

CAVELIER

ABOGADOS

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Señor Director
DIRECCION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 11-050627-00002-0000

Fecha: 2011-06-17 12:10:04 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 329 CTOINFORMACION Folios: 44

Trámite : 011
Evento : 378
Actuación : 329

Referencia : Expediente No. 11.050.627
Asunto : Solicitud de patente para **CONCENTRADOS EMULSIONABLES ESTABLES QUE CONTIENEN UN PRIMER ACIDO CARBOXILICO HERBICIDA SAL Y UN SEGUNDO ACIDO CARBOXILICO HERBICIDA ESTER**
Solicitante : **DOW AGROSCIENCES LLC**
Clase : A01N 037/000, A01N 043/040, A01P 013/000
Fecha de Solicitud : 26 de abril de 2011

1. Yo, Luz Clemencia de PAEZ, en mi condición de apoderada de la sociedad solicitante, **DOW AGROSCIENCES LLC**, atentamente presento los siguientes documentos:

1.1. Un (1) documento en que consta la cesión del derecho a la patente efectuado por los cinco (5) inventores en favor de la sociedad **DOW AGROSCIENCES LLC**.

Se presenta este documento en copia certificada del original que fue debidamente suscrito, notariado y legalizado por Apostilla, junto con su correspondiente traducción oficial al español.

1.2. **Prioridad:** Adicionalmente, presento con este escrito copia certificada de la solicitud de patente No. 61/109,196 presentada en Estados Unidos de América el 29 de octubre de 2008, de la cual se reclama prioridad en esta solicitud de patente, junto con la correspondiente traducción al español.

La copia certificada del documento de prioridad está siendo presentada dentro del término legal correspondiente, esto es 26 de junio de 2011, de conformidad con lo establecido en el numeral 5.2.8 de la Circular Única.

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2. De acuerdo con lo anterior, comedidamente solicito a Usted proseguir con el trámite de este asunto y ordenar la publicación de la solicitud de la patente identificada en la referencia.

Señor Director,

Luiz Clemencia de Paéz
LUZ CLEMENCIA DE PAEZ
C.C. 35.456.344 de Usaquén
T.P.A. No. 23.555

COLO-10975-841-055-8
SDC\SCT\ID-194572\WPC10975
No. M-2011-194572\SDC

C

SECRETARY OF STATE
STATE OF INDIANA



Charles P. White
Secretary of State

APOSTILLE

(Convention de la Haye du 5 Octobre 1961)

1. Country: United States of America
2. This public document has been signed by *Michele D. Lyons*
3. acting in the capacity of notary public in & for *Hamilton* County
4. and bears the seal/stamp of notary public in & for the State of Indiana

CERTIFIED

5. at Indianapolis, Indiana
6. this the *Twelfth* day of *April, 2011*
7. by Secretary of State of Indiana
8. No. A2011 - 14776
9. Seal/Stamp:
10. Signature:



Charles P. White

Charles P. White
Indiana Secretary of State

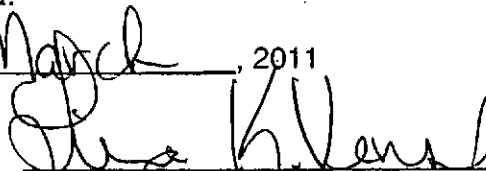
Effective May 1, 2003 all apostilles from the Indiana Secretary of State will have an electronically printed seal.

TRUE COPY

TO ALL TO WHOM THESE PRESENTS SHALL COME,

I Do Hereby Certify that the annexed document(s) are TRUE COPIES of the original document(s) which I have compared at Indianapolis, Indiana 46268, United States of America.

Signed this 17 day of March, 2011


LINDA K. VENSEL

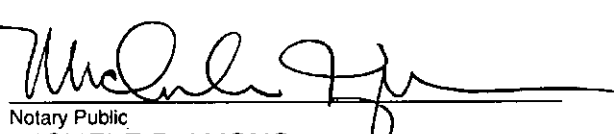
NOTARIAL CERTIFICATE

UNITED STATES OF AMERICA)
STATE OF INDIANA) SS
County/Parish of Marion

On this 17 day of March, 2011 personally appeared
before me,

Linda K. Vensel

known or identified to me to be the individual who executed the foregoing document and acknowledged the same as a free act and deed for uses and purposes therein expressed.


Notary Public
MICHELE D. LYONS
NOTARY PUBLIC, HAMILTON COUNTY, INDIANA
MY COMMISSION EXPIRES JULY 23, 2015

[illegible]

This Assignment ID is in the [UN]ASH language and has the same meaning in other languages with the same ID number and R/I date

(with Priority Rights)

which invention was made and invented by me/us out of and in the course of my/our employment with my/our respective employers as stated below my/our name(s). I/we acknowledge that I/we hold the invention and all patent and other rights and powers obtainable or exercisable in respect thereof in trust for our respective employers. As trustee(s), and for good and valuable consideration and/or the remuneration received for my/our work, I/we sell, assign and transfer unto:

a corporation organized and existing under the laws of the State of **Delaware** (hereinafter referred to as the "Assignee"); my/our entire right, title and interest throughout the world, in and to the invention and all rights and powers to make applications, including provisional applications when permitted by law, for Letters Patent in its own name, or in the name of its designee (or nominee(s)); and all rights and powers to file any corresponding or equivalent applications in any and all countries, including all rights to claim priority under all United States domestic laws, International Convention(s) and Treaties in the name of Assignee, and do hereby authorize Assignee or its designee to insert here the Priority Number, Filing Date, and Filing Country

of the application, on which the claim for priority will be based; and in and to any Letters Patent that may be issued for the invention in any and all countries. I/we do hereby agree to assist Assignee in the prosecution of the application(s) and in any interference, conflict, opposition or litigation which may arise involving the invention or the patent or patents thereon, and to execute for any and all countries any document relating to applications derived from, corresponding to or equivalent to the above identified application as Assignee may request; and I/we do hereby authorize Assignee or its designee (or nominee(s)) to *insert here any corresponding equivalent Application Number, Filing Date, and Filing Country*

to the above Priority application of any country where that country's patent property must be identified and entered hereinabove for recordal of this Assignment. I/we authorize Assignee or its designee to translate this Assignment into all languages necessary; and we request that any such Letters Patent be issued to Assignee; and consent to the recordal of this Assignment, or a Notarial True Copy thereof, being under covenant not only that I/we have full power to make the same, but also that such assigned rights are not encumbered by any grant, license, or other right heretofore given.

