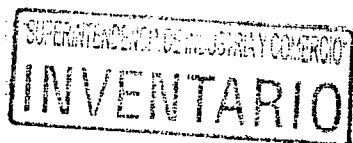


PCT

Industria y Comercio

SUPERINTENDENCIA



**SOLICITUD
PATENTE DE INVENCION**

10-37473

21. **EXPEDIENTE N°**

54. **TÍTULO** MÉTODO DE MARCACIÓN

51. **CLASIFICACIÓN INTERNACIONAL** A23L 1/03

71. **SOLICITANTE** JOHNSON MATTHEY PLC.

DOMICILIO London, Gran Bretaña

74. **APODERADO** DILIA MARIA RODRIGUEZ D'ALEMAN

22. **BOGOTÁ, D.C.**

Título
28-04-2010



**FORMULARIO ÚNICO DE SOLICITUD DE PATENTE
PCT
ENTRADA EN FASE NACIONAL**

1

SOLICITUD DE:

☒

Patente de Invención

☐

Patente de Modelo de Utilidad

☒

Capítulo I.

☐

Capítulo II.

2

**SOLICITANTE
(71)**

Nombre: Johnson Matthey PLC.

Dirección: 40-42 Hatton Garden, London
EC1N 8EE, Gran Bretaña.

Nacionalidad o domicilio: London, Gran
Bretaña.

Lugar de Constitución: Gran Bretaña

Teléfono:

Fax:

E-mail

IDENTIFICACIÓN

C.C.

☐

NIT

☐

C.E.

☐

Otro

☐

Número

3

**REPRESENTANTE
O APODERADO
(74)**

Nombre: DILIA MARÍA RODRÍGUEZ
D'ALEMAN

Dirección: Carrera 11 No. 86-53, piso 6

Teléfono: 6 181088

Fax: 6350824

E-mail: clarkemodet@clarkemodet.com.co

IDENTIFICACIÓN

C.C.

☒

NIT

☐

C.E.

☐

Otro

☐

Número

41.654.882

TP

20824 CSJ

4

**INVENTOR (ES)
(72)**

Nombre: VER HOJA ANEXA

Dirección:

Nacionalidad o domicilio:

5

PCT (86)

Solicitud Internacional No. PCT/GB2008/050656

Fecha 4 de agosto de 2008

Publicación Internacional No. WO 2009/040563 A1

Fecha 2 de abril de 2009

6 **TÍTULO (54)**

MÉTODO DE MARCACIÓN

7 **Clasificación Internacional (51)**

A23L 1/03

8 **Prioridad**

SI ☒ NO ☐

(33) País de Origen

GRAN BRETAÑA

(32) Fecha

28 de septiembre de 2007

(31) Número de Solicitud

0718934.3

9 **Comprobante de pago No.** 10-18.042 // 10-18.091 // 10-11.084 // 10-11.085

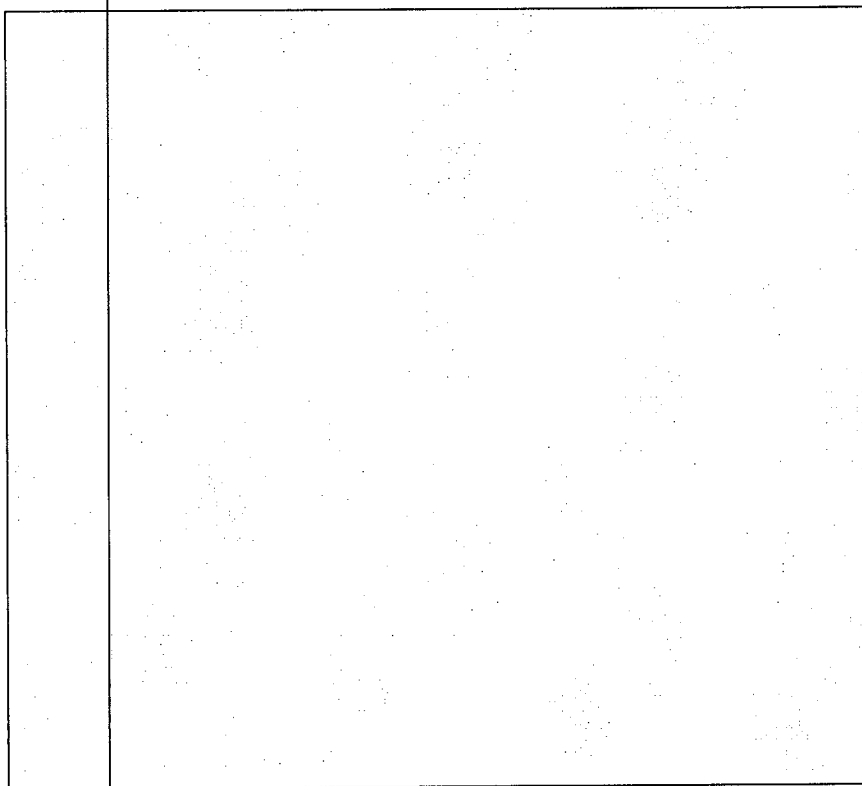
Fecha 08/03/10 // 08/03/10 // 10/02/10 // 10/02/10

10

ANEXOS

- ☐ Comprobante de pago de la tasa de presentación de la solicitud
- ☐ Documento que acredite la existencia y representación legal cuando el solicitante sea persona jurídica
- ☐ Poderes si fuere el caso
- ☐ Documento de cesión del inventor al solicitante o a su causante
- ☐ Declaraciones
- ☐ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☐ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☐ Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
- ☐ Traducción del examen preliminar internacional efectuado por la IPEA
- ☐ De ser el caso copia de contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas
- ☐ De ser el caso, certificado de depósito del material biológico
- ☐ Arte final 12 X 12 .
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☐ De ser el caso, modificaciones efectuadas a la solicitud internacional
- ☐ Otros Opinión escrita. * Modificaciones en fase Internacional de las reivindicaciones.

11 FIGURA CARACTERÍSTICA



12 Solicito la concesión de la patente

NOMBRE : DILIA MARÍA RODRÍGUEZ D'ALEMAN

FIRMA:

C.C. 41.654.882

T.P. 20824

ANEXOS

INVENTORES

1.)

GREEN, Darrell

(5 Hallmoor Close, Kirklevington, Yarm Cleveland TS15 9NN, Gran Bretaña);

2.)

MCCALLIEN, Duncan William John

(108 Neville Road, Darlington County Durham DL3 8NE, Gran Bretaña);

3.)

LLEWELLYN, Christopher Thomas

(49 Appleby close, Darlington County Durham DL1 4AJ, Gran Bretaña).

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

CERTIFICACION DE EXCEDENTE : 10 - 18,042
FECHA : MARZO 8 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 10-037473- -00000-0000

Fecha: 2010-04-05 15:23:30 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 411 PRESENTACION Folios: 86

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	Vr. PAGO
CLARKE MODET Y CO. COLOMB	CONSIGNACION	BANCO DE BOGOTA	062754387	16937491	08/03/2010	29,370,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	99 OTROS SERVICIOS ADMINISTRATIVOS
			TOTAL :
			500,000.00
			500,000.00

SON: QUINIENTOS MIL PESOS

RESPONSABLE :

\$

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

ESTA CERTIFICACION DE EXCEDENTE DE PAGO SOLO PODRA SER UTILIZADA
COMO PARTE DE LA CANCELACION DE UNA TARIFA VIGENTE Y NO PODRA SER
SUSTITUIDA POR NINGUN RECIBO.

P-2487

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

CERTIFICACION DE EXCEDENTE : 10 - 18,091
FECHA : MARZO 8 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 10-037473- -00000-0000

Fecha: 2010-04-05 15:23:30 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 411 PRESENTACION Folios: 86

**** CONSIGNACION ****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PAGO	Vr. PAGO
CLARKE MODET Y CO. COLOMBIA	CONSIGNACION	BANCO DE BOGOTA	062754367	16937491	08/03/2010	59,370,000.00

**** CONCEPTO ****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	
99		OTROS SERVICIOS ADMINISTRATIVOS	200,000.00
TOTAL :			\$ 200,000.00

SON: DOSCIENTOS MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

ESTA CERTIFICACION DE EXCEDENTE DE PAGO SOLO PODRA SER UTILIZADA
COMO PARTE DE LA CANCELACION DE UNA TARIFA VIGENTE Y NO PODRA SER
SUSTITUIDA POR NINGUN RECIBO.

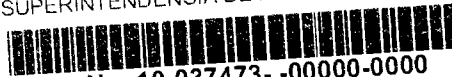
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

CERTIFICACION DE EXCEDENTE : 10 - 11,084

FECHA : FEBRERO 10 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 10-037473-00000-0000

Fecha: 2010-04-05 15:23:30 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 411 PRESENTACION Folios: 86

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
CLARKE MODET Y CO. COLOMB	CONSIGNACION	BANCO DE BOGOTA	062754387	175684132	10/02/2010	68,215,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	
		99 OTROS SERVICIOS ADMINISTRATIVOS	5,000.00
		TOTAL :	\$ 5,000.00

SON: CINCO MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

ESTA CERTIFICACION DE EXCEDENTE DE PAGO SOLO PODRA SER UTILIZADA
COMO PARTE DE LA CANCELACION DE UNA TARIFA VIGENTE Y NO PODRA SER
SUSTITUIDA POR NINGUN RECIBO.

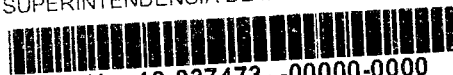
8

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

CERTIFICACION DE EXCEDENTE : 10 - 11,085
FECHA : FEBRERO 10 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 10-037473- -00000-0000

Fecha: 2010-04-05 15:23:30 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 411 PRESENTACION Folios: 86

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CLARKE MODET Y CO. COLOMB	CONSIGNACION	BANCO DE BOGOTA	062754387	175684132	10/02/2010	68,215,000.00

***** C O N C E P T O *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	
		99 OTROS SERVCIOS ADMINISTRATIVOS	5,000.00
		TOTAL :	\$ 5,000.00

SON: CINCO MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

ESTA CERTIFICACION DE EXCEDENTE DE PAGO SOLO PODRA SER UTILIZADA
COMO PARTE DE LA CANCELACION DE UNA TARIFA VIGENTE Y NO PODRA SER
SUSTITUIDA POR NINGUN RECIBO.

TRADUCCIÓN OFICIAL No. 05/682 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 Juan Pablo Piedrahita Aguilera, Traductor e Intérprete Oficial debidamente reconocido de conformidad con el Certificado de Idoneidad Profesional No. 0045 expedido por la Universidad Nacional de Colombia, por el Ministerio de Relaciones Exteriores y autorizado por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003.

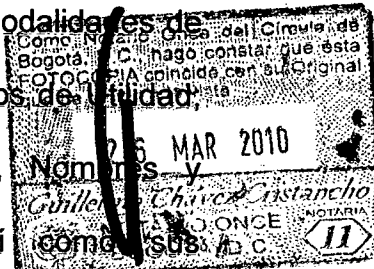
(Se traduce un poder otorgado por la compañía JOHNSON MATTHEY PLC, firmado por Sara Hillary Margaret Gibson, con fecha Noviembre 8, 2005 y Apostilla No.G855043, escritos en inglés.)

COLOMBIA

PODER

Yo (nosotros) Hillary Margaret Gibson, representante legal de JOHNSON MATTHEY PLC, sociedad constituida y existente bajo las leyes del Reino Unido y en actual cumplimiento de su objeto social, con domicilio en 2-4 Cockspur Street, Trafalgar Square, Londres SW1 Y 5BQ, Reino Unido, por el presente nombro (nombramos) a DILIA MARÍA RODRÍGUEZ D'ALEMÁN, identificada con cédula de ciudadanía No. 41.654.882 de Bogotá y Tarjeta Profesional 20824 y CLAUDIA LUCIA CARO RAMIREZ, identificada con Tarjeta Profesional 36448 y cédula de ciudadanía No 40.017.374 de Tunja, con domicilio en Bogotá, Colombia, para que actuando en su orden en nombre de la otorgante la representen ante cualquier entidad, autoridad y/o persona, especialmente ante las del orden Administrativo, Contencioso Administrativo, Judicial, Tribunales de Arbitramento y/o cualquier otro en lo referente a la siguiente:

1) Solicitar, tramitar, obtener y/o registrar cualesquiera de las modalidades de Propiedad Industrial, tales como: Patentes de Invención, Modelos de Utilidad, Diseños Industriales, variedades vegetales, Marcas, Lemas, Nombres y Enseñas Comerciales y Denominaciones de Origen; así como sus renovaciones, prórrogas, traspasos, cambios de nombre y/o domicilio, contratos



y licencias.

2) Solicitar, tramitar, obtener, y/o registrar derechos de autor, en cualquiera de sus presentaciones así como la protección de secretos industriales y know-how.

3) Solicitar, tramitar, obtener y/o registrar registros sanitarios, permisos y/o licencias de funcionamiento; así como sus renovaciones o prórrogas, cesiones, trasposos, cambios de nombre y/o domicilio, contratos y licencias.

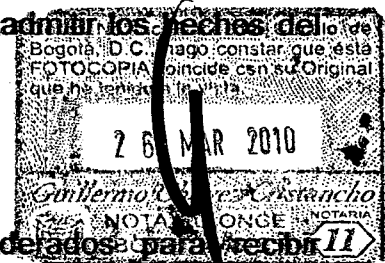
4) Ejercer acciones de oposición, observación, reclamos, reivindicaciones, reconsideración, reposición, apelación, cancelación administrativa o judicial, nulidad, protección al consumidor, concesión de licencias, protección de secretos industriales y demás acciones y recursos relacionados con derechos derivados de los asuntos arriba indicados y en contra de la competencia desleal, acciones derivadas de la obtención o explotación de licencias, acciones de indemnización de perjuicios. También podrán intervenir en juicios civiles, comerciales, penales, contencioso-administrativos, tutelas y de policía; acciones o juicios promovidos por el mandante o contra él.

5) Registrar nombres de dominio ante la entidad competente.

6) En el ejercicio de este mandato los mandatarios arriba mencionados quedan facultados para conciliar, cancelar, transigir, aceptar cláusulas compromisorias, desistir, recibir y tomar posesión de la cosa objeto de litigio y renunciar o desistir derechos concedidos o en curso de concesión, admitir los hechos del proceso.

7) Ratificar o no la agencia oficiosa.

8) Así mismo facultamos a los mencionados apoderados para recibir



TRADUCCION OFICIAL No. 05 / 6 8 2
JUAN PABLO PIEDRAHITA AGUIRRE
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

notificaciones y designar apoderados judiciales o extrajudiciales, sustituir el presente poder y revocar las sustituciones que hicieren.

Dado y firmado en Billingham, Cleveland, Reino Unido, hoy día 8 de Noviembre, 2005.

Por: (Firmado) SARA HILLARY MARGARET GIBSON

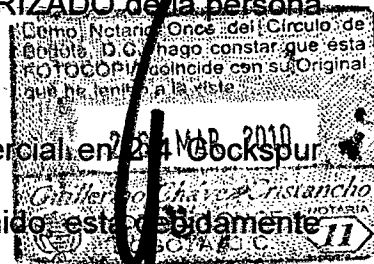
Rúbrica (Sello Notarial en Relieve)

CERTIFICADO NOTARIAL (Cuando el solicitante es una SOCIEDAD)

(Poderes otorgados en El Salvador, México, Estados Unidos de América y Venezuela)

Expedido hoy día 8 de Noviembre, 2005, el suscrito Notario CERTIFICA que:

- 1). SARA HILLARY MARGARET GIBSON, (nombre de quien firma el poder), mayor de edad y domiciliada en el Reino Unido, suscribió el anterior documento.
- 2) El otorgante le es conocido personalmente y tiene capacidad para firmar el documento.
- 3) El otorgante ha suscrito el anterior documento en su calidad de ABOGADO PRINCIPAL PARA PATENTES & FUNCIONARIO AUTORIZADO de la persona jurídica JONSON MATTHEY PLC.
- 4) La mencionada persona jurídica con domicilio comercial en 24 Gockspur Street, Trafalgar Square, Londres SW1 Y 5BQ, Reino Unido, está debidamente constituida, tiene actualmente existencia legal y el fin para el cual se otorga este poder se encuentra dentro de su objeto social.



