todas las Oficinas elegidas.

3. Cuando lo solicite cualquiera de las Oficinas elegidas, la Oficina Internacional preparará una traducción al inglés del informe (pero no de los anexos) y enviará esa traducción a las mencionadas Oficinas.

4. **RECORDATORIO**

El solicitante debe ingresar a la fase nacional ante cada Oficina elegida cumpliendo determinados actos (presentando traducciones y pagando derechos nacionales) dentro de los 30 meses siguientes a la fecha de prioridad (o posteriormente en algunas Oficinas) Artículo 39(1)) (ver también el recordatorio enviado por la Oficina Internacional con el Formato PCT/IB/301).

Cuando se deba suministrar una traducción de la solicitud internacional a una Oficina elegida, esa traducción debe contener una traducción de cualquiera de los anexos para incluirla en el informe internacional del examen preliminar. Es responsabilidad del solicitante preparar y suministrar esa traducción directamente a cada una de las Oficinas concernientes.

Para mayores detalles sobre los límites de tiempo aplicables y sobre los requisitos de las Oficinas elegidas, ver el Volumen II de la Guía del Solicitante para el Tratado de Cooperación de Patentes (PCT).

Se llama la atención del Solicitante al Artículo 33(5), que estipula que los criterios de novedad, paso inventivo y aplicabilidad industrial descritos en el Artículo 33(2) a (4) simplemente sirven los propósitos del examen internacional y preliminar y que "cualquier Estado Contratante podrá aplicar criterios adicionales o diferentes para los propósitos de decidir si, en ese Estado, los inventos reivindicados son patentables o no" (ver también Artículo 27(5)). Estos criterios adicionales se pueden relacionar, por ejemplo, con exenciones de patentabilidad, requisitos para permitir la revelación, claridad y soporte de las reivindicaciones.

noviembre 3, 2004

Nombre y dirección postal de la IPEA/

Oficina Europea de Patentes - Gitschiner Str. 103
D-10958 Berlín
Tel. +49 30 25901 - 0
Fax: +49 30 25901- 840
Funcionario autorizado:

HALBARTSCHLAGER, M
Tel. +49 30 25901- 714

Centro del Poder Judicial
TRANSMISIÓN
... EMPRESA OFICIAL
Resolución No. 019/2004

TRATADO DE COOPERACIÓN DE PATENTES (PCT)

AUTORIDAD INTERNACIONAL DEL EXAMEN PRELIMINAR

(Artículo 36 y Regla 70 del PCT)

Referencia del Expediente del Solicitante o del Agente: BA9302PCT		PARA ACCIONES ADICIONALES: Ver la Notificación de Transmisión del Informe de Examen Preliminar (Formato PCT/IPEA/416)	
Solicitud Internacional No. PCT/US03/13371	Fecha de Presentación Internacional: 30/04/2003	Fecha de Prioridad: 03/05/2002	
Clasificación Internacional de Patente (IPC), o clasificación nacional e IPC: C07C257/10			
Solicitante: E.I. DU PONT DE NEMOURS AND COMPANY			

1. Este informe de examen preliminar internacional ha sido preparado por esta Autoridad Internacional para Exámenes Preliminares y se transmite al solicitante conforme al Artículo 36.

2. Este INFORME consiste de un total de 5 hojas, incluida esta cubierta.

3. Este informe contiene indicaciones relacionadas con lo siguiente:

I. ☒ Base del Informe

...

465
-799-80

III. ☒ No establecimiento de opinión con relación a
novedad, paso inventivo y aplicabilidad industrial.

...

V. ☒ Declaración razonada conforme a la Regla
66.2(a)(ii) con relación a la novedad, paso
inventivo o aplicabilidad industrial; citas y
explicaciones que soportan esta declaración.