At: Indianapolis, Indiana 46268, United States of America
this 9 day of December, 2008
Effective as of October 29, 2008

Signature: Mei Li
Full Name: Mei M. Li mei
Residence: 13679 Cunningham Drive
Westfield, Indiana 46074
Country: United States of America
Citizenship: People's Republic of China
P.O. Address: Same as residence
Employed By: Dow AgroSciences LLC
Of Country: United States of America

At: Indianapolis, Indiana 46268, United States of America
this 9 day of November, 20 08
Effective as of October 29, 2008

Signature: 
Full Name: Holger Tank
Residence: 1172 Huntington Woods Point
Zionsville, Indiana 46077
Country: United States of America
Citizenship: Germany
P.O. Address: Same as residence
Employed By: Dow AgroSciences LLC
Of Country: United States of America

At: Indianapolis, Indiana 46268, United States of America
this 7 day of December, 2008
Effective as of October 29, 2008

Signature: Melissa G. Olds
Full Name: Melissa G. Olds
Residence: 2132 Williams Glen Boulevard
Zionsville, Indiana 46077

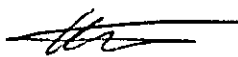
Country: United States of America
Citizenship: United States of America
P.O. Address: Same as residence
Employed By: Dow AgroSciences LLC
Of Country: United States of America

At: New Plymouth, New Zealand, 4301
this 11 day of November, 20 08
Effective as of October 29, 2008

Signature: D. J. Hopkins
Full Name: Derek J. Hopkins
Residence: 503 Mangorei Road
New Plymouth 4312
NEW ZEALAND
Country: New Zealand
Citizenship: United Kingdom
P.O. Address: Same as residence
Employed By: Dow AgroSciences (NZ) Ltd.
Of Country: New Zealand

(X) Additional names and signatures are attached.

At: New Plymouth, New Zealand, 4301
 this 11 day of November, 20 08
 Effective as of October 29, 2008

Signature: 
 Full Name: Robert M. Buttior
 Residence: 65 Marama Cres.
 Spotswood, New Plymouth 4310
 NEW ZEALAND
 Country: New Plymouth, New Zealand
 Citizenship: Canada
 P.O. Address: Same as residence
 Employed By: Dow AgroSciences (NZ) Ltd.
 Of Country: New Zealand

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

At: _____
 this _____ day of _____, 20 _____

Signature: _____
 Full Name: _____
 Residence: _____
 Country: _____
 Citizenship: _____
 P.O. Address: Same as residence
 Employed By: _____
 Of Country: _____

NOTARIAL CERTIFICATE (Individual)

UNITED STATES OF AMERICA)
STATE OF INDIANA) SS
County/Parish of)

On this 9th day of December, 2008, personally appeared before me,
Mei M. Li

known or identified to me to be the individual described in and who executed the foregoing document and acknowledged the same as a free act and deed for uses and purposes therein expressed.

SEAL

Melanie S. Bradley
MELANIE S. BRADLEY
NOTARY PUBLIC, MARION COUNTY, INDIANA
MY COMMISSION EXPIRES NOVEMBER 2, 2012

NOTARIAL CERTIFICATE (Individual)

UNITED STATES OF AMERICA)
STATE OF INDIANA) SS
County/Parish of)

On this 9th day of November, 2008, personally appeared before me,
Holger Tank

known or identified to me to be the individual described in and who executed the foregoing document and acknowledged the same as a free act and deed for uses and purposes therein expressed.

SEAL

Melanie S. Bradley
MELANIE S. BRADLEY
NOTARY PUBLIC, MARION COUNTY, INDIANA
MY COMMISSION EXPIRES NOVEMBER 2, 2012

NOTARIAL CERTIFICATE (Individual)

UNITED STATES OF AMERICA)
STATE OF INDIANA) SS
County/Parish of)

On this 9th day of December, 2008, personally appeared before me,
Melissa G. Olds

known or identified to me to be the individual described in and who executed the foregoing document and acknowledged the same as a free act and deed for uses and purposes therein expressed.

SEAL

Melanie S. Bradley
MELANIE S. BRADLEY
NOTARY PUBLIC, MARION COUNTY, INDIANA
MY COMMISSION EXPIRES NOVEMBER 2, 2012

Traducción Oficial No. 2011/619 de un documento escrito en inglés el cual para su identificación se sella con el sello del traductor al tiempo con la presente. Esta traducción ha sido preparada por Hilda Aguilera de Piedrahita, traductora oficial debidamente reconocida por el Ministerio de Relaciones Exteriores y autorizada por el Ministerio de Justicia y del Derecho por Resolución No. 323 de 1980

CESIÓN INDIVIDUAL Y DECLARACIÓN DE INVENTOR
(Con Derechos de Prioridad)

Yo/nosotros creemos verdaderamente que yo/nosotros somos los inventores originales, primeros y conjuntos/únicos del asunto el cual está cobijado por y para el cual una patente se solicita sobre la invención titulada: CONCENTRADOS EMULSIONABLES ESTABLES QUE CONTIENEN UN PRIMER ÁCIDO CARBOXÍLICO HERBICIDASAL Y UN SEGUNDO ÁCIDO CARBOXÍLICO HERBICIDA ÉSTER, invención que fue hecha e inventada por mi/nosotros por fuera y en el curso de mi empleo con mis respectivos empleadores como se establece debajo de mi/nuestros nombres. Yo/nosotros reconocemos que yo/nosotros poseemos la invención y todas las patentes y otros derechos y facultades obtenibles o ejecutables con respecto a la misma en fideicomiso por nuestros respectivos empleadores. Como fideicomisarios y por una contraprestación buena y valorable y/o la remuneración recibida por mi/nuestro trabajo, yo/nosotros vendemos, cedemos y transferimos a

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, Indiana 46268-1054
Estados Unidos de América

Una sociedad organizada y existente bajo las leyes del Estado de Delaware (en adelante denominada como el "Cesionario") mi/nuestro completo derecho, título e interés por todo el mundo, en y para la invención y todos los derechos y facultades para llevar a cabo solicitudes, incluyendo solicitudes provisionales cuando así sean permitidas por la ley, para Certificados de Patente en su propio nombre, o a nombre de sus designados (o nominados); y todos los derechos y facultades para presentar cualesquiera solicitudes correspondientes o equivalentes en cualquiera y todos los países, incluyendo todos los derechos para reivindicar prioridad bajo todas las leyes locales de los Estados Unidos, Convenciones y Tratados Internacionales a nombre del Cesionario; y por el presente autorizamos al cesionario o a sus designados para insertar aquí el número de prioridad, la fecha de presentación y el país de presentación.