TRADUCCION OFICIAL No. 05 / 6 8 2
JUAN PABLO PIEDRAHITA AGUIRRE
TRADUCTOR E INTERPRETE OFICIAL
R.L. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

5) El otorgante tiene en efecto la capacidad referida y su representación es legal y está autorizado para otorgar este poder.

6) Fundamento las certificaciones 3), 4) y 5) en los documentos auténticos que para tal fin me fueron exhibidos.

(Firmado) ilegible, Notario Público

Nota: El Consulado de Colombia debe autenticar la firma del Notario Público.

Para todos los demás países el Señor Cónsul de Colombia o ante quien se otorgue, debe expedir una certificación dejando constancia de: 1) la existencia legal de la sociedad, 2) que cumple actualmente con su objeto social, y 3) que la persona o personas que otorgan este poder están facultadas para hacerlo. El Cónsul también certificará que los tuvo a la vista los documentos que prueban y acreditan tales circunstancias.

LEGALIZACIÓN POR EL CÓNSUL DE COLOMBIA A O POR APOSTILLA

(Sello Notarial Redondo Rojo de Oblea en Releive)

APOSTILLA

(Convención de la Haya de Octubre 5 de 1961)

REINO UNIDO DE LA GRAN BRETAÑA E IRLANDA DEL NORTE

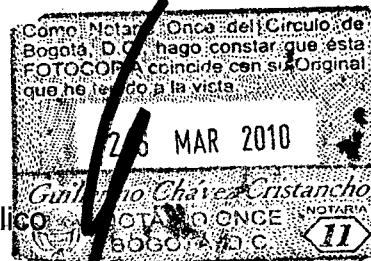
1. País: Reino Unido de la Gran Bretaña e Irlanda del Norte

Este documento público

2. Ha sido firmado por Frederick John Pacey

3. Obrando en calidad de Notario Público

4. Lleva el sello/estampilla de dicho Notario Público



CERTIFICADA

5. En Londres

6. Hoy 14 de Noviembre, 2005

7. Por El Secretario de Estado Principal de Su Majestad para Relaciones Exteriores y de la Mancomunidad
8. Certificado Número **G855043**
9. Sello (Sello Redondo en Relieve) (Sello Pre-impreso)
10. Firma (Firmado)
K. Khan

Por el Secretario de Estado

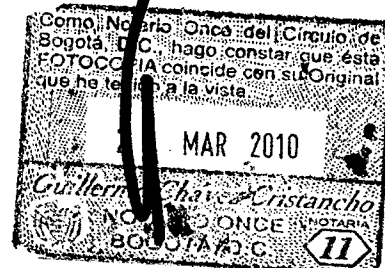
Si este documento se usare en un país que no sea parte de la Convención de la Haya del 5 de octubre de 1961, debe presentarse a la sección consular de la misión que represente dicho país. La Apostilla o el certificado de legalización solamente confirma que la firma, el sello y/o estampilla sobre el documento son auténticos. No significa que el contenido del documento sea correcto ni que la Oficina de Asuntos Exteriores de la Mancomunidad apruebe el contenido.

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para su confrontación y a la cual me remito.

Bogotá, Diciembre 13, 2005.

Juan Pablo Piedrahita Aguilera
05/602

TRADUCCION OFICIAL No.
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 716 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA



COLOMBIA

Carrera 11 N° 86-53 Piso 6 Bogotá Colombia Tel: (57 1) 6181088 Fax: (57 1) 6350824 Email: info@clarkemodet.com.co

PODER

Yo (nosotros), abajo firmante(s)

en mi (nuestro) carácter de representante(s) legales de

una sociedad organizada y existente de acuerdo con las leyes de

y en actual cumplimiento de su objeto social, con domicilio en

por el presente instrumento confiero (conferimos) poder especial a favor de DILIA MARIA RODRIGUEZ D'ALEMAN, con Cédula de Ciudadanía No. 41.654.882 de Bogotá, y tp. 20824 y CLAUDIA LUCIA CARO RAMIREZ, con Cédula de Ciudadanía No. 40.017.374 de Tunja, y tp. 36448, con domicilio en Bogotá, Colombia, para que actuando en su orden en nombre del (de la) otorgante le (la) representen ante cualquier entidad, autoridad y/o persona, especialmente ante las del orden Administrativo, Contencioso Administrativo, Judicial, Tribunales de Arbitramento y/o cualquier otro en lo referente a los siguientes asuntos:

- 1) Solicitar, tramitar, obtener y/o registrar cualquiera de las modalidades de Propiedad Industrial, tales como: patentes de invención, modelos de utilidad; diseños industriales, variedades vegetales; marcas, lemas, nombres y enseñanzas comerciales y denominaciones de origen; así como sus renovaciones, prórrogas, transferencias, cambios de nombre y/o domicilio, contratos y licencias.
- 2) Solicitar, tramitar, obtener y/o registrar derechos de autor, en cualquiera de sus presentaciones así como la protección de secretos industriales y know-how.
- 3) Solicitar, tramitar, obtener y/o registrar registros sanitarios, permisos y/o licencias de funcionamiento; así como sus renovaciones o prórrogas, transferencias, cambios de nombre y/o domicilio, contratos y licencias.
- 4) Ejercer acciones de oposición, observación, reclamos, reconsideración, reposición, apelación, cancelación administrativa o judicial, nulidad, protección al consumidor, concesión de licencias, protección de secretos industriales y demás acciones y recursos relacionados con derechos derivados de los asuntos arriba indicados y en contra de la competencia desleal, acciones derivadas de la obtención o explotación de licencias, acciones de indemnización de perjuicios. También podrá(n) intervenir en juicios civiles, comerciales, penales, contencioso-administrativos, tutelas y de policía; en acciones o juicios promovidos por el (la) mandante o en contra el (ella).
- 5) Registrar nombres de dominio ante la entidad competente.
- 6) En el ejercicio de este mandato los mandatarios arriba mencionados quedan facultados para: conciliar, cancelar, transigir, comprometer en árbitros, desistir, recibir y tomar posesión de la cosa objeto de litigio y renunciar o desistir a derechos concedidos o en curso de concesión, admitir los hechos del proceso.
- 7) Ratificar o no la agencia oficiosa.
- 8) Así mismo faculto (facultamos) a los mencionados apoderados para recibir notificaciones y designar apoderados judiciales o extrajudiciales, sustituir el presente poder y revocar las sustituciones que hicieron.

Dado y firmado en

a los días de

POWER OF ATTORNEY

I (we), the undersigned SARA HILLARY MARGARET GIBSON

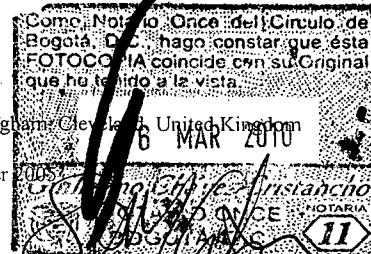
legal representative(s) of JOHNSON MATTHEY PLC

an organization existing under the laws of United Kingdom

and in present execution of its business activity, domiciled at 2-4 Cockspur Street, Trafalgar Square, London SW1Y 5BQ, United Kingdom

do hereby grant POWER OF ATTORNEY to DILIA MARIA RODRIGUEZ D'ALEMAN, identification card No. 41.654.882 of Bogotá, and tp. 20824 and CLAUDIA LUCIA CARO RAMIREZ, tp. 36448, identification card No. 40.017.374 of Tunja, residing in Bogotá, Colombia, to act in the order of their appointment in behalf of grantor before any entity, authority and/or natural or juridical person, specially before those Administrative, Administrative-Contentious, Judicial, arbitration courts, and/or any other, in all matters concerning the following:

- 1) To apply, process, obtain and/or register any of the modalities of Industrial Property, such as: Patents of Invention, Utility Models; Designs, plant varieties; Marks, Slogans, Trade Names and emblems and appellations of Origin; as well as their renewals, assignments, changes of name and/or domicile, agreements and licenses.
- 2) To apply, process, obtain and/or register copyrights of any kind as well as protection of industrial secrets or know-how.
- 3) To apply, process, obtain and/or register sanitary registrations, operating authorizations and/or licenses; as well as their renewals or assignments, changes of name and/or domicile, agreements and licenses.
- 4) To bring actions of opposition, observations, claims, reconsideration, appeal or legal remedies, cancellations, nullity, protection to the consumer, granting of licenses, protection of trade secrets and other actions related with rights derived from the above-mentioned matters and against the unfair competition, actions resulting from the obtaining or exploitation of licenses, recovering damages actions. They can also intervene or participate in Civil, Commercial, Criminal or Contentious-Administrative Trials; the actions for writ mandamus, police actions; in actions, lawsuits or litigations instituted by the grantor or against him.
- 5) To register domain names before the competent entity.
- 6) To the effect of this mandate the above-named proxy are empowered to: conciliate, cancel, settle, submit to arbitration, withdraw and to receive and take possession of the litigation related object and waive or renounce the rights granted or in process of granting, admit the facts of the case.
- 7) To ratify or not the officious agency.
- 8) I (we) hereby appoint the afore mentioned attorneys with powers to receive notifications and to designate judicial and extrajudicial attorneys, substitute this Power of Attorney and to revoke such substitutions.



Granted and signed at Billingham, Cleveland, United Kingdom

on this 8th day of November 2005

Firma / signature

SARA HILLARY MARGARET GIBSON

05 / 6 8 2

TRADUCCION OFICIAL NO. _____
JUAN PABLO MEDRANIA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL

12

CERTIFICADO NOTARIAL

(Cuando el solicitante es SOCIEDAD)

(Poderes otorgados en: El Salvador, Estados Unidos, México y Venezuela)

A los _____ días del mes de _____ de _____
el Notario que suscribe DA FE de que:

1. _____
(nombre de la persona que firma el poder)

mayor de edad y domiciliado en _____
firmó de su puño y letra el documento que antecede.

2. Conoce al (a la) otorgante y que este (a) está legalmente capacitado para el otorgamiento.

3. El otorgante ha firmado el referido documento en su carácter de _____
de la persona jurídica _____

4. La citada persona jurídica con sede en _____
está legalmente constituida, que tiene actualmente existencia legal y que el acto para el cual se ha otorgado este poder está comprendido entre los que constituyen su objeto social.

5. El otorgante tiene efectivamente la representación que ostenta, que esta es legítima y que está facultado para otorgar este poder.

6. Las anteriores certificaciones de los puntos 3, 4 y 5, me constan porque he tenido a la vista los documentos auténticos.

Notario Público

NOTA: A continuación de lo anterior, el Cónsul de Colombia debe autenticar la firma del Notario Público.

CERTIFICADO NOTARIAL (Cuando el solicitante es INDIVIDUO)

A los _____ días del mes de _____ de _____
el Notario que suscribe DA FE de que:

1. _____
(nombre de la persona que firma el poder)

mayor de edad y domiciliado en _____
firmó en su presencia el documento que antecede, conoce al otorgante y que este está legalmente capacitado para el otorgamiento.

Notario Público

NOTA: A continuación de lo anterior, el Cónsul de Colombia debe autenticar la firma del Notario Público.

Para todos los demás países el Señor Cónsul de Colombia o ante quien se otorgue, debe expedir una certificación dejando constancia 1) de la existencia legal de la sociedad, 2) de que esta ejerce actualmente su objeto social, y 3) de que la persona o personas que otorgan el poder están facultadas para hacerlo, dejando constancia así mismo de que tuvo a la vista las pruebas que acrediten tales circunstancias.

LEGALIZACIÓN POR EL CONSUL DE COLOMBIA O POR APOSTILLA

NOTARIAL CERTIFICATE

(When the applicant is a CORPORATION)

(Powers of attorney granted in: El Salvador, Mexico, U.S.A. and Venezuela)

This 8th day of November, 2005,
the undersigned Notary CERTIFIES that:

1. **SARA HILLARY MARGARET GIBSON**
(name of the person who signs the power of attorney)

of legal age and domiciled in United Kingdom set her hand on the foregoing document.

2. The grantor is to him personally known and that he/she has legal capacity to execute the document.

3. The grantor has executed the foregoing document in his capacity of **SENIOR PATENT ATTORNEY & AUTHORISED OFFICER** of the juridical person **JOHNSON MATTHEY PLC**

4. The mentioned juridical person with place of business in 2-4 Cockspur Street, Trafalgar Square, London SW1Y 5BQ, United Kingdom is duly organized, has actual legal existence and that the purposes for which the power of attorney is granted are within the scope of its corporate purposes.

5. The grantor has in fact the referred quality and that his/her representation is legal and that he/she is empowered to grant this power of attorney.

6. I have based the above certifications 3, 4 and 5, on the authentic documents which for such purpose were exhibited to me.

Notary Public

NOTA: Then the Colombian Consul must legalize the signature of the Notary Public.

NOTARIAL CERTIFICATE (When the applicant is an INDIVIDUALS)

On this _____ day of _____
the undersigned Notary CERTIFIES that:

1. _____
(name of the person who signs the Power of Attorney)

of legal age and domiciled at _____
signed in his presence the foregoing document, the grantor is to him personally known and that he/she has legal capacity to execute the document.

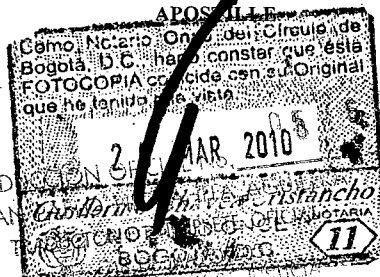
Notary Public

NOTA: Then the Colombian Consul must legalize the signature of the Notary Public.

For all other countries the Colombian Consul or before who it is granted must issue a certification stating 1) the legal existence of the corporation, 2) that the corporate purposes are actually being accomplished, 3) that the person or persons who grant this Power of Attorney are empowered to do it. The Consul will certify also that the documents evidencing those circumstances were exhibited to him.

LEGALIZATION BY THE COLOMBIAN CONSUL OR BY

APOSTILLA



APOSTILLE

(Hague Convention of 5 October 1961 / Convention de La Haye du 5 octobre 1961)

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

1. Country: United Kingdom of Great Britain and Northern Ireland
Pays: Royaume-Uni de Grande-Bretagne et d'Irlande du Nord

This public document / Le présent acte public

2. Has been signed by **Frederick John Pacey**
a été signé par

3. Acting in the capacity of **Notary Public**
agissant en qualité de

4. Bears the seal/stamp of **The Said Notary Public**
est revêtu du sceau/timbre de

5. at London/à Londres

Certified/Attesté

6. the/le **14 November 2005**

7. by Her Majesty's Principal Secretary of State for Foreign and Commonwealth Affairs /
par le Secrétaire d'Etat Principal de Sa Majesté aux Affaires Etrangères et du Commonwealth.