Fecha de Presentación de la Solicitud: 27/11/2003

Fecha de Terminación de este Informe: 06/07/2004

Nombre y dirección postal de la Autoridad Internacional de
Examen Preliminar:

Oficina Europea de Patentes-Gitschiner Str. 103
D-10958 Berlín
Tel. +49 30 25901 - 0
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Funcionario autorizado:

Rufet, J.
Tel. +49 30 25901-332

INFORME DEL EXAMEN PRELIMINAR INTERNACIONAL

Solicitud Internacional No. PCT/US 03/13371

I. Base del Informe

1. Con relación a los **elementos** de la solicitud internacional
(*Hojas de reemplazo que han sido preparadas para la Oficina
receptora en respuesta a una invitación bajo el Artículo 14*)

Clara del Pilar Iglesias
TRADUCTORA E
INTERPRETE OFICIAL
Resolución No. 674/1997

se denominan en este informe como "presentadas originalmente", y no se anexan a este informe ya que no contienen modificaciones (Reglas 70.16 y 70.17)).

Descripción, Páginas:

1-138 Tal y como se presentaron originalmente.

Reivindicaciones, Número:

1-10 Tal y como se presentaron originalmente.

...

III. No establecimiento de opinión con relación a novedad, paso inventivo y aplicabilidad industrial.

1. Las preguntas de si el invento reivindicado parece ser novedoso, involucran un paso inventivo (no ser obvio), o ser industrialmente aplicable no se han examinado respecto de:

☒ Las reivindicaciones Nos.1-10 todas parcialmente

Porque:

...

☒ Las reivindicaciones o las reivindicaciones mencionadas Nos. 1-10 todas parcialmente están tan inadecuadamente soportadas por la descripción que no se puede formar una opinión que tenga significado.

☒ No se ha establecido un reporte de búsqueda internacional para las mencionadas reivindicaciones 1-10 todas parcialmente.

V. Declaración razonada conforme al Artículo 35(2) con respecto a la novedad, el paso inventivo o la aplicabilidad industrial; citas y explicaciones que soportan tal declaración.

1. Declaración

Novedad (N)	Si: Reivindicaciones 6-10 No: Reivindicaciones 1-5
Paso Inventivo (IS)	Si: Reivindicaciones No: Reivindicaciones 1-10
Aplicabilidad Industrial (IA)	Si: Reivindicaciones 1-10 No: Reivindicaciones

2. Citas y Explicaciones: Ver Hoja separada.

Ver hoja separada

INFORME DEL EXAMEN PRELIMINAR INTERNACIONAL

Solicitud Internacional No. PCT/US 03/13371

Re Item III

No establecimiento de opinión con relación a la novedad, paso inventivo y aplicabilidad industrial.

Las reivindicaciones actuales 1-10 se relacionan con un número extremadamente grande de compuestos posibles

Acta del Examen Internacional
TRANSACCION 1
ENTRADA OFICIAL
Examinado el 10 de Septiembre de 2003

composiciones y usos de los mismos. Sin embargo, se debe encontrar soporte dentro del significado del Artículo 6 PCT y/o revelación dentro del significado del Artículo 5 PCT solamente para una proporción muy pequeña de los compuestos reivindicados. En el caso presente, las reivindicaciones carecen de soporte y la solicitud carece de revelación de manera que se hace imposible un examen que tenga significado sobre la totalidad del alcance.

El informe de búsqueda internacional no se ha establecido para partes de las reivindicaciones 1-10 que parecen no estar soportadas y reveladas.

Por consiguiente, el examen sólo se ha llevado a cabo para aquellas partes de las reivindicaciones que aparecen soportadas y reveladas (Art. 34(4)(a)(ii) PCT) y que han sido buscadas (Regla 66.1(e) PCT), principalmente aquellas partes que se relacionan con los compuestos de la fórmula I de la reivindicación 1 dentro de las siguientes limitaciones:

- R1 es H, SH, Metilo y alcóxicarbonilo C2-C5;
- R2, R3 son independientemente H, alquilo C1-C10, alquenilo C2-C10, alquinilo C2-C10, ciclopropilo o R2 y R3 tomadas juntas son -CH₂CH₂nCH₂- en donde n es 0 a 5;

- R4 a R10, R12 de acuerdo con sus respectivas definiciones otorgadas en la reivindicación 1; R11 de acuerdo con la reivindicación 2.