Número de Prioridad	Fecha de Presentación	País de Presentación
61/109.196	Octubre 29, 2008	Estados Unidos de América

De la solicitud sobre la cual la reivindicación de prioridad se basará; y en y para cualesquiera Certificados e Patentes que puedan ser expedidos para la invención en cualesquiera y todos los países. Yo/nosotros acordamos por el presente dar la ayuda al Cesionario para la obtención de la solicitud y en cualquier interferencia, conflicto, oposición o litigio que pueda surgir en relación con la invención o la patente o patentes sobre ella, y para suscribir en cualquiera y todos los países cualesquiera documentos relacionados con las solicitudes que se deriven de, correspondan o sean equivalentes a la solicitud arriba identificada como el Cesionario lo pueda solicitar; y yo/nosotros por el presente autorizamos al cesionario o a su designado (o nominados) para insertar aquí el número de solicitud, la fecha de presentación y el país de presentación correspondiente y equivalente.

Número de Solicitud	Fecha de Presentación	País de Presentación

En la anterior solicitud de prioridad de cualquier país en donde la propiedad de la patente del país deberá identificarse e insertarse aquí arriba para la inscripción de esta Cesión. Yo/nosotros autorizamos al cesionario o a su designado para traducir esta Cesión a todos los idiomas que sean necesarios; y solicitamos que cualquier tal Certificado de Patente sea expedido al cesionario; y autorizamos la inscripción de esta cesión, o una copia verdadera y notariada de la misma, declarando no únicamente que yo/nosotros tenemos plena facultad para llevar a cabo la misma, pero también que tales derechos cedidos no se encuentran gravados por cualquier otorgamiento, licencia o cualquier otro derecho en adelante dado.

Suscrito y Declarado por mi/nosotros:

En Indianapolis, Indiana 46268 Estados Unidos de América, este día 5 de Octubre de 2009.

Vigente desde el 29 de Octubre de 2008.

Firma: (Firmado)

Nombre Completo: Mei M Liu

Residencia: 13679 Cunningham Drive, Indiana 46074

País: Estados Unidos de América

Nacionalidad: República Popular de China

Dirección Postal: La misma que la residencia

Empleado por: Dow AgroSciences LLC

Del País: Estados Unidos de América

En Indianapolis, Indiana 46268 Estados Unidos de América, este día 9 de Noviembre de 2008.

Vigente desde el 29 de Octubre de 2008.

Firma: (Firmado)

Nombre Completo: Holger Tank

Residencia: 1172 Huntington Woods Point, Zionsville, Indiana 46077

País: Estados Unidos de América

Nacionalidad: Alemania

Dirección Postal: La misma que la residencia

Empleado por: Dow AgroSciences LLC

Del País: Estados Unidos de América

En Indianapolis, Indiana 46268 Estados Unidos de América, este día 9 de Noviembre de 2008.

Vigente desde el 29 de Octubre de 2008.

Firma: (Firmado)

Nombre Completo: Melissa G. Olds

Residencia: 2132 Williams Glen Boulevard, Indiana 46077

País: Estados Unidos de América

Nacionalidad: Estados Unidos de América

Dirección Postal: La misma que la residencia

Empleado por: Dow AgroSciences LLC

Del País: Estados Unidos de América

En New Plymouth, Nueva Zelanda 4301, este día 11 de Noviembre de 2008.

Vigente desde el 29 de Octubre de 2008.

Firma: (Firmado)

Nombre Completo: Derek J. Hopkins

Residencia: 503 Mangorei Road, New Plymouth 4312, Nueva Zelanda

País: New Plymouth, Nueva Zelanda

Nacionalidad: Reino Unido

Dirección Postal: La misma que la residencia

Empleado por: Dow AgroSciences NZ

Del País: Nueva Zelanda

En New Plymouth, Nueva Zelanda 4301, este día 11 de Noviembre de 2008.

Vigente desde el 29 de Octubre de 2008.

Firma: (Firmado)

Nombre Completo: Robert M. Buttimor

Residencia: 65 Marama Cres, Spotswood, New Plymouth 4310, Nueva Zelanda

País: New Plymouth, Nueva Zelanda

Nacionalidad: Canadá

Dirección Postal: La misma que la residencia

Empleado por: Dow AgroSciences NZ

Del País: Nueva Zelanda

A continuación se encuentran 9 espacios para firmas del siguiente tenor:

En _____ este día ____ de _____, 20__.

Firma: _____

Nombre Completo: _____

Residencia: _____

País: _____

Nacionalidad: _____

Dirección Postal: _____

Empleado por: _____

Del País: _____

CERTIFICACIÓN NOTARIAL (Individuo)

ESTADOS UNIDOS DE AMERICA)

ESTADO DE INDIANA) SS

Condado de Marion)

Este día 9 de Diciembre de 2008, compareció personalmente ante mí, Mei M. Li, a quien conozco o se identificó ante mí como el individuo descrito y quien suscribió el documento anterior y reconoció el mismo como su acto y escrito libre para los usos y fines allí expresados.

SELLO

(Firmado)

MELANIE S. BRADLEY

NOTARIO PUBLICO CONDADO DE MARION, INDIANA

TRADUCCION OFICIAL No. 2011/619

HILDA AGUILERA DE PIEDRAHITA

INTERPRETE OFICIAL

RES. No. 320 DEL MIN. DE JUSTICIA

MI COMISIÓN EXPIRA EL 2 DE NOVIEMBRE DE 2012.

CERTIFICACIÓN NOTARIAL (Individuo)

ESTADOS UNIDOS DE AMERICA)
ESTADO DE INDIANA) SS
Condado de Marion)

Este día 9 de Noviembre de 2008, compareció personalmente ante mí, Holger Tank, a quien conozco o se identificó ante mí como el individuo descrito y quien suscribió el documento anterior y reconoció el mismo como su acto y escrito libre para los usos y fines allí expresados.

SELLO

(Firmado)

MELANIE S. BRADLEY

NOTARIO PUBLICO CONDADO DE MARION, INDIANA

MI COMISIÓN EXPIRA EL 2 DE NOVIEMBRE DE 2012.