8. Number/sous No **G855043**

9. Stamp:
timbre:

10. Signature: **K. Khan**

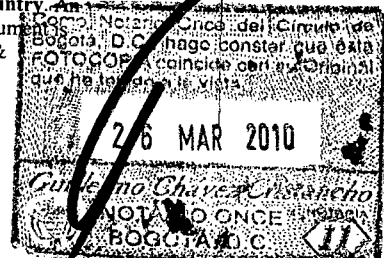


For the Secretary of State / Pour le Secrétaire d'Etat

If this document is to be used in a country which is not party to the Hague Convention of 5 October 1961, it should be presented to the consular section of the mission representing that country. An apostille or legalisation certificate only confirms that the signature, seal or stamp on the document is genuine. It does not mean that the contents of the document are correct or that the Foreign & Commonwealth Office approves of the contents. #

05 / 6 0 2

TRADUCCION OFICIAL No.
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA



RESUMEN

Un método para identificar un producto que comprende formar un producto marcado mediante la adición a dicho producto de un material
5 marcador que contiene al menos un compuesto marcador, el cual es
aceptable para uso como un aditivo en alimentos y posteriormente el
análisis de una muestra del producto mencionado para determinar la
presencia de dicho compuesto marcador y de ese modo determinar si
dicha muestra es una muestra del producto marcado. El método es
10 especialmente útil para la identificación de productos de aceite vegetal de
fuentes manejadas de manera sostenible. El uso de aditivos permitidos
para alimentos como marcadores permite que el producto sea identificado
en la cadena de suministros a la vez que también permite que sea usado
de manera segura en productos comestibles si se requiere.

MÉTODO DE MARCACIÓN

La presente invención se relaciona con un método para marcar un producto natural y los métodos de para identificar tal producto utilizando el método de marcación. La invención está particularmente relacionada con un método para 5 marcar un producto natural que ha sido producido de una manera particular o en un sitio particular.

Actualmente, la introducción y disponibilidad de productos que se producen de 10 manera sostenible económica y ambientalmente es de gran interés comercialmente. La presión política creciente para reducir el consumo de combustibles fósiles ha aumentado la producción y consumo de combustibles alternativos tales como aquellos fabricados a partir de fuentes renovables, en particular el biodiesel. El Biodiesel comprende esteres metílicos de ácidos grasos 15 de cadena larga y se produce a partir de aceites vegetales (triglicéridos) mediante una reacción de trans-esterificación con metanol. Un problema con el aumento del consumo del biodiesel es que se requieren grandes cantidades de tierra para el crecimiento de los cultivos que contienen aceite a partir de los cuales se produce el aceite vegetal. Cuando os cultivos para el biodiesel crecen 20 en tierras que han sido despejadas ilegalmente o desviadas de la producción de alimentos, su producción puede tener consecuencias indeseables para el

ambiente y la biodiversidad. Por lo tanto hay una necesidad de proporcionar un método para identificar aceites vegetales que hayan sido producidos de manera sostenible. Es un objeto de la presente invención proporcionar tal método.

- 5 De acuerdo con la invención, un método para identificar un producto que comprende formar un producto marcado mediante la adición a dicho producto de un material marcador que comprende por lo menos un compuesto marcador que sea aceptable para uso como aditivo en alimentos y posteriormente analizar una muestra de dicho producto para determinar la presencia de dicho compuesto
- 10 marcador y así determinar si dicha muestra es una muestra del producto marcado. El concepto de productos comestibles marcados tales como productos alimenticios se discute en U.S. 2004/0029295 en donde se usan como marcadores micro-partículas planas grabadas con indicios reconocidos ópticamente. Las micropartículas consisten de material polimérico generalmente
- 15 considerado como seguro (GRAS) por la US Food and Drug Administration: la detección se hace mediante técnicas visuales como microscopia o fluorescencia. Similarmente, U.S. 2004/081587 discute una solución para identificar si un medicamento ha sido tomado por un paciente utilizando saborizantes permitidos para uso en alimentos. Los saborizantes se seleccionan por su baja solubilidad
- 20 en medio acuoso, tales como aquellos encontrados en el cuerpo, y también por su relativa alta volatilidad. Esto significa que cantidades traza de los saborizantes se pueden detectar en el aliento exhalado por el paciente.

Una aplicación preferida del método es en la identificación de un producto natural bio-derivado, i.e., una composición que es o se deriva de una fuente animal o vegetal. Tales productos incluyen aceites vegetales o grasas animales, en particular aquellos adecuados para uso como combustible o como materia

5 base para la fabricación de combustible tal como biodiesel. Aplicaciones alternativas incluyen la marcación e identificación de alcoholes, particularmente etanol y metanol que se usan como combustibles, como por ejemplo "gasol" una mezcla de gasolina y etanol. También se pueden marcar e identificar otros productos líquidos, por el método de la invención. Por "marcación" se entiende la

10 adición de un marcador o marca identificable al producto para formar un producto marcado, el marcador se puede identificar posteriormente en una muestra del producto por análisis químico u otro análisis, con el propósito de confirmar la identidad de la muestra como una muestra del producto marcado.

Mientras que el material marcador se puede incorporar en, o revestir sobre un

15 producto sólido, el método es particularmente adecuado para marcar productos líquidos, o productos sólidos en los cuales el material marcador se puede dispersar a la vez en un estado ablandado o fundido. Se prefiere que el producto marcado resultante comprenda una mezcla homogénea o cercana a la homogeneidad del material marcador y el producto. En una implementación

20 particular, la invención es adecuada para marcar e identificar aceites derivados de fuente animal o vegetal, incluyendo por ejemplo, aceite de palma, y aceites derivados de soya y maíz. Preferiblemente el marcador se agrega al aceite

cuando el fruto se tritura o poco tiempo después. Alternativamente el marcador se puede agregar al aceite después del procesamiento inicial con el propósito de evitar la degradación del compuesto o compuestos marcadores en una etapa del procesamiento. El marcador se agrega preferiblemente al aceite crudo antes
5 de retirarlo de su fuente con el propósito que el marcador este asociado confiablemente con la fuente. Para este efecto, cada fuente de origen, bien sea una región o un productor individual puede tener su propio material marcador único. De esta manera la identidad y la fuente de un lote de aceite se puede determinar por análisis del marcador en cualquier etapa posterior de
10 procesamiento, si los aceites se usan para la fabricación de combustible o para cualquier otro propósito.

El material marcador comprende por lo menos un compuesto marcador que es aceptable para uso como aditivo en alimentos, como preservativo, agente anti-
15 compactante, de recubrimiento, aditivo nutricional, goma o preferiblemente como saborizante. Preferiblemente el marcador comprende un compuesto que se lista como un aditivo permitido para alimentos por la U.S. Food and Drug Administration (FDA) y/o la organización relevante señalada por la Comisión Europea y/o otra organización a cargo de la regulación del uso de aditivos para
20 alimentos en cualquier región o cualquier organización que reemplace las organizaciones mencionadas anteriormente para cumplir su función. En particular los compuestos adecuados comprenden aquellos listados en:

- (i) 1999/217/EC: "Commission Decision of 23 February 1999 adopting a register of flavoring substances used in or on foodstuffs drawn up in application of Regulation (EC) No 2232 of the European Parliament and of the Council of 28 October 1996" y/o
- 5 (ii) Código U.S. Título 21-Alimentos y Drogas, capítulo 1, sub-capítulo B Parte 172- "Food Additives Permitted for Direct Addition to Food for Human Consumption Subpart F-Flavoring Agents and Related substances Sec. 172.515 Synthetic Flavoring Substances and Adjuvants".

La referencia a las listas relevantes incluye la referencia de las actualizaciones y
10 enmiendas a las listas que pueden aparecer de vez en cuando. Preferiblemente el compuesto marcador debe tener el estatus GRAS ("considerado generalmente como seguro" de la sigla en Inglés) revisado por una una organización tal como la Asociación de Fabricantes de sabores y extractos (FEMA de la sigla en Inglés). Seleccionando como compuestos marcadores aquellos materiales que
15 se sabe que son seguros para adicionar a productos alimenticios, es posible marcar el producto con un marcador que se pueda identificar a la vez que permitir que el producto marcado se use en alimentos, si se requiere.

El compuesto marcador puede comprender heterociclos que contengan
20 nitrógeno o azufre. Los compuestos marcadores adecuados de esta clase incluyen: sulfuro de pirazinil metilo, 2,3-dimetilpirazina, 2,3-dietil-5-metilpirazina,

5-acetil-2,4-dimetiltiazol. Los compuestos marcadores preferidos comprenden compuestos carbonilo. Se prefieren especialmente las cetonas porque son menos susceptibles a la oxidación y otras formas de degradación con el tiempo, que los aldehídos. Además, se sabe que las grasas y los aceites de ocurrencia natural se pueden oxidar con el aire, produciendo con el tiempo un aumento en el nivel de ciertas especies tipo aldehído, haciendo menos preferido el uso de los aldehídos como marcadores. Los esteres y las lactonas son de ocurrencia natural en aceites y grasas y por lo tanto no se prefieren como compuestos marcadores para uso en aceites vegetales. Los compuestos marcadores más preferidos comprenden cetonas aromáticas o alifáticas saturadas o que tienen α , β -insaturación. Los compuestos di-carbonilo se prefieren menos. Compuestos marcadores adecuados incluyen: -pentan-2-ona, 4-metilpentan-2-ona, 4-hexen-3-ona, heptan-2-ona, heptan-3-ona, heptan-4-ona, 6-metilheptan-3-ona, 2,6-dimetilheptan-4-ona, octan-2-ona, octan-3-ona, nonan-2-ona, nonan-3-ona, decan-2-ona, undecan-2-ona, undecan-6-ona, pent-3-en-2-ona, hex-4-en-3-ona, 2-metil 3-heptanona, 5-metil-2-hepten-4-ona, 2,6-dimetil-4-heptanona, 6-metilhept-5-en-2-ona, oct-1-en-3-ona, oct-2-en-4-ona, oct-3-en-2-ona, dec-3-en-2-ona, 4-fenil-3-buten-2-ona, etil vinil cetona, ciclohexanona, ciclohex-2-en-ona, acetofenona, alfa-ionona, alcanfor, carvona, damascenona, beta-damascona, fenchona, geranilcetona, iso-mentona, nootkatona, zingerona.

El compuesto marcador puede comprender un producto natural o un producto sintético, que incluye una versión sintética de un compuesto de ocurrencia natural. El compuesto marcador se puede seleccionar tal que sea un compuesto ausente en el producto a ser marcado en su forma no-marcada.

- 5 Alternativamente, el compuesto marcador puede comprender un compuesto que sea de ocurrencia natural en el producto no marcado en un nivel más bajo que el de la concentración del compuesto marcador. El compuesto marcador se selecciona preferiblemente tal que sea de baja volatilidad para que no ocurran pérdidas por evaporación bajo las condiciones de almacenamiento y transporte
- 10 del producto, en una extensión que pudiera afectar significativamente la concentración del marcador en el producto. El material marcador puede contener más de un compuesto marcador pero preferiblemente contiene menos de veinte compuestos marcadores. Se prefiere usar por lo menos dos marcadores, preferiblemente entre dos y doce marcadores en el material marcador. Cuando el
- 15 material marcador contiene más de un compuesto marcador, el número de materiales marcadores diferentes disponibles se incrementa porque cada material marcador se puede identificar no solamente por la presencia de cada compuesto marcador sino también por la cantidad relativa de cada compuesto marcador presente. Por lo tanto es posible formular un número muy grande de
- 20 materiales marcadores a partir de un número relativamente limitado de compuestos marcadores adecuados. Esto abre la posibilidad a que cada

productor pueda estar asociado con un material marcador único para identificar sus productos a través de la cadena de suministro.

Opcionalmente el material marcador puede contener ingredientes adicionales
5 tales como otros marcadores, colorantes, compatibilizantes, solventes, diluyentes. Un diluyente adecuado puede comprender un material de una naturaleza similar a la del producto a ser marcado. E.g., el compuesto marcador se puede dispersar en una muestra de un aceite vegetal adecuado cuando el material marcador está previsto para productos marcados de aceites vegetales.
10 La pre-dispersión del compuesto marcador en tal composición se puede hacer mediante la dispersión del marcador en el producto más fácil. Las bombas de medición operan solamente en el intervalo de partes por millón, por lo tanto la dilución de un marcador que estará presente en parte por billón es esencial. Además, la mezcla de los marcadores propuestos en una muestra del aceite a
15 ser marcado los hará más convenientes y manejables, como algunos de los marcadores son líquidos inflamables, cuando se ordena el material marcador es preferible un líquido y se agrega preferiblemente al producto por un método confiable adecuado para pre-dispersar una cantidad pre-determinada relativamente pequeña del material marcador en el producto. Una bomba de
20 medición es adecuada para usarla en la adición del material marcador al producto. Como una alternativa, el material marcador se puede proporcionar en cantidades predeterminadas o alícuotas empacadas en contenedores

individuales o en cápsulas o pellets desechables. Cuando se usa una cápsula desechable, pellet o tableta, el dispersante o material de la cápsula se forma preferiblemente a partir de un material que puede permanecer en el producto sin que sea inadecuado para otros procesos o para el uso del alimento, si se requiere. Tal material puede ser una cera sólida producida a partir de aceites de alto peso molecular saturados/endurecidos o grasas. Algunos aceites naturales crudos pueden estar casi sólidos a 20-25 °C o aún hasta 50-60°C, por lo tanto puede ser necesario calentarlos hasta su estado líquido antes de agregar el material marcador para asegurar que ocurra el mezclado y la dispersión.

10

El compuesto o compuestos marcadores seleccionados deben ser detectables en el material del producto en un nivel bajo de concentración por un método de análisis disponible. Por lo tanto la concentración de cada compuesto marcador en el producto debe ser mayor que el límite de detección para ese compuesto por el método analítico seleccionado. La concentración de cada marcador también debe ser significativamente mayor que cualquier cantidad que pueda tener ocurrencia natural. La concentración del compuesto marcador en el producto no es mayor que la concentración a la cual ha sido aprobado el uso del compuesto como aditivo para alimentos y usualmente menor que la concentración aprobada. Usualmente el material marcador se adiciona al producto en un nivel al cual el compuesto o cada cada compuesto marcador está presente en el producto en una concentración de 5ppb – 5 ppm,

20

preferiblemente en el rango de cerca de 10 -1000 ppb, más preferiblemente 50-500 ppb. La cantidad del material marcador agregado al producto, se calcula preferiblemente para proporcionar una concentración predeterminada de cada compuesto marcador en el producto, la concentración o la concentración relativa de cada compuesto marcador se selecciona para proporcionar una característica identificable al producto marcado.

Cada compuesto marcador se debe detectar, preferiblemente cuantitativamente, en una muestra del producto por un método de análisis adecuado. Los métodos analíticos preferidos incluyen cromatografía, en particular cromatografía líquida, HPLC, y cromatografía de gases GC, acoplada con un detector adecuado. Un método analítico particularmente preferido para uso en la invención es la cromatografía de gases acoplada con un detector adecuado. Un detector preferido para heterociclos con nitrógeno y azufre acoplado a GC es un detector fotométrico de llama pulsada, haciendo así la técnica GC-PFPD. Un detector preferido para compuestos que contienen carbonilos un espectrómetro de masas, haciendo así la técnica GC-MS. La muestra del producto marcado se puede someter a una o más etapas de preparación tales como separación, derivatización, concentración, etc., antes del análisis, dependiendo de la naturaleza del (los) compuesto(s) marcador(es), el producto y el método analítico seleccionado. Opcionalmente, también se puede incluir un material de referencia interna en la muestra antes de su análisis. Los compuestos marcadores se

pueden separar de la muestras del producto antes del análisis y en una implementación preferida del método, se lleva a cabo la extracción en solventes adecuados. El solvente se selecciona de tal manera que sea inmiscible con la muestra del producto y que proporcione una matriz adecuada para las etapas

5 posteriores de análisis. Como una alternativa, la muestra del producto marcado se puede calentar en un contenedor y se toma una muestra del espacio de cabeza para análisis, e.g., por inyección en una columna de cromatografía. Los compuestos marcadores opcionalmente se pueden derivatizar a partir de la muestra del producto o partir de una porción extraída de la muestra del producto

10 antes del análisis. Cuando el producto es un aceite o grasa, entonces los compuestos marcadores normalmente se extraen primero con uno o más líquidos móviles que sean miscibles con el reactivo de derivatización. La derivatización, cuando se usa, se selecciona para mejorar la capacidad del método analítico para separar y/o identificar los compuestos marcadores

15 presentes comparados con otros compuestos presentes en la muestra. Un analista versado en el arte es capaz de seleccionar las etapas de tratamiento de la muestra y los reactivos particulares de derivatización apropiados para el método usado.