Se hace énfasis en que expresiones tales como "carbociclo", "heterociclos con miembros", "opcionalmente sustituido" "anillo heterocíclico que contiene de 3 a 7 átomos... y opcionalmente uno o dos átomos adicionales" etc. presentes en las reivindicaciones, son especulativos, abarcan una gran variedad de posibilidades estructurales aún no exploradas por el Solicitante, cuyo efecto no puede ser previsto teniendo en cuenta el problema que debe ser resuelto.

Re Item V

No establecimiento de opinión con relación a la novedad, paso inventivo y aplicabilidad industrial; citas y explicaciones que soportan esa declaración.

Se hace referencia a los siguientes documentos:

- D1: US-A-5177106
D2: WO-A-0006555
D3: US-A-3284289
D4: DE-A-2029298
D5: DE-A-2113978
D6: DE-A-2259221

D7: WO-A-0046184

D8: DE-A-2755549

1. La presente solicitud no satisface los criterios del Artículo 33(1) PCT, porque el asunto materia de las reivindicaciones 1-5 en vista de las D1, D2 y D4 no es nuevo en el sentido del Artículo 33(2) PCT.

Los documentos D1, D2 y D4 revelan una familia de compuestos que también utilizan una fórmula Markush, que se traslapa con la familia de los compuestos reivindicados (ver D1, columna 2, l. 36-52; columna 8, l. 45-65, D2, página 6, ejemplo 4, reivindicaciones 1,7 y D4, p.4, l.32-34 y reivindicaciones 1,2).

Se llama la atención sobre el hecho de que el asunto materia de las reivindicaciones 6-10 se refiere a compuestos y composiciones de los mismos que parecen ser novedosos con respecto a la técnica anterior D1-D8.

2. La presente solicitud no satisface los criterios del Artículo 33(1) PCT, porque el asunto materia de las reivindicaciones 6-10 (que parecen ser novedosas) no

Centro de Patentes
Escribanía
Escribiente Oficial
Resolución No. 000/1998

involucra un paso inventivo en el sentido del Artículo 33(3) del PCT por las siguientes razones:

El técnico ya conoce a partir de la D3-D8 que los compuestos de amidinilfenilo son útiles para combatir plagas, especialmente el crecimiento de plantas no deseadas, microorganismos peligrosos (hongos), insectos, acáridos y nemátodos (ver D3, columna 2, l. 8-20; D4, p. 45-46; D5, p. 6, l. 11, reivindicaciones 3, 4; D6, p. 5, l. 3-8; D7, reivindicaciones 1, 16 y D8, p. 6, l. 3-35, ejemplos 2-7).

La persona técnica que esté buscando mas compuestos de amidinilfenilo útiles como fungicidas habría considerado, con expectativas de éxito, los compuestos reivindicados como posibles alternativas para los compuestos de la D3 a la D8, puesto que a partir de la D3 y de la D8 sabe que los compuestos de amidinilfenilo muy cercanos estructuralmente no son sólo útiles para combatir el crecimiento no deseado de la planta, los insectos, los acáridos y los nemátodos sino también para combatir hongos.

Es traducción fiel y completa efectuada por:

Maria del Pilar Iglesias
María del Pilar Iglesias
C.C. 41.339.183 de Bogotá

Maria del Pilar Iglesias
María del Pilar Iglesias
C. C. 41.339.183 de Bogotá
Intérprete Oficial según Resolución No. 819 del
15 de Abril de 1971 del Ministerio de Justicia

PATENT COOPERATION TREATY

0000187
492

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

Heiser, David E.
E.I. DU PONT DE NEMOURS AND COMPANY
Legal Patent Records Center
4417 Lancaster Pike
Wilmington, Delaware 19803
ETATS-UNIS D'AMERIQUE

RECEIVED
PATENT RECORDS CENTER
JUL 12 2004

TO BE RETURNED TO THE EXAMINING AUTHORITY

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Applicant's or agent's file reference BA9302PCT		Date of mailing (day/month/year) 06.07.2004
IMPORTANT NOTIFICATION		
International application No. PCT/US 03/13371	International filing date (day/month/year) 30.04.2003	Priority date (day/month/year) 03.05.2002
Applicant E.I. DU PONT DE NEMOURS AND COMPANY		