CERTIFICACIÓN NOTARIAL (Individuo)

ESTADOS UNIDOS DE AMERICA)
ESTADO DE INDIANA) SS
Condado de Marion)

Este día 9 de Diciembre de 2008, compareció personalmente ante mí, Melissa G. Olds, a quien conozco o se identificó ante mí como el individuo descrito y quien suscribió el documento anterior y reconoció el mismo como su acto y escrito libre para los usos y fines allí expresados.

SELLO

(Firmado)

MELANIE S. BRADLEY

NOTARIO PUBLICO CONDADO DE MARION, INDIANA

MI COMISIÓN EXPIRA EL 2 DE NOVIEMBRE DE 2012.

TESTIGO DE SUSCRIPCIÓN

DECLARACION JURAMENTADA DE SUSCRIPCIÓN DE UNA CESIÓN

Yo, JulieNicole Tidwell, cuya dirección postal completa es 548 Frankley Road, RD 1, New Plymouth, Nueva Zelanda, juro y declaro que yo estuve personalmente presente y vi a

Derek J. Hopkins

A quien conozco personalmente o quien se identificó ante mí como el inventor nombrado en la cesión adjunta, quien debidamente firmó y suscribió la misma para los fines allí expresados.

Firmado en Dow AgroSciences (NZ) Ltd., 89 Paribu Road, New Plymouth, Nueva Zelanda, este día 11 de Noviembre de 2008.

(Firmado)

Testigo que suscribe

TESTIGO DE SUSCRIPCIÓN
DECLARACION JURAMENTADA DE SUSCRIPCIÓN DE UNA CESIÓN

Yo, JulieNicole Tidwell, cuya dirección postal completa es 548 Frankley Road, RD 1, New Plymouth, Nueva Zelanda, juro y declaro que yo estuve personalmente presente y vi a

Robert M. Buttamor

A quien conozco personalmente o quien se identificó ante mí como el inventor nombrado en la cesión adjunta, quien debidamente firmó y suscribió la misma para los fines allí expresados.

Firmado en Dow AgroSciences (NZ) Ltd., 89 Paribu Road, New Plymouth, Nueva Zelanda, este día 11 de Noviembre de 2008.

(Firmado)

Testigo que suscribe

COPIA VERDADERA

A TODOS A QUIENES EL PRESENTE LLEGARE:

Yo, por el presente certifico que el documento anexo es una COPIA VERDADERA del documento original el cual he comparado en Indianapolis, Indiana 46268, Estados Unidos de América.

Firmado este día 17 de Marzo de 2011.

(Firmado)

Linda K. Vensel

CERTIFICACIÓN NOTARIAL (Individuo)

ESTADOS UNIDOS DE AMERICA)
ESTADO DE INDIANA) SS
Condado de Marion)

Este día 17 de Marzo de 2011, compareció personalmente ante mí, Linda K. Vensel, a quien conozco o se identificó ante mí como el individuo descrito y quien suscribió el documento anterior y reconoció el mismo como su acto y escrito libre para los usos y fines allí expresados.

(Firmado)

Notario Público

SELLO A TINTA: Michele D. Lyons, Notario Público, Condado de Hamilton, Indiana, Mi Comisión expira el 23 de Julio de 2015.

SECRETARIO DE ESTADO
ESTADO DE INDIANA

TRADUCCION OFICIAL No. 2011/619
HILDA AGUILERA DE PIEDRAHITA
INTERPRETE OFICIAL
RES. No. 323 DEL MIN. DE JUSTICIA

Charles P. White
Secretario de Estado

APOSTILLA
(Convención de la Haya de Octubre 5 de 1961)

1. Pais: Estados Unidos de América
2. Este documento público ha sido firmado por Michele D. Lyons
3. Actuando en calidad de Notario Público en y para el Condado de Hamilton
4. Lleva el sello/estampilla del Notario Público en y para el Estado de Indiana

CERTIFICADO

5. En Indianapolis, Indiana
6. El 12 de Abril de 2011.
7. Por el Secretario de Estado de Indiana
8. Número **A2011 - 14776**
9. Sello/Estampilla : Sello del Estado de Indiana
10. Firma (Firmado)
Charles P. White

Secretario de Estado de Indiana

Con vigencia a Mayo 1, 2003 todas las apostillas del Secretario de Estado de Indiana tendrán un sello impreso de manera electrónica.

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para ser confrontación y a la cual me remito, habiendo tenido a la vista el documento original.

Bogotá, Junio 9 de 2011.

MINISTERIO DE
RELACIONES EXTERIORES
JEFES DE LEGALIZACIONES
BOGOTÁ D.C.
2011 JUN 10 A 10:22

NO SE ASUME
RESPONSABILIDAD
DEL ESTADO
07/06/2011
COTA FIRMA APTA DECE EN EL
DOCUMENTO DE EMERGENCIA
LAS FUNCIONES DE APTAS

TRADUCCION OFICIAL No. 2011/619
HILDA AGUILERA DE PIEDRAHITA
INTERPRETE OFICIAL
RES. No. 323 DEL MIN. DE JURIS.



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office**

May 20, 2011

**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: 61/109,196

FILING DATE: October 29, 2008

**THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY
APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS
CONVENTION, IS US61/109,196**

**By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office**

**M. TARVER
Certifying Officer**



Electronic Acknowledgement Receipt

EFS ID:	4193786
Application Number:	61109196
International Application Number:	
Confirmation Number:	2178
Title of Invention:	STABLE EMULSIFIABLE CONCENTRATES CONTAINING A FIRST HERBICIDAL CARBOXYLIC ACID SALT AND A SECOND HERBICIDAL CARBOXYLIC ACID ESTER
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Filer Authorized By:	Craig Edward Mixan
Attorney Docket Number:	67409 US
Receipt Date:	29-OCT-2008
Filing Date:	
Time Stamp:	08:33:08
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 220
RAM confirmation Number	5280
Deposit Account	041529
Authorized User	

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1	Transmittal of New Application	67409_Transmittal_20081029.pdf	45320 78b62dbb471875024c55ef7d342a495712e f9587	no	2

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2		67409_Application_20081029.pdf	83968 91ec9cc8146abcfdaa277fb3e61d17ecd46c5 01e9	yes	20
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Multipart Description/PDF files in .zip description

	Document Description	Start	End
	Specification	1	17
	Claims	18	19
	Abstract	20	20

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3	Fee Worksheet (PTO-06)	fee-info.pdf	29788 c939d262c6411b97996fmbac4eaa82ab3d8cd c37ad	no	2
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<i>Additional inventors are being named on the _____ separately numbered sheets attached hereto</i>		
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STABLE EMULSIFIABLE CONCENTRATES CONTAINING A FIRST HERBICIDAL CARBOXYLIC ACID SALT AND A SECOND HERBICIDAL CARBOXYLIC ACID ESTER		
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STABLE EMULSIFIABLE CONCENTRATES CONTAINING A FIRST
HERBICIDAL CARBOXYLIC ACID SALT AND A SECOND HERBICIDAL
CARBOXYLIC ACID ESTER

Field of the Invention

5 This invention concerns a novel stable emulsifiable concentrate containing a first herbicidal carboxylic acid in the salt form and a second herbicidal carboxylic acid in the ester form.