20 Como un ejemplo, se describirá un método analítico adecuado a una implementación preferida del método de la invención que se usa para la detección de por lo menos un compuesto marcador que comprende una cetona

dispersada en aceite de palma. En una primera etapa, se extraen todos los compuestos marcadores presentes en el aceite por extracción con metanol. Se selecciona el metanol por ser inmiscible con el aceite de palma pero miscible con el reactivo de derivatización acuoso y proporcionar un buen solvente para los compuestos marcadores. Se puede seleccionar un solvente alternativo adecuado. Se recoge la capa de metanol que contiene el compuesto marcador. Luego se derivatizan los compuestos marcadores por reacción de la solución metanólica de la extracción con una solución acuosa de clorhidrato O-(2,3,4,5,6-pentafluorobencil) hidroxilamina (PFBHA) para producir los derivados correspondientes de la pentafluorobencil oxima. Finalmente, el derivado se extrae en una fase orgánica, como por ejemplo cloroformo, para análisis y concentración. La capa orgánica que contiene el derivado se retira, por lo general se seca, y luego se analiza por GC/MS. Los derivados se detectan más fácilmente que las cetonas originales, con detectores típicos que pueden estar conectados a un GC, porque debido a que contienen flúor son más pesados y químicamente muy diferentes a cualquier matriz de fondo que pueda haberse extraído simultáneamente. Los detectores típicos que pueden conectarse a un equipo de GC para analizar los derivados de pentafluorobencil oxima incluyen detectores de captura de electrones, detectores específicos para halógenos y espectrómetros de masa, los cuales funcionan en la forma de iones negativos. Aunque los derivados de pentafluorobencil oxima pueden tener tiempos de elución significativamente más largos que los de los marcadores no

derivatizados, los tiempos de elución no deberían extenderse a tal grado para los componentes principales del aceite de palma, como para enmascarar las señales de los derivados de los marcadores. Además, los derivados de la oxima de los marcadores tienen un espectro característico el cual se reconoce y se

5 cuantifica más fácilmente que el de los marcadores no derivatizados. Alternativamente, la persona experta en el arte puede seleccionar otros reactivos adecuados para la derivatización de compuestos carbonílicos, posiblemente después de alguna experimentación de rutina. La 2,4-dinitrofenilhidrazina puede utilizarse como un agente alternativo de derivatización, pero se prefiere menos

10 porque, en ensayos, los derivados de los marcadores se distinguieron de la matriz de fondo con menor facilidad, en particular cuando el detector era un espectrómetro de masas funcionando en el modo de impacto de electrónico. La persona experta en el arte puede seleccionar un método alternativo de tratamiento y análisis, que esté pensado para proporcionar una determinación

15 cualitativa, o preferiblemente por lo menos semi-cuantitativa, de los compuestos marcadores en la muestra. También es posible analizar los compuestos marcadores directamente en el producto. Cuando se tiene como producto un aceite o una grasa se prefiere ampliamente extraer el compuesto marcador, para evitar la acumulación de depósitos de residuos grasos en los equipos de

20 análisis, en particular en la columna para cromatografía.

La invención se describirá adicionalmente en los ejemplos siguientes,

Ejemplo 1

Se disolvieron 2-heptanona, 2-octanona, 2-nonanona y 2-undecanona, cada una, en aceite de palma crudo en una concentración de 500 ppb. Luego se extrajeron
5 10 mL del aceite marcado con 5 mL de metanol mientras se agitaba por 1 hora a 60°C. El extracto que contenía los marcadores se retiró. Se añadieron al extracto 5 mL de 1 mg/mL de clorhidrato de O-(2,3,4,5,6-pentafluorobencil) hidroxilamina acuoso (PFBHA) y se incubó por 2 horas a 60°C con agitación vigorosa. Luego la mezcla de reacción se extrajo con 2.5 mL de cloroformo mientras se agitaba
10 por 20 minutos a 60°C. La capa de cloroformo que contiene los derivados se removió y secó a través de un tapón de lana de algodón previamente al análisis por GC/MS en el modo de ionización química negativa (NCI). La instrumentación GC/MS utilizada fue un GC Agilent® 6890 con Detector Selectivo de Masas Agilent 5973 equipado con columna capilar J&W Scientific™ HP-5 (30 m de
15 longitud, 0.32 mm i.d., 0,25 mm de espesor de la fase estacionaria). La temperatura inicial del horno fue 50°C, la cual se mantuvo por 5 minutos, luego con una rampa de 16.67°C/min se llevó a 300°C y se mantuvo por 20 minutos. El análisis se realiza utilizando estas condiciones en el modo NCI con metano como el gas reactivo. Las temperaturas de la fuente de iones y el cuadrupolo se
20 ajustaron a 154°C y 150°C respectivamente. Las masas de iones correspondientes a [M-20] se monitorean en el modo de monitoreo selectivo de iones (SIM) para identificar los marcadores individuales. Para cada ión de

interés, se utilizó un cromatograma del ión extraído para medir las áreas de los picos. Para los derivados de los marcadores 2-heptanona, 2-octanona, 2-nonanona y 2-undecanona se monitorearon señales de 289, 303, 317 y 345 m/e respectivamente. La Figura 1 muestra una superposición de cada cromatograma del ión extraído.

Ejemplo 2

Se disolvieron 2-metil-3-heptanona, 6-undecanona, etil vinil cetona, 5-metil-2-hepten-4-ona y 2,6-dimetil-4-heptanona, cada una, en aceite de palma crudo en una concentración de 500 ppb. Luego se extrajeron 10 mL del aceite marcado con 5 mL de metanol, mientras se agitaba por 1 hora a 60°C. El extracto que contenía los marcadores se retiró. Se añadieron al extracto 5 mL de 1 mg/mL de clorhidrato de O-(2,3,4,5,6-pentafluorobencil) hidroxilamina acuoso (PFBHA) y se incubó por 2 horas a 60°C. Luego la mezcla de reacción se extrajo con 2.5 mL de cloroformo mientras se agitaba por 20 minutos a 60°C. La capa de cloroformo que contiene los derivados se removió y secó a través de un tapón de lana de algodón previamente al análisis por GC/MS utilizando el mismo equipo y método descritos en el Ejemplo 1. Para los derivados de 2-metil-3-heptanona, 6-undecanona, etil vinil cetona, 5-metil-2-hepten-4-ona y 2,6-dimetil-4-heptanona se monitorearon señales de 303, 345, 259, 301 y 317 m/e respectivamente. La

Figuras 2a y 2b muestran superposiciones de cada cromatograma del ión extraído.

Aunque los procedimientos descritos en los ejemplos involucran manipulaciones repetidas, aún así, es posible la cuantificación de los compuestos marcadores. Se encontró que la desviación estándar relativa (RSD) de la respuesta para los compuestos mencionados en los ejemplos 1) y 2) era en promedio 5-6%. Esta RSD se obtuvo aplicando el procedimiento de análisis descrito para cada uno de los compuestos marcadores citados en los ejemplos, bien en combinación o individualmente, en cinco muestras separadas. Además, el hecho de tener conocimiento acerca de la incertidumbre asociada con la metodología citada en los ejemplos, permite el monitoreo de los compuestos marcadores en un período extendido y llegar a una conclusión acerca de su estabilidad o de lo contrario. No se observó una degradación apreciable cuando los compuestos marcadores están presentes en un aceite inclusive en almacenamiento a 40°C durante seis semanas. Adicionalmente, no se dio el caso de separación de los compuestos marcadores desde el aceite, cuando se almacenaron por debajo de la temperatura ambiente.

REIVINDICACIONES

1. Un método para la identificación de un producto que comprende la formación de un producto marcado mediante la adición a dicho producto de un material marcador que contiene al menos un compuesto marcador, el cual es aceptable para uso como un aditivo en alimentos, y posteriormente el análisis de una muestra del producto mencionado para determinar la presencia de dicho compuesto marcador y de ese modo determinar si dicha muestra es una muestra del producto marcado.
2. Un método como se reivindica en la reivindicación 1, en donde el producto comprende un producto bio-derivado natural.
3. Un método como se reivindica en la reivindicación 2, en donde el producto comprende un aceite, grasa o alcohol derivados de una fuente vegetal o animal.
4. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde se selecciona al menos un compuesto marcador a partir de un compuesto, el cual está listado como permitido como aditivo para por la Administración de Alimentos y Drogas de los Estados Unidos (FDA) y/o la Comisión Europea.

5. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde al menos un compuesto marcador comprende un compuesto carbonílico.

6. Un método como se reivindica en la reivindicación 5, en donde al menos un compuesto marcador comprende una cetona.

7. Un método como se reivindica en la reivindicación 6, en donde dicha cetona se selecciona del grupo que consiste de pentan-2-ona, 4-metilpentan-2-ona, 4-hexen-3-ona, heptan-2-ona, heptan-3-ona, heptan-4-ona, 6-metilheptan-3-ona, 2,6-dimetilheptan-4-ona, octan-2-ona, octan-3-ona, nonan-2-ona, nonan-3-ona, decan-2-ona, undecan-2-ona, undecan-6-ona, pent-3-en-2-ona, hex-4-en-3-ona, 2-metil-3-heptanona, 5-metil-2-hepten-4-ona, 2,6-dimetil-4-heptanona, 6-metilhept-5-en-2-ona, oct-1-en-3-ona, oct-2-en-4-ona, oct-3-en-2-ona, dec-3-en-2-ona, 4-fenil-3-buten-2-ona, etil vinil cetona, ciclohexanona, ciclohex-2-en-ona, acetofenona, alfa-ionona, alcanfor, carvona, damascenona, beta-damascona, fenchona, geranil acetona, iso-mentona, nootkatona y zingerona.

8. Un método como se reivindica en cualquiera de las reivindicaciones 1-4, en donde el compuesto marcador mencionado comprende un heterociclo que contiene nitrógeno y/o azufre.

9. Un método como se reivindica en la reivindicación 8, en donde el compuesto marcador mencionado se selecciona de un grupo que consiste de pirazinil metil sulfuro, 2,3-dimetilpirazina, 2,3-dietil-5-metilpirazina y 5-acetil-2,4-dimetiltiazol.

10. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador se adiciona al producto en una cantidad calculada para proporcionar una concentración predeterminada del o de cada compuesto marcador en el producto.

11. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador se adiciona al producto en una cantidad calculada para proporcionar una concentración del o de cada compuesto marcador en el producto en una concentración en el intervalo de 5 ppb – 5ppm, preferiblemente en el intervalo de aproximadamente 10 – 1000 ppb, más preferiblemente 50 – 500 ppb.

12. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador comprende más de un compuesto marcador, las cantidades relativas de los compuestos marcadores están seleccionadas para proporcionar una característica identificable del producto marcado, y el análisis de la muestra se realiza con el fin de identificar la

presencia del material marcador a través de la identificación de las cantidades características relativas de los compuestos marcadores.

13. Un método como se reivindica en la reivindicación 12, en donde el material marcador contiene de dos a doce compuestos marcadores.

REIVINDICACIONES CORREGIDAS

Recibidas por la Oficina Internacional el 09 de enero de 2009 (09.01.09)

1. Un método para la identificación de un producto que comprende la formación de un producto marcado mediante la adición a dicho producto de un material marcador que contiene al menos un compuesto marcador, el cual es aceptable para uso como un aditivo en alimentos, y posteriormente el análisis de una muestra del producto mencionado para determinar la presencia de dicho compuesto marcador y de ese modo determinar si dicha muestra es una muestra del producto marcado.
2. Un método como se reivindica en la reivindicación 1, en donde el producto comprende un producto bio-derivado natural.
3. Un método como se reivindica en la reivindicación 2, en donde el producto comprende un aceite, grasa o alcohol derivados de una fuente vegetal o animal.

HOJA CORREGIDA (ARTÍCULO 19)

4. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde se selecciona al menos un compuesto marcador a partir de un compuesto, el cual está listado como aditivo permitido en alimentos por la Administración de Alimentos y Drogas de los Estados Unidos (FDA) y/o la Comisión Europea.

5. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde al menos un compuesto marcador comprende un compuesto carbonílico.

6. Un método como se reivindica en la reivindicación 5, en donde al menos un compuesto marcador comprende una cetona.

7. Un método como se reivindica en la reivindicación 6, en donde la cetona mencionada se selecciona del grupo que consiste de pentan-2-ona, 4-metilpentan-2-ona, 4-hexen-3-ona, heptan-2-ona, heptan-3-ona, heptan-4-ona, 6-metilheptan-3-ona, 2,6-dimetilheptan-4-ona, octan-2-ona, octan-3-ona, nonan-2-ona, nonan-3-ona, decan-2-ona, undecan-2-ona, undecan-6-ona, pent-3-en-2-ona,

hex-4-en-3-ona, 2-metil-3-heptanona, 5-metil-2-hepten-4-ona, 2,6-dimetil-4-heptanona, 6-metilhept-5-en-2-ona, oct-1-en-3-ona, oct-2-en-4-ona, oct-3-en-2-ona, dec-3-en-2-ona, 4-fenil-3-buten-2-ona, etil vinil cetona, ciclohexanona, ciclohex-2-en-ona, acetofenona, alfa-ionona, alcanfor, carvona, damascenona, beta-damascona, fenchona, geranil acetona, iso-mentona, nootkatona y zingerona.

8. Un método como se reivindica en cualquiera de las reivindicaciones 1-4, en donde el compuesto marcador mencionado comprende un heterociclo que contiene nitrógeno y/o azufre.

9. Un método como se reivindica en la reivindicación 8, en donde el compuesto marcador mencionado se selecciona de un grupo que consiste de pirazinil metil sulfuro, 2,3-dimetilpirazina, 2,3-dietil-5-metilpirazina y 5-acetil-2,4-dimetiltiazol.

10. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador se adiciona al producto en una cantidad calculada para proporcionar una concentración predeterminada del o de cada compuesto marcador en el producto.

11. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador se adiciona al producto en una cantidad calculada para proporcionar una concentración del o de cada compuesto marcador en el producto en una concentración en el intervalo de 5 ppb – 5ppm, preferiblemente en el intervalo de aproximadamente 10 – 1000 ppb, más preferiblemente 50 – 500 ppb.

12. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el material marcador comprende más de un compuesto marcador, las cantidades relativas de los compuestos marcadores están seleccionadas para proporcionar una característica identificable para el producto marcado, y el análisis de la muestra se realiza con el fin de identificar la presencia del material marcador a través de la identificación de las cantidades características relativas de los compuestos marcadores.

13. Un método como se reivindica en la reivindicación 12, en donde el material marcador contiene de dos a doce compuestos marcadores.