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/AB301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

EEL NOTED

03 Nov 2004

Name and mailing address of the International preliminary examining authority:



European Patent Office - Glatzinger Str. 103
D-10958 Berlin
Tel. +49 30 25901 - 0
Fax: +49 30 25901 - 840

Authorized Officer

HALBARTSCHLAGER, M

Tel. +49 30 25901-714



PATENT COOPERATION TREATY

PCT

11/11/88

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

473

Applicant's or agent's file reference BA9302PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEAA/16)	
International application No. PCT/US 03/13371	International filing date (day/month/year) 30.04.2003	Priority date (day/month/year) 03.05.2002	
International Patent Classification (IPC) or both national classification and IPC C07C257/10			
Applicant E.I. DU PONT DE NEMOURS AND COMPANY			
1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of _____ sheets.			
3. This report contains indications relating to the following items: I ☒ Basis of the opinion II ☐ Priority III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV ☐ Lack of unity of invention V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI ☐ Certain documents cited VII ☐ Certain defects in the international application VIII ☐ Certain observations on the international application			
Date of submission of the demand 27.11.2003		Date of completion of this report 06.07.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax +49 30 25901 - 840		Authorized Officer Rufet, J Telephone No. +49 30 25901-332 	

INTERNATIONAL PRELIMINARY
EXAMINATION REP RT

International application No. PCT/US 03/13371

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)).*

Description, Pages

1-138 as originally filed

Claims, Numbers

1-10 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/13371**

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III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-10 all partially

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☒ the claims, or said claims Nos. 1-10 all partially are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-10 all partially

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6-10
	No: Claims	1-5
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/13371

2.1.91
476

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Present claims 1-10 relate to an extremely large number of possible compounds, compositions and uses thereof. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful examination over the whole of the scope is impossible.

The international search report has not been established for the part of claims 1-10 which appear not to be supported and disclosed.

Consequently, the examination has only been carried out for those parts of claims which appear to be supported and disclosed (Art. 34(4)(a)(ii) PCT) and which have been searched (Rule 66.1(e) PCT), namely those parts relating to the compounds of formula (I) of claim 1 with the following limitations:

- R1 is H, SH, Methyl and C2-C5 alkoxy carbonyl;
- R2, R3 are independently H, C1-C10 alkyl, C2-C10 alkenyl, C2-C10 alkynyl, cyclopropyl or R2 and R3 taken together are -CH₂CH₂nCH₂- wherein n is 0 to 5;
- R4 to R10, R12 according to their respective definitions given in claim 1; R11 according to claim 2.

It is stressed that expressions like "carbocycle", "membered heterocycle", "optionally substituted", "heterocyclic ring containing 3 to 7 atoms....and optionally one or two additional atoms" etc.. present in the claims are speculative, embracing a great variety of structural possibilities not yet explored by the Applicant, the effect of which cannot be foreseen having regard to the problem to be solved.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- Reference is made to the following documents:

- D1: US-A-5177106
- D2: WO-A-0006555
- D3: US-A-3284289
- D4: DE-A-2029298

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/13371

D5: DE-A-2113978
D6: DE-A-2259221
D7: WO-A-0046184
D8: DE-A-2755549

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-5 is in view of D1, D2 and D4 not new in the sense of Article 33(2) PCT.

Documents D1, D2 and D4 disclose a family of compounds using also a Markush formula, which overlaps with the family of compounds claimed (see D1, column 2, l. 36-52; column 8, l. 45-65; D2, page 6, example 4, claims 1, 7 and D4, p. 4, l. 32-34 and claims 1, 2).

It is pointed out that the subject-matter of claims 6-10 refer to compounds and compositions thereof, which appears to be novel over the prior art D1-D8.