Background of the Invention

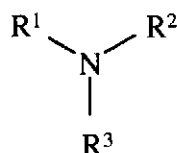
10 To design an agricultural formulation product, the most important question to be answered is its stability. Failure to meet a set of stability requirements which usually depend on the specific market, application and regulations will certainly lead to failure of its commercialization. There are many causes of formulation instabilities, such as a) chemical instabilities due to reactions between ingredients (actives and/or inerts, etc.), photo-degradations, and oxidations, etc., b) physical instabilities due to
15 phase separations (Oswald ripening, crystallization, sedimentations, creamings, etc.) and c) environmental factors (temperature, humidity/moisture, etc.). In today's agrichemical market, it becomes increasingly common to design formulations to contain multiple active ingredients and their required solvents, safeners, and/or adjuvants, etc., in order to achieve the optimal spectrum, efficacy, and delivery
20 efficiency, which consequently makes formulation stability more and more challenging. Therefore, technologies that can effectively isolate, hinder, or eliminate, adverse reactions or interactions between incompatible ingredients are often critical for a successful product.

The emulsifiable concentrate, a liquid homogeneous formulation to be applied as an emulsion after dilution in water, is one of the most common formulation types for many agricultural products. Emulsifiable concentrates are mixtures of an oil soluble active ingredient and emulsifying agents dissolved in an organic solvent. The emulsifying agent enables the emulsifiable concentrate to disperse easily in water, thereby forming a "milky" and homogenous emulsion. Emulsifiable concentrates require tank agitation to form the emulsion and maintain it during spraying. However, many challenges may exist, when, for instance, active ingredients may react with one another or with other ingredients in the formulation. For example, a composition containing triclopyr butoxyethyl ester and aminopyralid acid or its potassium salt has been found to be extremely useful for the control of brush and woody plants in range and pasture and industrial vegetation management applications. In some typical emulsifiable concentrate formulations with the hydrophobic ester herbicide and the hydrophilic acid or salt herbicide, only small amounts of the hydrophilic herbicide may dissolve in the organic solvent. In typical emulsifiable concentrate formulations with the hydrophobic ester herbicide and the hydrophilic acid herbicide dissolved in the oil phase, the acid herbicide may decarboxylate upon storage at elevated temperatures. In typical emulsifiable concentrate formulations with the hydrophobic ester herbicide and the hydrophilic salt herbicide dissolved in the oil phase, the hydrophilic salt herbicide may react with the oil-soluble ester herbicide, leading to hydrolysis or transesterification. It would be desirable to have a more stable emulsifiable concentrate containing a first herbicidal carboxylic acid in the salt form and a second herbicidal carboxylic acid in the ester form.

Summary of the Invention

The present invention concerns a stable emulsifiable concentrate which comprises:

- 5 a) a first carboxylic acid herbicide in the form of a tertiary amine salt in which the tertiary amine has the formula



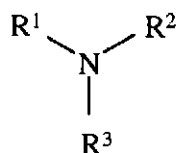
wherein R^1 , R^2 and R^3 independently represent a C_1 - C_{18} alkyl, optionally substituted with hydroxyl, amino or alkoxy groups;

- 10 b) a second carboxylic acid herbicide in the form of a C_4 - C_8 alkyl or alkoxy-substituted alkyl ester ;
- c) an alcohol solvent or co-solvent which is the same as the ester portion of the second carboxylic acid herbicide ester; and
- d) optionally emulsifiers.

15 Another aspect of the present invention concerns a method of preparing the emulsifiable concentrate which comprises contacting the first carboxylic acid herbicide in the acid form with the tertiary amine in the alcohol solvent and with the second carboxylic acid herbicide ester and optionally any emulsifiers with stirring until a homogeneous solution is obtained.

Detailed Description of the Invention

This invention provides a stable emulsifiable concentrate containing a first herbicidal carboxylic acid in the salt form and a second herbicidal carboxylic acid in the ester form. The first carboxylic acid herbicide is in the form of a tertiary amine salt in which the tertiary amine has the formula



wherein R^1 , R^2 and R^3 independently represent a C_1 - C_{18} alkyl, optionally substituted with hydroxyl, amino or alkoxy groups. Preferably, at least one of R^1 , R^2 and R^3 represents a C_{12} - C_{18} alkyl group. The tertiary amines include, but are not necessarily limited to, a tertiary alkylamine, a tertiary alkanolamine, a tertiary ethoxylated alkylamine, a tertiary propoxylated alkylamine, a tertiary alkyldiamine, a tertiary ethoxylated alkyldiamine, a tertiary propoxylated alkyldiamine and mixtures thereof. The solvent or co-solvent is an alcohol which is the same as the ester portion of the second carboxylic acid herbicide ester.

The term “alkyl”, as used herein, includes within its scope straight chain, branched chain and cyclic hydrocarbon groups, which may be saturated or unsaturated. Unsaturated hydrocarbon groups may contain more than one unsaturated bond.

The herbicidal carboxylic acids useful in the emulsifiable concentrates of the present invention are well known in the art and are described, for example, in *The Pesticide Manual*, Fourteenth Edition, 2006. Preferred examples of herbicidal

- carboxylic acids include phosphorus-containing carboxylic acids such as glufosinate and glyphosate; benzoic acid herbicides such as dicamba; phenoxyalkanoic acid herbicides such as 2,4-D, MCPA or 2,4-DB; aryloxyphenoxypionic acid herbicides such as clodinafop, cyhalofop, fenoxaprop, fluazifop, haloxyfop and quinalofop; and pyridinecarboxylic acid and picolinic acid herbicides such as aminopyralid, clopyralid, fluroxypyr, picloram and triclopyr.