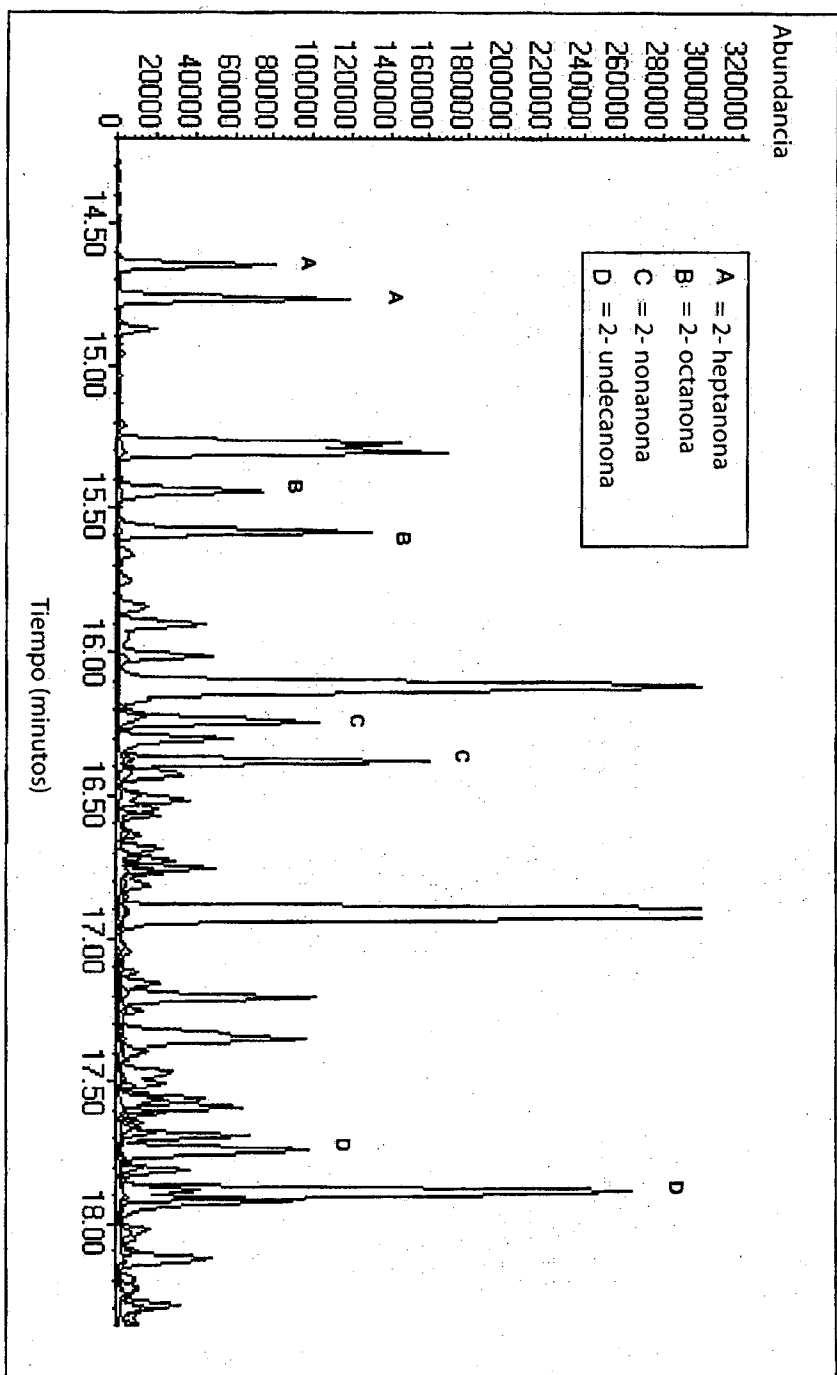
14. Un método como se reivindica en cualquiera de las reivindicaciones anteriores, en donde el análisis mencionado se realiza por cromatografía.

15. Un método como se reivindica en la reivindicación 14, en donde el análisis mencionado se realiza por cromatografía líquida, cromatografía de gases o una combinación de cromatografía de gases acoplada con un detector fotométrico de llama pulsada o con un espectrómetro de masas.

16. Un método como se reivindica en la reivindicación 14 o 15, en donde al menos uno de los compuestos marcadores presentes en la muestra se separa del producto, derivatizado o concentrado previamente al análisis.

04

Figura 1



2 / 2

Figura 2a

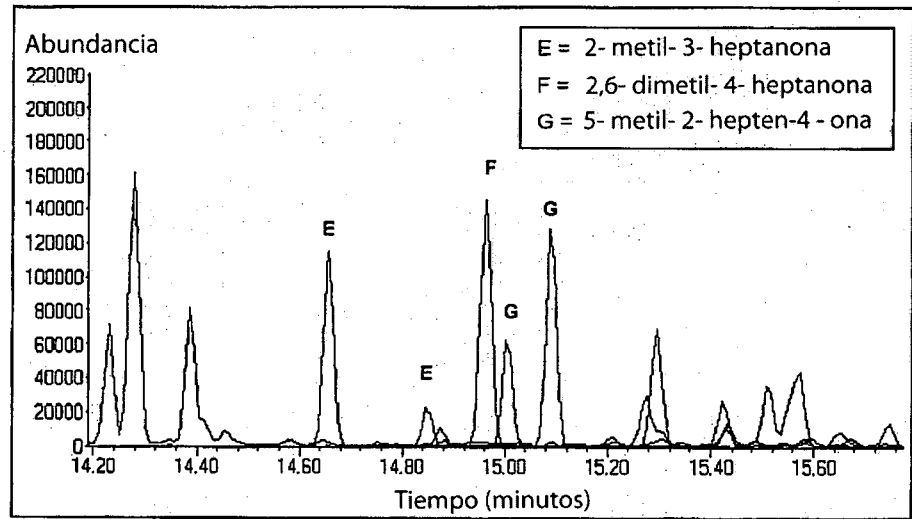
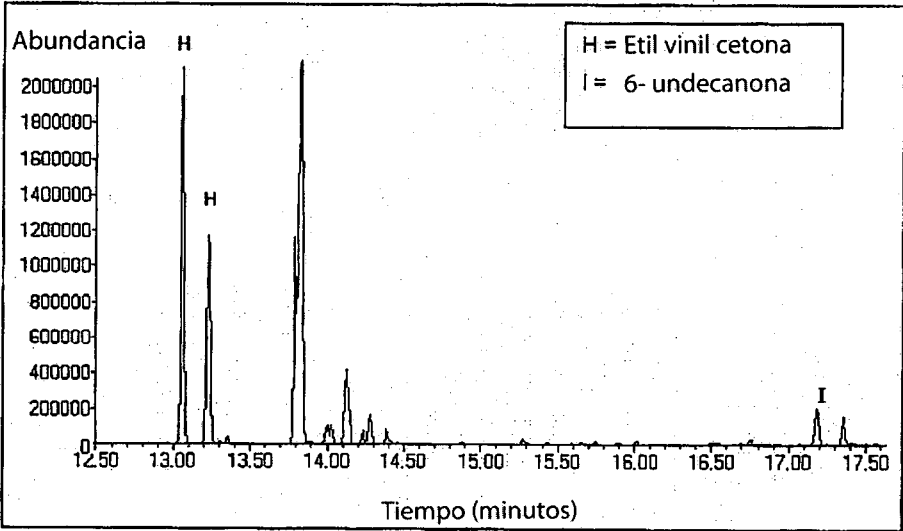


Figura 2b



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(74) Agents: GIBSON, SARA et al.; Johnson Matthey Catalysts, P.O. Box 1, Belasis Avenue, Billingham Cleveland TS23 1LB (GB).

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(71) Applicant (for all designated States except US): JOHN-
SON MATTHEY PLC [GB/GB]; 40-42 Hatton Garden,
London EC1N 8EE (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GREEN, Darrell
[GB/GB]; 5 Hallmoor Close, Kirklevington, Yarm Cleve-
land TS15 9NN (GB). MCCALLIEN, Duncan William
John [GB/GB]; 108 Neville Road, Darlington County
Durham DL3 8NE (GB). LLEWELLYN, Christopher
Thomas [GB/GB]; 49 Appleby close, Darlington County
Durham DL1 4AJ (GB).

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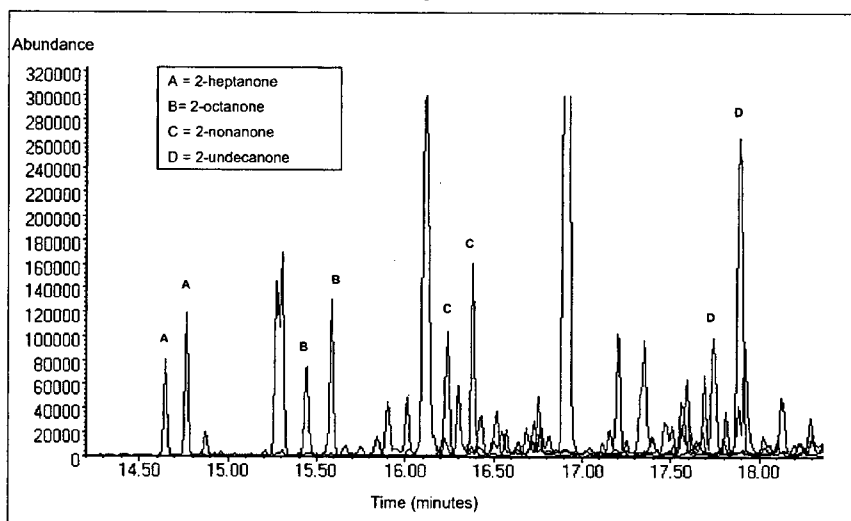
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(54) Title: TAGGING METHOD

Figure 1



(57) Abstract: A method of identifying a product comprises forming a tagged product by adding to said product a tracer material comprising at least one tracer compound which is acceptable for use as an additive in food and subsequently analysing a sample of said product to determine the presence of said tracer compound thereby to determine whether said sample is a sample of the tagged product. The method is especially useful for the identification of vegetable oil products from sustainably managed sources. The use of permitted food additives as tracers enables the product to be identified in the supply chain whilst also allowing it to be used safely in foodstuffs if required.

Tagging method

5 The present invention relates to a method of tagging a natural product and methods of identifying such a product using the tagging method. The invention is particularly concerned with a method of tagging a natural product which has been produced in a particular way or at a particular location.

10 The introduction and availability of products which are produced in an economically and environmentally sustainable manner are currently of great interest commercially. The growing political pressure to reduce the consumption of fossil fuels has increased the production and consumption of alternative fuels such as those manufactured from renewable resources, in particular biodiesel. Biodiesel comprises methyl esters of long-chain fatty acids
15 and is produced from vegetable oils (triglycerides) by a trans-esterification reaction with methanol. A problem with the increased consumption of biodiesel is that large amounts of land are required to grow the oil-bearing crops from which the vegetable oil is produced. When the biodiesel crops are grown on land which has been illegally cleared or diverted from food production then its production may have undesirable consequences for the
20 environment and biodiversity. There is therefore a need to provide a method of identifying vegetable oils which have been produced in a sustainable manner. It is an object of the invention to provide such a method.

According to the invention, a method of identifying a product comprises forming a tagged
25 product by adding to said product a tracer material comprising at least one tracer compound which is acceptable for use as an additive in food and subsequently analysing a sample of said product to determine the presence of said tracer compound thereby to determine whether said sample is a sample of the tagged product. The concept of tagging edible products such as foodstuffs is discussed in US 2004/0029295 where planar microparticles
30 embossed with optically recognizable indicia are used as the taggants. The microparticles consist of polymeric material generally regarded as safe (GRAS) by the US Food and Drug Administration: detection is by visual techniques such as microscopy or fluorescence. Similarly, US 2004/081587 discusses a solution for identifying whether medication has been taken by a patient by using flavourings permitted for use in foods. The flavourings are
35 selected for their low solubility in aqueous media, such as those found in the body, and also for their relatively high volatility. This means that trace amounts of the flavourings can be detected in the breath exhaled by the patient.

A preferred application of the method is for the identification of a bio-derived natural product,
40 i.e. a composition which is or is derived from a vegetable or animal source. Such products

include vegetable oils and animal fats, in particular those suitable for use as fuel or as a feedstock for the manufacture of fuel such as biodiesel. Alternative applications include the tagging and identification of alcohols, particularly ethanol and methanol which are used as fuels, for example as "gasohol", a mixture of gasoline and ethanol. Other liquid products may also be tagged and identified by the method of the invention. By "tagging" we mean the adding of an identifiable tracer or tag to the product to form a tagged product, the tracer being capable of being subsequently identified in a sample of the product, by chemical analysis or otherwise, in order to confirm the identity of the sample as a sample of the tagged product.

Whilst the tracer material may be incorporated in or coated on a solid product, the method is particularly suitable for tagging liquid products, or solid products in which a tracer material can be dispersed whilst in a softened or molten state. It is preferred that the resulting tagged product comprises a homogeneous or near-homogeneous mixture of the tracer material and the product. In a particular embodiment, the invention is suitable for tagging and identifying oils derived from animal or vegetable sources, including as examples, palm oil and oils derived from soybeans and corn. The tracer is preferably added to the oil when the fruit is crushed or shortly afterwards. Alternatively the tracer may be added to the oil after initial processing in order to avoid degrading the tracer compound or compounds in a processing step. The tracer is preferably added to the crude oil before it is removed from its source in order that the tracer may be reliably associated with the source. To this effect, each source of origin, whether a region or an individual producer may have its own unique tracer material. In this way the identity and source of a batch of oil may be determined by analysis of the tracer at any subsequent stage of processing, whether the oil is used for the manufacture of a fuel or for any other purpose.

The tracer material comprises at least one tracer compound which is acceptable for use as an additive in food, as a preservative, anti-caking agent, coating, nutritional additive, gum, or preferably as a flavouring. Preferably the tracer comprises a compound which is listed as a permissible food additive by the US Food and Drug Administration (FDA) and/or the relevant organisation appointed by the European Commission and/or other organisation charged with regulating the use of additives in foods in any region or any organisation replacing the above-named organisations to fulfil their function. In particular suitable compounds comprise those compounds listed in :

- (i) 1999/217/EC: "Commission Decision of 23 February 1999 adopting a register of flavouring substances used in or on foodstuffs drawn up in application of Regulation (EC) No 2232/96 of the European Parliament and of the Council of 28 October 1996", and/or
- (ii) US Code Title 21-- Food and Drugs, Chapter 1 Subchapter B Part 172 -- "Food Additives Permitted for Direct Addition to Food for Human Consumption Subpart F--Flavoring Agents and Related Substances Sec. 172.515 Synthetic Flavoring Substances and Adjuvants".

- The reference to the relevant lists includes reference to updates and amendments to the lists which may appear from time-to-time. Preferably the tracer compound has achieved GRAS ("generally regarded as safe") status on review by an organisation such as the Flavor and Extract Manufacturers Association (FEMA). By selecting as tracer compounds those materials which are known to be safe for addition to food products, it is possible to tag the product with an identifiable tracer whilst allowing the tagged product to be used in foods if required.
- 10 The tracer compound may comprise nitrogen- and/or sulphur- containing heterocycles. Suitable tracer compounds from this class include:- pyrazinyl methyl sulfide, 2,3-dimethylpyrazine, 2,3-diethyl-5-methylpyrazine, 5-acetyl-2,4-dimethylthiazole. The preferred tracer compounds comprise carbonyl compounds. Ketones are especially preferred because they are less susceptible to oxidation and other forms of degradation over time than
- 15 aldehydes. Furthermore, it is known that naturally occurring fats and oils may oxidise in air, resulting in an increase in the level of certain aldehydic species over time, making the use of aldehydes as tracers less preferred. Esters and lactones occur naturally in oils and fats and so they are not preferred tracer compounds for use in vegetable oils. The most preferred tracer compounds comprise aromatic or aliphatic ketones which are saturated or which
- 20 contain α,β -unsaturation. Dicarbonyl compounds are less preferred. Suitable tracer compounds include:- pentan-2-one, 4-methylpentan-2-one, 4-hexen-3-one, heptan-2-one, heptan-3-one, heptan-4-one, 6-methylheptan-3-one, 2,6-dimethylheptan-4-one, octan-2-one, octan-3-one, nonan-2-one, nonan-3-one, decan-2-one, undecan-2-one, undecan-6-one, pent-3-en-2-one, hex-4-en-3-one, 2-methyl-3-heptanone, 5-methyl-2-hepten-4-one, 2,6-
- 25 dimethyl-4-heptanone, 6-methylhept-5-en-2-one, oct-1-en-3-one, oct-2-en-4-one, oct-3-en-2-one, dec-3-en-2-one, 4-phenyl-3-buten-2-one, ethyl vinyl ketone, cyclohexanone, cyclohex-2-en-one, acetophenone, alpha-ionone, camphor, carvone, damascenone, beta-damascone, fenchone, geranylacetone, iso-menthone, nootkatone, zingerone.
- 30 The tracer compound may comprise a natural product or a synthetic product, including a synthetic version of a naturally occurring compound. The tracer compound may be selected to be a compound which is absent from the product to be tagged in its un-tagged form. Alternatively, the tracer compound may comprise a compound which is naturally occurring in the untagged product at a lower level than the concentration of the tracer compound. The
- 35 tracer compound is preferably selected to be of low volatility such that no loss of tracer may occur through evaporation under the conditions of storage and transport of the product, to an extent which would significantly affect the concentration of tracer in the product. The tracer material may contain more than one tracer compound but preferably contains less than twenty tracer compounds. It is preferred to use at least two tracers, preferably between two
- 40 and twelve tracers in the tracer material. When the tracer material contains more than one

tracer compound, the number of different tracer materials available is increased because each tracer material may be identified not only from the presence of each tracer compound but also from the relative amount of each tracer compound present. Therefore it is possible to formulate a very large number of tracer materials from a relatively limited number of suitable tracer compounds. This opens the possibility that each producer may be associated with a unique tracer material to identify their product through the supply chain.