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 6-10 (which appears to be novel) does not involve an inventive step in the sense of Article 33(3) PCT for the following reasons:

The skilled person already knows from D3-D8 that amidinylphenyl compounds are useful for combatting pests, especially for combatting undesired plant growth, harmful micro-organisms (fungi), insects, acarids and nematodes (see D3, column 2, l. 8-20; D4, p. 45-46; D5, p. 6, l. 11, claims 3, 4; D6, p. 5, l. 3-8; D7, claims 1, 16 and D8, p. 6, l. 3-35, examples 2-7).

The skilled person looking for further amidinylphenyl compounds useful as fungicide would have, with expectation of success, considered the claimed compounds as possible alternatives to the compounds of D3 to D8, since he knows from D3 and D8 that structurally very close amidinylphenyl compounds are not only useful for combatting undesired plant growth, insects, acarids and nematodes but also for combatting fungi.

2020
Bogotá D C

Doctor(a) A
ALVARO CORREA ORDOÑEZ
Apoderado(a)
E.I. DU PONT DE NEMOURS AND COMPANY

REFERENCIA:	Radicación N°	04-110432
	Solicitud internacional	PCT US03/13371
	Fecha inicio fase nacional	2004-12-03
	Trámite	011
	Evento	379
	Actuación	430
	Folios	001

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, mediante oficio No **10899** notificado por fijación en lista de fecha **26 de noviembre de 2004**, requirió al doctor(a) **ALVARO CORREA ORDOÑEZ** para que complementara la solicitud de acuerdo con las normas citadas.

Sin embargo, el mencionado requerimiento no cumplió con los presupuestos establecidos en el artículo 39 de la Decisión 486, es decir no se indicó al solicitante el plazo en el cual se debía presentar la respuesta al mismo, por lo que es procedente revocar en su totalidad el oficio No **10899** de fecha **26 de noviembre de 2004** y en su lugar efectuar un nuevo requerimiento en los siguientes términos:

- La solicitud no contiene copia del documento en que consta la cesión del derecho de patente del inventor al solicitante o a su causante (Art 26-k) Decisión 486
- En caso que el examen preliminar contenga anexos, estos deben ser presentados junto con su traducción

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.

ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones.

El anterior requerimiento fue notificado por fijación en lista de fecha,

202063

2020
Bogotá D C

Doctor(a)
ALVARO CORREA ORDOÑEZ
Apoderado(a)
E.I DUPONT DE NEMOURS AND COMPANY

REFERENCIA:	Radicación N°	04-110432
	Solicitud internacional	PCT/US03/13371
	Fecha inicio fase nacional	2004-12-03
	Trámite	011
	Evento	379
	Actuación	416
	Oficio N°	1777
	Folios	001

Como resultado del examen de forma realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, este Despacho, mediante oficio N° 10890 notificado por fijación en lista de fecha 26 de noviembre de 2004, requirió en forma equivocada al doctor(a) **ALVARO CORREA ORDOÑEZ**, en los términos del artículo 39 de la Decisión 486 de la Comisión de la Comunidad Andina, para que dentro del plazo de dos meses siguientes a la fecha de notificación del mismo, completara su solicitud en cuanto al cumplimiento de los requisitos de forma allí señalados.

Teniendo en cuenta que mediante escrito radicado en esta entidad el 26 de noviembre de 2004 (el) doctor(a)) **ALVARO CORREA ORDOÑEZ**, en su calidad de apoderado(a) del solicitante, previamente había completado la solicitud en este sentido, es procedente revocar en su totalidad el oficio N° 10890 de fecha 26 de noviembre de 2004.

Así las cosas, y en consideración a que la solicitud de privilegio de patente que se tramita bajo el expediente indicado en la referencia, reúne los requisitos de forma establecidos en los artículos 26 y 27 de la Decisión 486, de la Comisión de la Comunidad Andina, y en las demás disposiciones vigentes sobre la materia, se envía el extracto de la solicitud a la oficina de comunicaciones para efecto de su publicación en la Gaceta de Propiedad Industrial, conforme lo establece el artículo 40 de la Decisión 486.

Cúmplase

Dado en Bogotá D C, 6 % Dic. 2004


ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe División de Nuevas Creaciones.