Preferred examples of the first carboxylic acid herbicide in the form of an amine salt include the amine salts of aminopyralid, picloram, clopyralid, and triclopyr.

- Preferred examples of the second carboxylic acid herbicide in the form of a C₄-C₈ alkyl or alkoxy-substituted alkyl ester include triclopyr butotyl, fluroxypyr meptyl, and picloram isooctyl.

- The amine salts of a tertiary amine include but are not limited to a tertiary alkylamine, a tertiary alkanolamine, a tertiary ethoxylated alkylamine, a tertiary propoxylated alkylamine, a tertiary alkyldiamine, a tertiary ethoxylated alkyldiamine, a tertiary propoxylated alkyldiamine and mixtures thereof. The tertiary alkylamines as used herein refer to trialkyl amines in which at least one of the alkyl groups is a C₁₂-C₁₈ alkyl group. The ArmeenTM products of Akzo Nobel, such as Armeen DMTD, Armeen DMCD, Armeen DMOD, Armeen DMSD, Armeen M2C, Armeen M2HT, Armeen 312, Armeen 316 and Armeen 380 are typical tertiary alkylamines. The tertiary alkanolamines as used herein refer to trialkyl alkanolamines, such as dimethylethanolamine, diethylethanolamine, triethanolamine, methyldiethanolamine, triisopropanolamine. The tertiary ethoxylated alkylamines as used herein refer to trialkyl amines in which at least one of the alkyl groups is a C₁₂-C₁₈ alkyl group and the remaining alkyl groups are hydroxyethyl groups. The EthomeenTM products of

Akzo Nobel, such as Ethomeen C/12, Ethomeen C/15, Ethomeen, C/25, Ethomeen S/12, Ethomeen S/15, Ethomeen, S/25, Ethomeen T/12, Ethomeen T/15, Ethomeen T/20, Ethomeen T/25 and Ethomeen T/30 are typical tertiary ethoxylated alkylamines. The tertiary propoxylated alkylamines as used herein refer to trialkyl amines in which at least one of the alkyl groups is a C₁₂-C₁₈ alkyl group and the remaining alkyl groups are hydroxypropyl groups. The PropomeenTM products of Akzo Nobel, such as Propomeen O/12 and Propomeen T/12, are typical tertiary propoxylated alkylamines. The tertiary alkylldiamines as used herein refer to tetraalkyl diamines in which at least one of the alkyl groups is a C₁₂-C₁₈ alkyl group. The DuomeenTM products of Akzo Nobel, such as Duomeen TTM are typical tertiary alkylldiamines. The tertiary ethoxylated alkylldiamines as used herein refer to tetraalkyl diamines in which at least one of the alkyl groups is a C₁₂-C₁₈ alkyl group and the remaining alkyl groups are hydroxyethyl groups. The EthoduomeenTM products of Akzo Nobel, such as Ethoduomeen T/13, Ethoduomeen T/20 and Etoduomeen T/25 are typical tertiary ethoxylated alkylldiamines.

The solvent or co-solvent is an alcohol which is the same as the ester portion of the second carboxylic acid herbicide ester. Suitable alcohols may be a C₄-C₈ alkyl or alkoxy-substituted alkyl alcohols, such as butanol, 2-methylpropanol, 1-methyl heptanol, 2-ethylhexanol, 2-butoxyethanol, 2-butoxy-1-methylethanol, 2-methoxy-1-methylethanol or cyclohexanol.

The emulsifiers used in the present invention are optional and can be anionic, cationic or nonionic in character. Typical emulsifiers include salts of alkyl sulfates, such as diethanolammonium lauryl sulfate; alkylarylsulfonate salts, such as calcium dodecylbenzenesulfonate; alkylphenol-alkylene oxide addition products, such as nonylphenol-C₁₈ ethoxylate; alcohol-alkylene oxide addition products, such as

tridecyl alcohol-C₁₆ ethoxylate; soaps, such as sodium stearate; alkylnaphthalene-sulfonate salts, such as sodium dibutylnaphthalenesulfonate; dialkyl esters of sulfosuccinate salts, such as sodium di(2-ethylhexyl) sulfosuccinate; sorbitol esters, such as sorbitol oleate; quaternary amines, such as lauryl trimethylammonium chloride;
5 polyethylene glycol esters of fatty acids, such as polyethylene glycol stearate; block copolymers of ethylene oxide and propylene oxide; and salts of mono and dialkyl phosphate esters.

The emulsifiable concentrates of the present invention are generally comprised of from about 0.01 to about 40 weight percent of the first carboxylic acid
10 herbicide in the form of the amine salt, from about 0.01 to about 70 weight percent of the second carboxylic acid herbicide in the form of the ester, from about 1 to about 60 weight percent of the alcoholic solvent and from about 0 to about 20 weight percent of the emulsifiers. More preferably, these emulsifiable concentrates are generally comprised of from about 1 to about 20 weight percent of the first carboxylic acid
15 herbicide in the form of the amine salt, from about 10 to about 60 weight percent of the second carboxylic acid herbicide in the form of the ester, from about 5 to about 50 weight percent of the alcoholic solvent and from about 2 to about 10 weight percent of the emulsifiers.

In addition to the compositions and uses set forth above, the present invention
20 also embraces the composition and use of these emulsifiable concentrates in combination with one or more additional compatible ingredients. Other additional ingredients may include, for example, one or more other pesticides, dyes, and any other additional ingredients providing functional utility, such as, for example, stabilizers, fragrances, viscosity-modifying additives, suspension aids, dispersants,
25 and freeze-point depressants.

The emulsifiable concentrates are generally prepared by contacting the first carboxylic acid herbicide in the acid form with the tertiary amine in the alcohol solvent and with the second carboxylic acid herbicide ester and optionally any emulsifiers with stirring until a homogeneous solution is obtained. More particularly, while the order of addition is not critical, the tertiary amine can be conveniently added with stirring to a suspension of the first carboxylic acid herbicide in the acid form in the alcohol solvent. Once a clear solution is obtained, the second carboxylic acid herbicide ester and emulsifiers can be added and the resulting mixture stirred until a single phase is obtained.

The following examples illustrate the present invention.