The tracer material may optionally contain additional ingredients such as other tracers, dyes, compatibilisers, solvents, diluents etc. A suitable diluent may comprise a material of a similar nature to the product to be tagged, e.g. the tracer compound may be dispersed in a sample of a suitable vegetable oil when the tracer material is intended for tagging vegetable oil products. Pre-dispersal of the tracer compound in such a composition may make thorough dispersal of the tracer in the product easier. Metering pumps usually only operate in the parts per million range, hence dilution of a tracer that will be present at parts per billion is essential. Furthermore, blending of the proposed tracers in a sample of the oil to be tagged will make them more convenient to handle, as some of the tracers are flammable liquids when neat. The tracer material is preferably a liquid and is preferably added to the product by a reliable method suitable for dispensing a predetermined, relatively small amount of the tracer material into the product. A metering pump is suitable for use in adding the tracer material to the product. As an alternative, the tracer material may be provided in predetermined quantities or aliquots packaged in individual containers or in a dispersible capsule or pellet. When a dispersible capsule, pellet or tablet is used, the dispersant or capsule material is preferably formed from a material which may remain in the product without rendering it unsuitable for further processing or for food use, if required. Such a material may be a waxy solid formed from a high molecular weight or saturated/ hardened oil or fat. Some crude natural oils may be almost solid at 20-25 °C or even up to 50 –60 °C, so it may be necessary to warm them to their liquid state before adding the tracer material to ensure that thorough blending and dispersion can occur.

The tracer compound or compounds selected must be detectable in the product material at a low level of concentration by an available method of analysis. Therefore the concentration of each tracer compound in the product must be greater than the limit of detection for that compound of the selected analytical method. The concentration of each tracer must also be significantly higher than any amount that might occur naturally. The concentration of the tracer compound in the product is not more than the concentration at which the use of the compound as an additive for food has been approved and is usually less than the approved concentration. Usually the tracer material is added to the product at a level at which the or each tracer compound is present in the product at a concentration 5ppb - 5ppm, preferably in the range from about 10 – 1000 ppb, more preferably 50 – 500 ppb. The amount of tracer

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material added to the product is preferably calculated to provide a predetermined concentration of the or each tracer compound in the product, the concentration or relative concentration of each tracer compound being selected to provide an identifiable characteristic to the tagged product.

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Each tracer compound is detectable, preferably quantitatively, in a sample of the product by a suitable method of analysis. Preferred analytical methods include chromatography, in particular liquid chromatography, HPLC, and gas chromatography GC, coupled with a suitable detector. A particularly preferred analytical method for use in the invention is gas chromatography coupled with a suitable detector. A preferred detector for nitrogen and sulphur heterocycles coupled to a GC is a pulsed flame photometric detector, thus making the technique GC-PFPD. A preferred detector for carbonyl containing compounds is a mass spectrometer, thus making the technique GC-MS. The tagged product sample may be subjected to one or more preparative steps such as separation, derivatisation, concentration etc, before analysis depending on the nature of the tracer compound(s), the product and the analytical method selected. Optionally, an internal reference material can also be included in the sample prior to its analysis. The tracer compounds may be separated from the product sample prior to analysis and in a preferred embodiment of the method, extraction into a suitable solvent is carried out. The solvent is selected to be immiscible with the product sample and to provide a suitable matrix for the subsequent step(s) in the analysis. As an alternative, the tagged product sample may be heated in a container and a sample of the headspace taken for analysis, e.g. by injection into a chromatography column. The tracer compounds may optionally be derivatised from the product sample or from an extracted portion of the product sample prior to analysis. When the product is an oil or fat then the tracer compounds are normally first extracted into a more mobile liquid which is miscible with the derivatisation reagent. Derivatisation, when used, is selected to enhance the ability of the analytical method to separate and/or identify the tracer compounds present compared with other compounds present in the sample. A skilled analyst is capable of selecting the sample treatment steps and particular derivatisation reagents appropriate to the method used.

As an example, a suitable analytical method will be described applied to one preferred embodiment of the method of the invention which is for use in the detection of at least one tracer compound comprising a ketone dispersed in palm oil. In a first step, all tracer compounds present are extracted from the oil by extraction into methanol. Methanol is selected to be immiscible with the palm oil but miscible with the aqueous derivatisation reagent and provides a good solvent for the tracer compounds. An alternative suitable solvent may be selected. The methanol layer containing the tracer compounds is collected. Then the tracer compounds are derivatised by reacting the extracted methanolic solution with an aqueous solution of O-(2,3,4,5,6-pentafluorobenzyl) hydroxylamine hydrochloride

(PFBHA) to produce the corresponding pentafluorobenzyl oxime derivatives. Finally, the derivative is extracted into an organic phase, such as chloroform, for analysis and concentration. The organic layer containing the derivative is removed, usually dried, and then analysed by GC/MS. The derivatives are easier to detect with typical detectors that may be attached to a GC than the original ketones because, being fluorine-containing, they are more massive and also quite different chemically from any background matrix that may also have been co-extracted. Typical detectors that may be attached to a GC apparatus to analyse for the pentafluorobenzyl oxime derivatives include electron capture detectors, halogen specific detectors and mass spectrometers, operating in a negative ion mode. Although the pentafluorobenzyl oxime derivatives can have significantly longer elution times than the underivatised tracers, the elution times should not be so extended for the major components of the palm oil to swamp the tracer derivative signals. Further, the oxime derivatives of the tracers have a characteristic spectrum which is more easily recognised and quantified than that of the underivatised tracers. Alternatively, other suitable derivatising reagents for carbonyl compounds may be selected by the skilled person, possibly after some routine experimentation. 2,4-dinitrophenylhydrazine may be used as an alternative derivatising agent but it is less preferred because, in trials, the tracer derivatives were less readily distinguishable from the background matrix, particularly when the detector was a mass spectrometer running in electron impact mode. The skilled person may select an alternative method of treatment and analysis which is calculated to provide a qualitative, or preferably at least semi-quantitative, determination of the tracer compounds in the sample. It is also possible to analyse the tracer compounds in the product directly. Where the product is an oil or fat, it is greatly preferred to extract the tracer compound to avoid the build-up of deposits of fatty residues on the analytical apparatus, particularly the chromatography column.

The invention will be further described in the following examples.

Example 1

2-Heptanone, 2-octanone, 2-nonanone and 2-undecanone were each dissolved in crude palm oil at a concentration of 500 ppb. 10 mL of the tagged oil was then extracted with 5 mL of methanol whilst stirring for 1 hour at 60 °C. The extract containing the tags was removed. 5 mL of 1 mg/mL aqueous O-(2,3,4,5,6-pentafluorobenzyl) hydroxylamine hydrochloride (PFBHA) was added to the extract and incubated for 2 hours at 60 °C with vigorous stirring. The reaction mixture was then extracted with 2.5 mL chloroform whilst stirring for 20 minutes at 60 °C. The chloroform layer containing the derivatives was removed and dried through a cotton wool plug prior to analysis by GC/MS in negative chemical ionisation (NCI) mode. The GC/MS instrumentation used was an Agilent® 6890 GC with Agilent 5973 Mass Selective Detector equipped with J&W Scientific™ HP-5 capillary column (30 m length, 0.32 mm i.d., 0.25 mm stationary phase thickness). The initial oven temperature was 50 °C which was held for 5 minutes, then ramped at 16.67 °C/min to 300 °C and held for 20 minutes.

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Using these conditions analysis is carried out in NCI mode with methane as the reagent gas. The ion source and quadrupole temperatures were set to 154 °C and 150 °C respectively. Ion masses corresponding to [M-20] are monitored in selected ion monitoring (SIM) mode to identify individual tags. For each ion of interest an extracted ion chromatogram was used to measure the peak areas. For the derivatives of the 2-heptanone, 2-octanone, 2-nonanone and 2-undecanone tracers, signals of m/e 289, 303, 317 and 345 respectively were monitored. Figure 1 shows an overlay of each extracted ion chromatogram.

Example 2

2-Methyl-3-heptanone, 6-undecanone, ethyl vinyl ketone, 5-methyl-2-hepten-4-one and 2,6-dimethyl-4-heptanone were each dissolved in crude palm oil at a concentration of 500 ppb. 10 mL of the tagged oil was then extracted with 5 mL of methanol whilst stirring for 1 hour at 60 °C. The extract containing the tags was removed. 5 mL of 1 mg/mL aqueous O-(2,3,4,5,6-pentafluorobenzyl) hydroxylamine hydrochloride (PFBHA) was added to the extract and incubated for 2 hours at 60 °C. The reaction mixture was then extracted with 2.5 mL chloroform whilst stirring for 20 minutes at 60 °C. The chloroform layer containing the derivatives was removed and dried through a cotton wool plug prior to analysis by GC/MS using the same apparatus and method as described in Example 1. For the derivatives of 2-methyl-3-heptanone, 6-undecanone, ethyl vinyl ketone, 5-methyl-2-hepten-4-one and 2,6-dimethyl-4-heptanone signals of m/e 303, 345, 259, 301 and 317 respectively were monitored. Figures 2a and 2b show overlays of each extracted ion chromatogram.

Although the procedures described in the examples involve repeated manipulations, quantification of the tracer compounds is still possible. The relative standard deviation (RSD) of the response for the compounds mentioned in examples 1) and 2) was found to be on average 5-6%. This RSD was obtained by applying the analysis procedure described to each of the tracer compounds cited in the examples, either in combination or singly, in five separate samples. Furthermore, knowing the uncertainty associated with the methodology quoted in the examples allows the tracer compounds to be monitored over an extended period and a conclusion drawn as to their stability or otherwise. No noticeable degradation was observed when the tracer compounds are present in an oil even on storage at 40 °C over six weeks. Furthermore, no separation of the tracer compounds occurred from the oil when stored below ambient temperature.

Claims

1. A method of identifying a product comprises forming a tagged product by adding to said product a tracer material comprising at least one tracer compound which is acceptable for use as an additive in food and subsequently analysing a sample of said product to determine the presence of said tracer compound thereby to determine whether said sample is a sample of the tagged product.
2. A method as claimed in claim 1, wherein the product comprises a bio-derived natural product.
3. A method as claimed in claim 2, wherein the product comprises an oil, fat or alcohol derived from a vegetable or animal source.
4. A method as claimed in any one of the preceding claims, wherein the at least one tracer compound is selected from a compound which is listed as a permissible food additive by the US Food and Drug Administration (FDA) and/or the European Commission.
5. A method as claimed in any one of the preceding claims, wherein the at least one tracer compound comprises a carbonyl compound.
6. A method as claimed in claim 5, wherein the at least one tracer compound comprises a ketone.
7. A method as claimed in claim 6, wherein said ketone is selected from the group consisting of pentan-2-one, 4-methylpentan-2-one, 4-hexen-3-one, heptan-2-one, heptan-3-one, heptan-4-one, 6-methylheptan-3-one, 2,6-dimethylheptan-4-one, octan-2-one, octan-3-one, nonan-2-one, nonan-3-one, decan-2-one, undecan-2-one, undecan-6-one, pent-3-en-2-one, hex-4-en-3-one, 2-methyl-3-heptanone, 5-methyl-2-hepten-4-one, 2,6-dimethyl-4-heptanone, 6-methylhept-5-en-2-one, oct-1-en-3-one, oct-2-en-4-one, oct-3-en-2-one, dec-3-en-2-one, 4-phenyl-3-buten-2-one, ethyl vinyl ketone, cyclohexanone, cyclohex-2-en-one, acetophenone, alpha-ionone, camphor, carvone, damascenone, beta-damascone, fenchone, geranylacetone, iso-menthone, nootkatone and zingerone.
8. A method as claimed in any one of claims 1 – 4, wherein said tracer compound comprises a nitrogen- and/or sulphur- containing heterocycle.
9. a method as claimed in claim 8, wherein said tracer compound is selected from the group consisting of pyrazinyl methyl sulfide, 2,3-dimethylpyrazine, 2,3-diethyl-5-methylpyrazine and 5-acetyl-2,4-dimethylthiazole.

10. A method as claimed in any one of the preceding claims, wherein the tracer material is added to the product in an amount calculated to provide a predetermined concentration of the or each tracer compound in the product.

11. A method as claimed in any one of the preceding claims, wherein the tracer material is added to the product in an amount calculated to provide a concentration of the or each tracer compound in the product at a concentration in the range from 5 ppb - 5 ppm, preferably in the range from about 10 – 1000 ppb, more preferably 50 – 500 ppb.

12. A method as claimed in any one of the preceding claims, wherein the tracer material comprises more than one tracer compound, the relative amounts of the tracer compounds being selected to provide an identifiable characteristic to the tagged product, and the analysis of the sample is performed in order to identify the presence of the tracer material through the identification of the characteristic relative amounts of the tracer compounds.

13. A method as claimed in claim 12, wherein the tracer material contains from two to twelve tracer compounds.

AMENDED CLAIMS

received by the International Bureau on 09 January 2009 (09.01.09)

1. A method of identifying a product comprises forming a tagged product by adding to said product a tracer material comprising at least one tracer compound which is acceptable for use as an additive in food and subsequently analysing a sample of said product to determine the presence of said tracer compound thereby to determine whether said sample is a sample of the tagged product.
2. A method as claimed in claim 1, wherein the product comprises a bio-derived natural product.
3. A method as claimed in claim 2, wherein the product comprises an oil, fat or alcohol derived from a vegetable or animal source.
4. A method as claimed in any one of the preceding claims, wherein the at least one tracer compound is selected from a compound which is listed as a permissible food additive by the US Food and Drug Administration (FDA) and/or the European Commission.
5. A method as claimed in any one of the preceding claims, wherein the at least one tracer compound comprises a carbonyl compound.
6. A method as claimed in claim 5, wherein the at least one tracer compound comprises a ketone.
7. A method as claimed in claim 6, wherein said ketone is selected from the group consisting of pentan-2-one, 4-methylpentan-2-one, 4-hexen-3-one, heptan-2-one, heptan-3-one, heptan-4-one, 6-methylheptan-3-one, 2,6-dimethylheptan-4-one, octan-2-one, octan-3-one, nonan-2-one, nonan-3-one, decan-2-one, undecan-2-one, undecan-6-one, pent-3-en-2-one, hex-4-en-3-one, 2-methyl-3-heptanone, 5-methyl-2-hepten-4-one, 2,6-dimethyl-4-heptanone, 6-methylhept-5-en-2-one, oct-1-en-3-one, oct-2-en-4-one, oct-3-en-2-one, dec-3-en-2-one, 4-phenyl-3-buten-2-one, ethyl vinyl ketone, cyclohexanone, cyclohex-2-en-one, acetophenone, alpha-ionone, camphor, carvone, damascenone, beta-damascone, fenchone, geranylacetone, iso-menthone, nootkatone and zingerone.
8. A method as claimed in any one of claims 1 – 4, wherein said tracer compound comprises a nitrogen- and/or sulphur- containing heterocycle.
9. a method as claimed in claim 8, wherein said tracer compound is selected from the group consisting of pyrazinyl methyl sulfide, 2,3-dimethylpyrazine, 2,3-diethyl-5-methylpyrazine and 5-acetyl-2,4-dimethylthiazole.