Example 1:

Ethoxylated tallowalkylamine (7.4 g, Ethomeen T/12, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (4.0 g, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (62.3 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To the above mixture, technical triclopyr butoxyethyl ester (16.5 g, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.3 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.6 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 2:

Ethoxylated soyaalkylamine (610.8 g, Ethomeen S/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (344.1, purity 93%, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (4698 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (1848.7 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (266.7 g, Ninate 411, from Stepan), EO-PO block copolymer (293.3 g, Toximul 8320, from Stepan), and ethoxylated castor oil (240 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 3:

Ethoxylated cocoalkylamine (12.58 g, Ethomeen C/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (8.39, purity 95.3%, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (49.0 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (34.66 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan) and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 4:

Ethoxylated cocoalkylamine (12.58 g, Ethomeen C/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (8.39, purity 95.3%, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (39.1 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (46.22 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan) and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 5:

Ethoxylated soyaalkylamine (3.34 g, Ethomeen S/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (1.88, purity 93 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (31.99 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 6:

Ethoxylated soyaalkylamine (6.68 g, Ethomeen S/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.76, purity 93 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (27.84 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 7:

Ethoxylated cocoalkylamine (5.93 g, Ethomeen C/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical clopyralid acid (3.64, purity 92.2 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (27.95 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 8:

Ethoxylated cocoalkylamine (4.72 g, Ethomeen C/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical picloram acid (4.49, purity 77.9 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (28.20 g, Butyl Cellosolve, from The Dow Chemical Company).
5 Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul
10 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 9:

Ethoxylated oleylamine (6.70 g, Ethomeen O/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical
15 aminopyralid acid (3.67, purity 95.3 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (27.05 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate
20 (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 10:

Ethoxylated soyaalkylamine (9.20 g, Ethomeen S/15, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.67, purity 95.3 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (27.84 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 11:

Propoxylated oleylamine (7.23 g, Propomeen O/12, purity 98%, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.67, purity 95.3 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (26.51 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.33 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.67 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 12:

Ethoxylated tallowdiamine (4.37 g, Ethoduomeen T/13, from Akzonobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.76, purity 93 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (20.0 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences), Aromatic 150 (12.2 g, from ExxonMobil), and emulsifiers including amine salt of dodecylbenzene sulfonate (3.3 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.60 g, Toximul 8320, from Stepan) and ethoxylated castor oil (3.0 g, Agnique CSO 40, from Cognis) were added with stirring until a single phase was obtained.

Example 13:

Trimethyl tallowdiamine (3.7 g, Duomeen TTM, from Akzonobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.76, purity 93 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (17.0 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.32 g, purity 96.3%, from Dow AgroSciences), Aromatic 150 (16.9 g, from ExxonMobil), and emulsifiers including EO-PO block copolymer (3.60 g, Toximul 8320, from Stepan) and ethoxylated castor oil (3.0 g, Agnique CSO 40, from Cognis) were added with stirring until a single phase was obtained.

Example 14:

Tallowalkyl-dimethylamine (5.4 g, Armeen DMTD, from Akzonobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.76, purity 93 %, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (17.0 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (69.3 g, purity 96.3%, from Dow AgroSciences), Aromatic 150 (15.2 g, from ExxonMobil), and emulsifiers including EO-PO block copolymer (3.60 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Agnique CSO 40, from Cognis) were added with stirring until a single phase was obtained.

Example 15:

Ethoxylated tallowalkylamine (5.47 g, Ethomeen T/12, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.23 g, purity 93%, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (25 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (26 g, purity 96.3%, from Dow AgroSciences), picloram isooctyl (9.25g, purity 95%, from Dow AgroSciences), methylated vegetable oil (27.7 g, Edenor ME C12-18, from Cognis), and emulsifiers including amine salt of dodecylbenzene sulfonate (3.0 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (4.0 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 16:

Ethoxylated tallowalkylamine (5.47 g, Ethomeen T/12, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (3.23 g, purity 93%, from Dow AgroSciences) and ethylene glycol monobutyl ether solvent (25 g, Butyl Cellosolve, from The Dow Chemical Company). Stirring was continued until a clear solution was obtained. To above mixture, technical triclopyr butoxyethyl ester (26 g, purity 96.3%, from Dow AgroSciences), picloram isooctyl (9.25g, purity 95%, from Dow AgroSciences), Aromatic solvent (28.1 g, Aromatic 150ND, from Exxon), and emulsifiers including amine salt of dodecylbenzene sulfonate (3.0 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (4.0 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 17:

Ethoxylated soyaalkylamine (8.68 g, Ethomeen S/12, from Akzo Nobel) was added with stirring at 45 ± 5 °C to a suspension of technical aminopyralid acid (5.25 g, purity 95.3%, from Dow AgroSciences), 2-ethylhexanol (20.53 g, from Aldrich), and dimethylalkyl amide (30 g, Agnique KE 3658, from Cognis). Stirring was continued until a clear solution was obtained. To above mixture, pre-melted technical fluroxypyr meptyl technical (22.1 g, purity 97.7%, from Dow AgroSciences), picloram isooctyl (15.4 g, purity 95%, from Dow AgroSciences) and emulsifiers including amine salt of dodecylbenzene sulfonate (3.3 g, Bio-Soft N-411, from Stepan), EO-PO block copolymer (3.7 g, Toximul 8320, from Stepan), and ethoxylated castor oil (3.0 g, Toximul 8242, from Stepan) were added with stirring until a single phase was obtained.

Example 18:

The stability of the emulsifiable concentrates prepared in Examples 1-17 were assessed in accelerated storage tests after 2 weeks at 54 °C and after 8 weeks at 40 °C. The results are summarized in Table 1.

5 Table 1: Chemical Stability of Examples During Storage at Accelerated Storage Temperature

Example	% Retention of Active 1		% Retention of Active 2		% Retention of Active 3	
	2-wk at 54 °C	8-wk at 40 °C	2-wk at 54 °C	8-wk at 40 °C	2-wk at 54 °C	8-wk at 40 °C
1 ^a	96.7	96.2	99.9	99.9		
2 ^a	99.9	99.5	99.5	98.1		
3 ^a	97.9	96.6	98.0	96.7		
4 ^a	99.7	95.1	96.4	95.2		
5 ^a	96.7	98.0	98.6	97.6		
6 ^a	99.9	99.5	99.5	98.1		
7 ^a	99.3	97.7	99.1	95.7		
8 ^a	98.7	n/a	98.8	n/a		
9 ^a	96.0	95.3	95.9	95.1		
10 ^a	96.2	95.8	95.7	95.1		
11 ^a	96.7	96.7	95.9	95.1		
15 ^b	97.9	n/a	95.0	n/a	97.0	n/a
16 ^b	99.9	n/a	95.5	n/a	97.8	n/a
17 ^c	99.9	n/a	99.9	n/a	99.9	n/a

^a Active 1: aminopyralid; Active 2: triclopyr butoxyethyl ester;

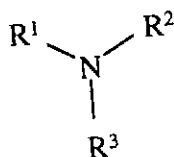
10 ^b Active 1: aminopyralid; Active 2: picloram isooctyl ester; Active 3; triclopyr butoxyethyl ester;

^c Active 1: aminopyralid; Active 2: picloram isooctyl ester; Active 3; fluroxypyr meptyl ester.