10. A method as claimed in any one of the preceding claims, wherein the tracer material is added to the product in an amount calculated to provide a predetermined concentration of the or each tracer compound in the product.

11. A method as claimed in any one of the preceding claims, wherein the tracer material is added to the product in an amount calculated to provide a concentration of the or each tracer compound in the product at a concentration in the range from 5 ppb - 5 ppm, preferably in the range from about 10 - 1000 ppb, more preferably 50 - 500 ppb.

12. A method as claimed in any one of the preceding claims, wherein the tracer material comprises more than one tracer compound, the relative amounts of the tracer compounds being selected to provide an identifiable characteristic to the tagged product, and the analysis of the sample is performed in order to identify the presence of the tracer material through the identification of the characteristic relative amounts of the tracer compounds.

13. A method as claimed in claim 12, wherein the tracer material contains from two to twelve tracer compounds.

14. A method as claimed in any one of the preceding claims, wherein said analysis is performed by chromatography.

15. A method as claimed in claim 14, wherein said analysis is performed by liquid chromatography, gas chromatography or a combination of gas chromatography coupled with a pulsed flame photometric detector or with a mass spectrometer.

16. A method as claimed in claim 14 or 15, wherein at least one of the tracer compounds present in the sample is separated from the product, derivatised or concentrated prior to analysis.

Figure 1

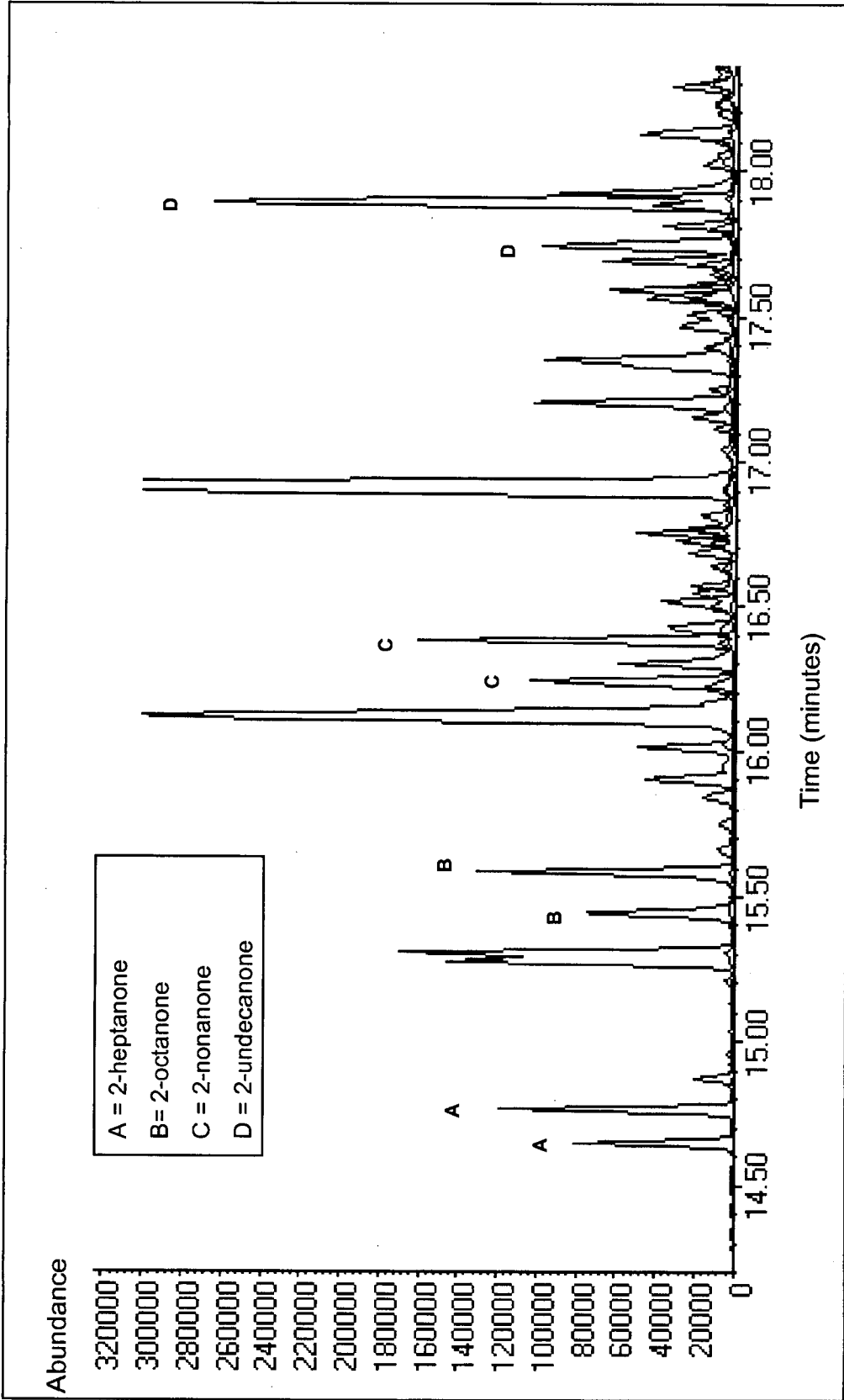


Figure 2a

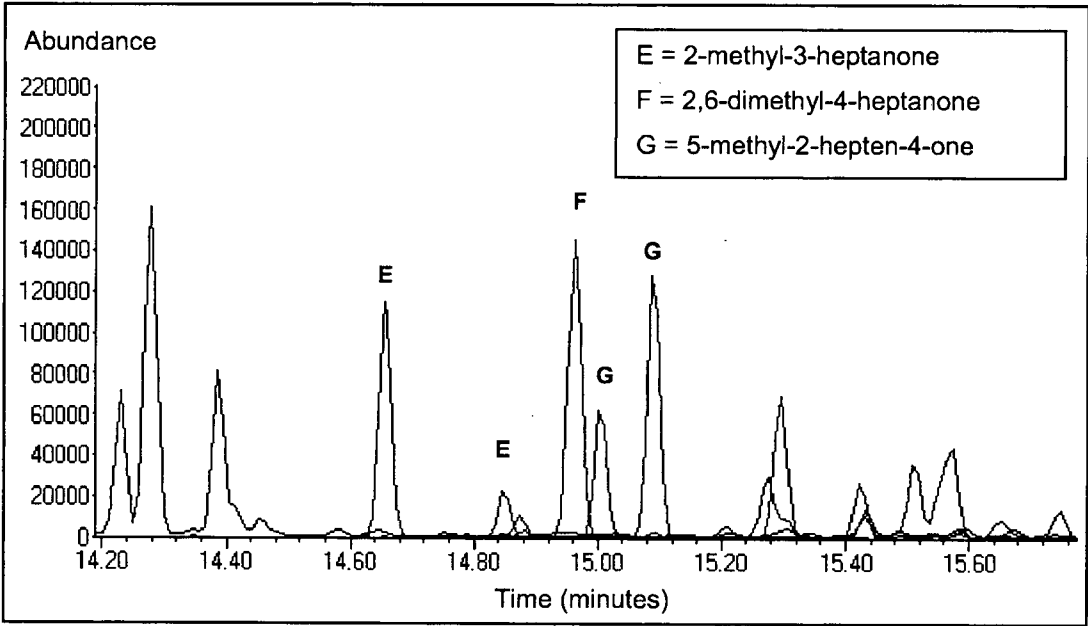
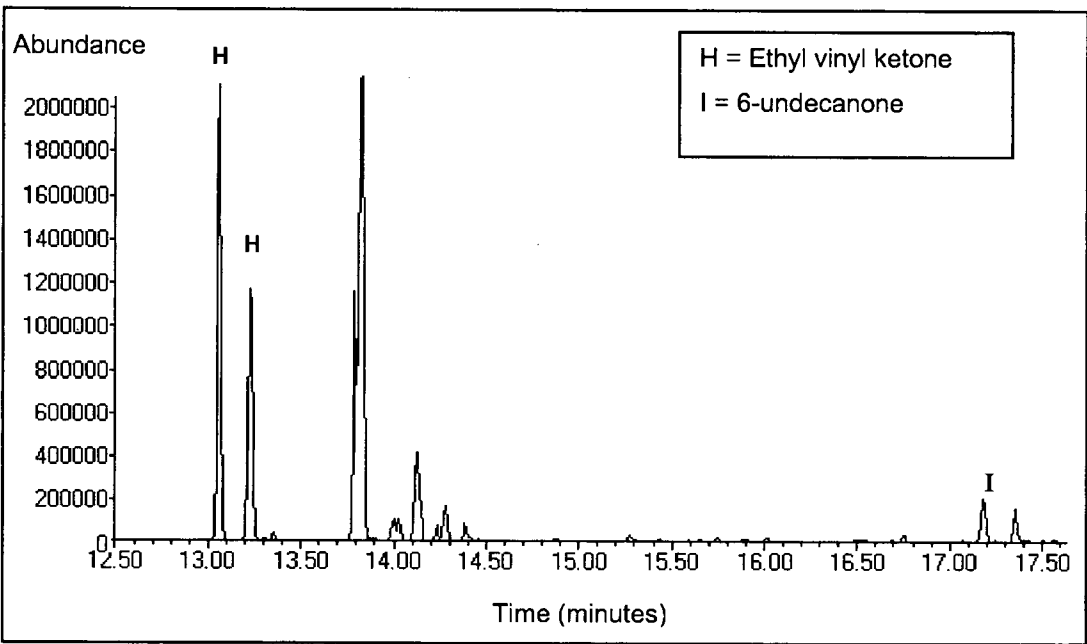


Figure 2b



INFORME DE BUSQUEDA INTERNACIONAL

Solicitud internacional No.
PCT/GB2008/050656

A. CLASIFICACION DE LA MATERIA OBJETO		
INV. A23L1/03 G01N33/64 G01N33/02 G01N33/03		
De acuerdo con la clasificación internacional de patentes (IPC) o ambas la clasificación nacional e IPC		
B. CAMPOS BUSCADOS		
Documentación mínima buscada (sistema de clasificación seguida de símbolos de clasificación)		
A23L G01N		
Otra documentación buscada además de la documentación mínima a la extensión que tales documentos están incluidos en los campos buscados		
Base de datos electrónica consultada durante la búsqueda internacional (nombre de la base de datos y, donde sea práctico, términos de búsqueda usados)		
EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS		
C. DOCUMENTOS QUE SE CONSIDERAN RELEVANTES		
Categoría *	Cita del documento, con indicación, donde sea apropiado, de los pasajes relevantes	Relevante para la reivindicación No.
X	WO 2006/075953 A (SWETREE TECHNOLOGIES AB [SE]; EDLUND ULF [SE]; MAGNUSSON BENGT [SE]) 20 Julio 2006 (2006-07-20) Página 1, párrafos 1, 2 Página 3, párrafo 3 Página 4, párrafo 2 – página 5, párrafo 1 Página 6, párrafo 7 Página 10, párrafo 4	1-3, 10-13
X	WO 95/ 06249 A (BIOCODE INC [US]) 2 Marzo 1995 (1995-03-02) Página 1, líneas 4, 5 Página 3, línea 32 – página 5, línea 1 Página 7, líneas 1-25 Página 11, líneas 4, 5 Página 11, línea 21 – página 12, línea 25 Página 19, líneas 27-32 Página 20, líneas 25-27	1-6, 10-13

☒ Documentos adicionales están listados en la continuación del recuadro C. ☒ Ver anexo de familia de patentes	
* Categorías especiales de los documentos citados: "A" Documentos que definen el estado general del arte que no se considere que sean de relevancia particular. "E" Ultimo documento pero publicado en o después de la fecha de radicación internacional. "L" Documento que puede causar dudas sobre la prioridad de la(s) reivindicación(es) o el que se cita para establecer la fecha de publicación de otra cita u otra razón especial (como se especifica). "O" Documentos que se refieren a una divulgación oral, uso, exhibición u otros medios. "P" Documento publicado antes de la fecha de radicación internacional pero mas tarde de la fecha de prioridad reivindicada. "T" Ultimo documento publicado después de la fecha de radicación internacional o de la fecha prioritaria y que no este en conflicto con la solicitud pero se cita para entender el principio o teoría subyacente a la invención "X" Documento de relevancia particular; la invención reivindicada no puede considerarse novedosa o no puede ser considerada que involucre un nivel inventivo cuando el documento se toma solo "Y" Documento de relevancia particular; la invención reivindicada no se puede considerar que involucre un nivel inventivo cuando el documento esté combinado con uno o más de otros documentos, tal combinación es obvia para una persona versada en el arte. "&" Miembro de documento de la misma familia de patentes	
Fecha al completar realmente la búsqueda internacional	Fecha del correo del informe internacional de búsqueda
16 Octubre 2008	04/11/2008
Nombre y Dirección de Correo de la ISA	Oficial autorizado
Oficina Europea de Patentes – P.B.5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+ 31- 70) 340-2040 Fax :(+ 31- 70) 340-3016	Couzy, Francois

CONTINUACIÓN DE INFORMACIÓN ADICIONAL DE PCT/ISA/210

Esta autoridad de Búsqueda Internacional encontró múltiples (grupos de) invenciones en esta solicitud internacional, así:

1. Reivindicaciones: 1-4 (parte), 5-7, 10-13 (parte)

Método para la identificación de un producto, en donde se utiliza un material marcador, el cual es un compuesto carbonílico, especialmente una cetona.

2. Reivindicaciones: 1-4 (parte), 8-9, 10-13 (parte)

Método para la identificación de un producto, en donde se utiliza un material marcador, el cual es un compuesto que tiene un heterociclo que contiene un nitrógeno y/o un azufre.