What is claimed:

1. A stable emulsifiable concentrate which comprises:

a) a first carboxylic acid herbicide in the form of a tertiary amine salt in which the tertiary amine has the formula



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wherein R^1 , R^2 and R^3 independently represent a C_1 - C_{18} alkyl, optionally substituted with hydroxyl, amino or alkoxy groups;

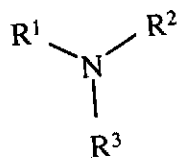
b) a second carboxylic acid herbicide in the form of a C_4 - C_8 alkyl or alkoxy-substituted alkyl ester;

10

c) an alcohol solvent or co-solvent which is the same as the ester portion of the second carboxylic acid herbicide ester; and

d) optionally emulsifiers.

2. The stable emulsifiable concentrate of Claim 1 in which the tertiary amine has the formula



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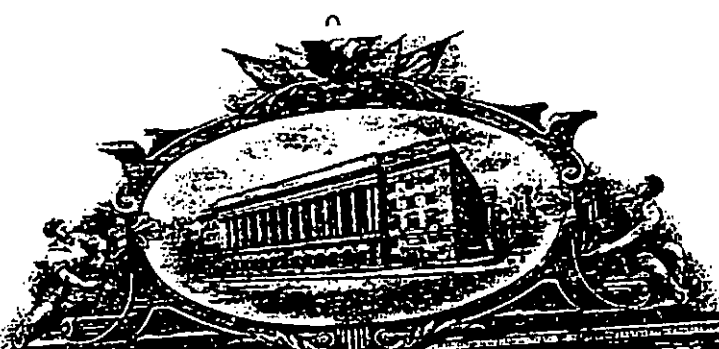
in which at least one of R^1 , R^2 and R^3 represents a C_{12} - C_{18} alkyl group.

3. The stable emulsifiable concentrate of Claim 1 which comprises from about 0.01 to about 40 weight percent of the first carboxylic acid herbicide in the form of the amine salt, from about 0.01 to about 70 weight percent of the second carboxylic acid herbicide in the form of the ester, from about 1 to about 60 weight
5 percent of the alcoholic solvent and from about 0 to about 20 weight percent of the emulsifiers.

4. A method of preparing the emulsifiable concentrate of Claim 1 which comprises contacting the first carboxylic acid herbicide in the acid form with the tertiary amine in the alcohol solvent and with the second carboxylic acid herbicide
10 ester and optionally any emulsifiers with stirring until a homogeneous solution is obtained.

ABSTRACT

Stable emulsifiable concentrates containing a first herbicidal carboxylic acid in the salt form and a second herbicidal carboxylic acid in the ester form are prepared by using a tertiary amine to prepare the salt of the first herbicidal carboxylic acid and
5 by using an alcohol which is the same as the ester portion of the second carboxylic acid herbicide as the solvent.



LOS ESTADOS UNIDOS DE AMÉRICA

A TODO AQUEL A QUIEN CONCIERNA LO PRESENTE
DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS
Oficina de Patentes y Marcas de los Estados Unidos

Mayo 20, 2011

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NÚMERO DE SOLICITUD: 61/109,196
FECHA DE PRESENTACIÓN: Octubre 29, 2008

AL CÓDIGO DE PAÍS Y EL NÚMERO DE SU SOLICITUD DE PRIORIDAD, QUE SE VA A UTILIZAR PARA PRESENTACIÓN EN EL EXTRANJERO DE CONFORMIDAD CON LA CONVENCION DE PARIS ES US61/109,196



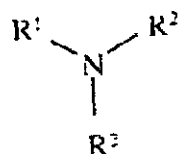
Por la Autoridad del
De conformidad con la Secretaría de Comercio
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Funcionario Certificador

Lo que se reivindica es:

1. Un concentrado emulsionable estable que contiene:

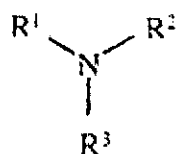
- a) un primer ácido carboxílico herbicida en la forma de una sal de amina terciaria en la que la amina terciaria tiene la fórmula



en donde R^1 , R^2 y R^3 representan independientemente un alquilo C_1-C_{18} , opcionalmente sustituido con grupos hidroxilo, amino o alcoxi;

- b) un segundo ácido carboxílico herbicida en la forma de un alquilo C_4-C_8 o éster de alquilo sustituido por alcoxi;
- c) un disolvente de alcohol o co-disolvente que es el mismo como la porción de éster del segundo ácido carboxílico herbicida éster; y
- d) opcionalmente emulsificadores.

2. El concentrado emulsionable estable de la Reivindicación 1 en el que la amina terciaria tiene la fórmula



en la que por lo menos uno de R^1 , R^2 y R^3 representa un grupo alquilo C_{12} - C_{18} .

3. El concentrado emulsionable estable de la Reivindicación 1 que comprende de aproximadamente 0.01 a aproximadamente 40 por ciento en peso del primer ácido carboxílico herbicida en la forma de la sal amina, de aproximadamente 0.01 a aproximadamente 70 por ciento en peso del segundo ácido carboxílico herbicida en la forma del éster, de aproximadamente 1 a aproximadamente 60 por ciento en peso del disolvente alcohólico y de aproximadamente 0 a aproximadamente 20 por ciento en peso de los emulsificadores.
4. Un método para prepara el concentrado emulsionable de la Reivindicación 1 que comprende poner en contacto el primer ácido carboxílico herbicida en la forma ácida con la amina terciaria en el disolvente de alcohol y con el segundo ácido carboxílico herbicida éster y opcionalmente cualesquier emulsificadores con agitación hasta que se obtiene una solución homogénea.