INFORME DE BUSQUEDA INTERNACIONAL
Información sobre los miembros de la familia de patentes

Solicitud internacional No.
PCT/GB2008/0050656

Documento patente citado en el informe de búsqueda	Fecha de Publicación	Miembro(s) de la Familia de patentes	Fecha de Publicación
WO 2006075953 A	20-07-2006	UY 29336 A1	31-07-2006
WO 9506249 A	02-03-1995	AU 700710 B2	14-01-1999
		AU 7670494 A	21-03-1995
		CA 2169850 A1	02-03-1995
		CN 1131463 A	18-09-1996
		EP 0714512 A1	05-06-1996
		JP 9504099 T	22-04-1997
		SG 59959 A1	22-02-1999
WO 9617954 A	13-06-1996	AU 701932 B2	11-02-1999
		AU 3992395 A	26-06-1996
		CA 2206486 A1	13-06-1996
		EP 0795029 A1	17-09-1997
		NZ 296197 A	29-11-1999
DE 102004031486 A1	19-01-2006	WO 2006002608 A1	12-01-2006
		EP 1761768 A1	14-03-2007
US 6312958 B1	06-11-2001	AT 373822 T	15-10-2007
		AU 754193 B2	07-11-2002
		AU 3815299 A	16-11-1999
		BG 65287 B1	30-11-2007
		BG 104951 A	31-05-2001
		BR 9909817 A	19-12-2000
		CA 2329221 A1	04-11-1999
		CN 1307680 A	08-08-2001
		CZ 20003909 A3	17-10-2001
		DE 19818176 A1	28-10-1999
		EA 2413 B1	25-04-2002
		EE 200000612 A	15-04-2002
		WO 9956125 A1	04-11-1999
		EP 1082610 A1	14-03-2001
		ES 2293723 T3	16-03-2008
		HU 0102734 A2	28-12-2001
		IL 138845 A	20-06-2004
		JP 2002513155 T	08-05-2002
		KR 20010042936 A	25-05-2001
		MX 213588 B	08-04-2003
		NO 20005280 A	19-12-2000
		NZ 508195 A	26-07-2002
		PL 344017 A1	24-09-2001
		SK 14862000 A3	11-06-2001
		TR 200003066 T2	22-01-2001
		TW 503315 B	21-09-2002
		UA 66381 C2	17-09-2001
		ZA 200006828 A	22-11-2001
US 4764290 A	16-08-1988	NINGUNA	

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/050656

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23L1/03 G01N33/64 G01N33/02 G01N33/03

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A23L G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/075953 A (SWETREE TECHNOLOGIES AB [SE]; EDLUND ULF [SE]; MAGNUSSON BENGT [SE]) 20 July 2006 (2006-07-20) page 1, paragraphs 1,2 page 3, paragraph 3 page 4, paragraph 2 - page 5, paragraph 1 page 6, paragraph 7 page 10, paragraph 4	1-3, 10-13
X	WO 95/06249 A (BIOCODE INC [US]) 2 March 1995 (1995-03-02) page 1, lines 4,5 page 3, line 32 - page 5, line 1 page 7, lines 1-25 page 11, lines 4,5 page 11, line 21 - page 12, line 25 page 19, lines 27-32 page 20, lines 25-27	1-6, 10-13
	-/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *S* document member of the same patent family

Date of the actual completion of the international search

16 October 2008

Date of mailing of the international search report

04/11/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Couzy, François

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4(part), 5-7, 10-13(part)

Method for the identification of a product, wherein a tracer material is used, which is a carbonyl compound, especially a ketone.

2. claims: 1-4(part), 8-9, 10-13(part)

Method for the identification of a product, wherein a tracer material is used, which is a compound having a nitrogen- and/or a sulphur-containing heterocycle.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/050656

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006075953 A	20-07-2006	UY 29336 A1	31-07-2006
WO 9506249 A	02-03-1995	AU 700710 B2	14-01-1999
		AU 7670494 A	21-03-1995
		CA 2169850 A1	02-03-1995
		CN 1131463 A	18-09-1996
		EP 0714512 A1	05-06-1996
		JP 9504099 T	22-04-1997
		SG 59959 A1	22-02-1999
WO 9617954 A	13-06-1996	AU 701932 B2	11-02-1999
		AU 3992395 A	26-06-1996
		CA 2206486 A1	13-06-1996
		EP 0795029 A1	17-09-1997
		NZ 296197 A	29-11-1999
DE 102004031486 A1	19-01-2006	WO 2006002608 A1	12-01-2006
		EP 1761768 A1	14-03-2007
US 6312958 B1	06-11-2001	AT 373822 T	15-10-2007
		AU 754193 B2	07-11-2002
		AU 3815299 A	16-11-1999
		BG 65287 B1	30-11-2007
		BG 104951 A	31-05-2001
		BR 9909817 A	19-12-2000
		CA 2329221 A1	04-11-1999
		CN 1307680 A	08-08-2001
		CZ 20003909 A3	17-10-2001
		DE 19818176 A1	28-10-1999
		EA 2413 B1	25-04-2002
		EE 200000612 A	15-04-2002
		WO 9956125 A1	04-11-1999
		EP 1082610 A1	14-03-2001
		ES 2293723 T3	16-03-2008
		HU 0102734 A2	28-12-2001
		IL 138845 A	20-06-2004
		JP 2002513155 T	08-05-2002
		KR 20010042936 A	25-05-2001
		MX 213588 B	08-04-2003
		NO 20005280 A	19-12-2000
		NZ 508195 A	26-07-2002
		PL 344017 A1	24-09-2001
		SK 14862000 A3	11-06-2001
		TR 200003066 T2	22-01-2001
		TW 503315 B	21-09-2002
		UA 66381 C2	17-09-2001
		ZA 200006828 A	22-11-2001
US 4764290 A	16-08-1988	NONE	

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

JOHNSON MATTHEY CATALYSTS
Attn. Gibson, Sara
P.O. Box 1
Belasis Avenue
Billingham
Cleveland TS23 1LB
GRANDE BRETAGNE

RECEIVED
- 3 NOV 2008

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing (day/month/year) 04/11/2008	
Applicant's or agent's file reference SYN 60124/WO	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/GB2008/050656	International filing date (day/month/year) 04/08/2008
Applicant JOHNSON MATTHEY PLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the International application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Carlos Novoa
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see *PCT Applicant's Guide*, Volume I/A, paragraph 296).

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

If a demand for international preliminary examination is made, the written opinion of the International Searching Authority will, except in certain cases where the International Preliminary Examining Authority did not act as International Searching Authority and where it has notified the International Bureau under Rule 66.1bis(b), be considered to be a written opinion of the International Preliminary Examining Authority. If a demand is made, the applicant may submit to the International Preliminary Examining Authority a reply to the written opinion together, where appropriate, with amendments before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later (Rule 43bis.1(c)).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the *PCT Applicant's Guide*, Volume II.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SYN 60124/WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/GB2008/050656	International filing date (day/month/year) 04/08/2008	(Earliest) Priority Date (day/month/year) 28/09/2007
Applicant JOHNSON MATTHEY PLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
☒ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/050656

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23L1/03 G01N33/64 G01N33/02 G01N33/03

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A23L G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, FSTA, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/075953 A (SWETREE TECHNOLOGIES AB [SE]; EDLUND ULF [SE]; MAGNUSSON BENGT [SE]) 20 July 2006 (2006-07-20) page 1, paragraphs 1,2 page 3, paragraph 3 page 4, paragraph 2 - page 5, paragraph 1 page 6, paragraph 7 page 10, paragraph 4	1-3, 10-13
X	WO 95/06249 A (BIOCODE INC [US]) 2 March 1995 (1995-03-02) page 1, lines 4,5 page 3, line 32 - page 5, line 1 page 7, lines 1-25 page 11, lines 4,5 page 11, line 21 - page 12, line 25 page 19, lines 27-32 page 20, lines 25-27	1-6, 10-13
-/--		

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

16 October 2008

Date of mailing of the international search report

04/11/2008

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Couzy, François

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2008/050656

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/17954 A (PABIO [NO]; ALESTROEM PETER [NO]) 13 June 1996 (1996-06-13) page 1, lines 3-11 page 3, line 25 - page 4, line 27 page 6, lines 9-14 table 1A page 15, line 4 - page 16, line 14 page 17, lines 25,26 page 20, lines 12-19 page 21, line 24	1-3,5,8, 12,13
X	DE 10 2004 031486 A1 (FORSCHUNGSZENTRUM JUELICH GMBH [DE]; AGROISOLAB GMBH [DE]) 19 January 2006 (2006-01-19) paragraphs [0002], [0005], [0011], [0012], [0019], [0020], [0025] - [0027] claims 11,12	1-4,10, 11
X	US 6 312 958 B1 (MEYER FRANK [DE] ET AL) 6 November 2001 (2001-11-06) column 1, lines 5-12 column 3, lines 33-37 column 4, lines 17-45 column 9, lines 1-15	1-3,6,8, 10-13
A	US 4 764 290 A (CURREY WILLIAM C [US]) 16 August 1988 (1988-08-16) column 1, lines 5-10,45-53 examples 1-3	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2008/050656

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4(part), 5-7, 10-13(part)

Method for the identification of a product, wherein a tracer material is used, which is a carbonyl compound, especially a ketone.

2. claims: 1-4(part), 8-9, 10-13(part)

Method for the identification of a product, wherein a tracer material is used, which is a compound having a nitrogen- and/or a sulphur-containing heterocycle.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/050656

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006075953 A	20-07-2006	UY 29336 A1	31-07-2006
WO 9506249 A	02-03-1995	AU 700710 B2	14-01-1999
		AU 7670494 A	21-03-1995
		CA 2169850 A1	02-03-1995
		CN 1131463 A	18-09-1996
		EP 0714512 A1	05-06-1996
		JP 9504099 T	22-04-1997
		SG 59959 A1	22-02-1999
WO 9617954 A	13-06-1996	AU 701932 B2	11-02-1999
		AU 3992395 A	26-06-1996
		CA 2206486 A1	13-06-1996
		EP 0795029 A1	17-09-1997
		NZ 296197 A	29-11-1999
DE 102004031486 A1	19-01-2006	WO 2006002608 A1	12-01-2006
		EP 1761768 A1	14-03-2007
US 6312958 B1	06-11-2001	AT 373822 T	15-10-2007
		AU 754193 B2	07-11-2002
		AU 3815299 A	16-11-1999
		BG 65287 B1	30-11-2007
		BG 104951 A	31-05-2001
		BR 9909817 A	19-12-2000
		CA 2329221 A1	04-11-1999
		CN 1307680 A	08-08-2001
		CZ 20003909 A3	17-10-2001
		DE 19818176 A1	28-10-1999
		EA 2413 B1	25-04-2002
		EE 200000612 A	15-04-2002
		WO 9956125 A1	04-11-1999
		EP 1082610 A1	14-03-2001
		ES 2293723 T3	16-03-2008
		HU 0102734 A2	28-12-2001
		IL 138845 A	20-06-2004
		JP 2002513155 T	08-05-2002
		KR 20010042936 A	25-05-2001
		MX 213588 B	08-04-2003
		NO 20005280 A	19-12-2000
		NZ 508195 A	26-07-2002
		PL 344017 A1	24-09-2001
		SK 14862000 A3	11-06-2001
		TR 200003066 T2	22-01-2001
		TW 503315 B	21-09-2002
		UA 66381 C2	17-09-2001
		ZA 200006828 A	22-11-2001
US 4764290 A	16-08-1988	NONE	

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2008/050656

International filing date (day/month/year)
04.08.2008

Priority date (day/month/year)
28.09.2007

International Patent Classification (IPC) or both national classification and IPC
INV. A23L1/03 G01N33/64 G01N33/02 G01N33/03

Applicant
JOHNSON MATTHEY PLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Couzy, François

Telephone No. +49 89 2399-7503



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2008/050656

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2008/050656

Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- ☐ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☐ not paid additional fees
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☒ complied with
 - ☐ not complied with for the following reasons:
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>7,9</u>
	No: Claims	<u>1-6,8,10-13</u>
Inventive step (IS)	Yes: Claims	<u>7,9</u>
	No: Claims	<u>1-6,8,10-13</u>
Industrial applicability (IA)	Yes: Claims	<u>1-13</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2008/050656

Re Item IV.

The separate inventions are:

Claims 1-4(part), 5-7, 10-13(part): Method for the identification of a product, wherein a tracer material is used, which is a carbonyl compound, especially a ketone.

Claims 1-4(part), 8-9, 10-13(part): Method for the identification of a product, wherein a tracer material is used, which is a compound having a nitrogen- and/or a sulphur-containing heterocycle.

They are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons: since the prior art abounds with such methods including a variety of tracers, there is no common inventive concept between the two inventions, which differ by the tracer used.

Re Item V.

V.1 Reference is made to the following documents:

- D1 : WO 2006/075953 A (SWETREE TECHNOLOGIES AB [SE]; EDLUND U [SE]; MAGNUSSON B [SE]) 20 July 2006
- D2 : WO 95/06249 A (BIOCODE INC [US]) 2 March 1995
- D3 : WO 96/17954 A (PABIO [NO]; ALESTROEM P [NO]) 13 June 1996
- D4 : DE 10 2004 031486 A1 (FORSCHUNGSZENTRUM JUELICH GMBH [DE]; AGROISOLAB GMBH [DE]) 19 January 2006
- D5 : US 6 312 958 B1 (MEYER F [DE] ET AL) 6 November 2001
- D6 : US-A-4 764 290 (CURREY WC [US]) 16 August 1988

V.2 Novelty and inventive step

V.2.1 All of documents D1-D5 disclose the marking of foodstuffs (NB: in D1, the tree is

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2008/050656

marked, and this also results in the marking of the products of the tree, such as seeds, from which oil might be obtained in the case of palm trees). The tracers used are rare earth metals (D1), member-hapten complexes wherein the hapten can be a ketonic compound, see p.12 (D2), DNA fragments wherein the puric and pyrimidic bases of DNA are nitrogen-containing heterocycles (D3), a stable isotope of oxygen included in very safe compounds (D4), and fluorescent compounds comprising nitrogen-containing heterocycles (e.g. col.4 l.30-45) and ketones (e.g., col.9 l.1-14). Since these documents disclose the labeling of foods, it must be concluded that the compounds used are "acceptable for use as an additive in food", as required by claim 1. Thus, the subject-matter of claims 1-2 is not new (Art. 33 (2) PCT) vs. any of D1-D5.

More specifically:

- Document D1 discloses the subject-matter of claims 1-3, 5, 8, and 12-13;
- Document D2 discloses the subject-matter of claims 1-2, 4-6, and 10-13;
- Document D3 discloses the subject-matter of claims 1-3, 5, 8, and 12-13;
- Document D4 discloses the subject-matter of claims 1-2, 4, and 10-11;
- Document D5 discloses the subject-matter of claims 1-3, 6, 8, 10, and 12-13.

Additionally, the subject-matter of claim 3 appears to only consist of an obvious option in light of D2 or D4 each taken alone, and that of claim 11 in light of D5 alone. Thus, the subject-matter of said claims also does not involve an inventive step (Art. 33 (3) PCT).

V.2.2 Document D1 is considered to be the closest prior art, since it also relates to the traceability of plant materials to guarantee its origin in face of the problem of biotope destruction. Starting from that document, the new objective problem to be solved may be formulated as the provision of an identification method using alternative tracer chemical compounds. In that respect, only the subject-matter of present claims 7 and 9 covers solutions not provided by the prior art. Thus, these claims are both novel and involve an inventive step (Art. 33 (2-3) PCT).

V.2.3 The most relevant parts of the above-cited documents are those cited in the International Search Report, to which the reader is referred.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2008/050656

V.3 The subject-matter of all claims is industrially applicable in the sense of Art. 33 (4) PCT.

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information

For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.

Amending claims under Art. 19 PCT

Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.

Filing a demand for international preliminary examination

In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT).

If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).

Filing informal comments

After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.

End of the international phase

At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPER (international preliminary examination report).

Relevant PCT Rules and more information

Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003

RECEIVED
- 9 SEP 2008

PATENT COOPERATION TREATY

PCT/GB2008/050656

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

To:

GIBSON, SARA
Johnson Matthey Catalysts
P.O. Box 1
Belasis Avenue
Billingham Cleveland TS23 1LB
ROYAUME-UNI

Date of mailing (day/month/year) 29 August 2008 (29.08.2008)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference SYN 60124/WO	International application No. PCT/GB2008/050656

The applicant is hereby **notified** that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

JOHNSON MATTHEY PLC (for all designated States except US)
GREEN, Darrell et al (for US)

International filing date: 04 August 2008 (04.08.2008)
Priority date(s) claimed: 28 September 2007 (28.09.2007)
Date of receipt of the record copy by the International Bureau: 07 August 2008 (07.08.2008)

List of designated Offices:

AP: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW
EA: AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
EP: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR
OA: BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
National: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

ATTENTION: The applicant should carefully check the data appearing in this notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau. **In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:**

- time limits for entry into the national phase - see updated important information (as of April 2002)
- requirements regarding priority documents (if applicable)

A copy of this notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 87 40	Authorized officer Ben-Mansour Naceur e-mail pt01.pct@wipo.int Telephone No. +41 22 338 74 01
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INFORMATION ON ENTERING THE NATIONAL PHASE

The applicant is reminded that the **"national phase" must be entered** before each of the designated Offices indicated on the cover sheet of this notification by paying national fees and furnishing translations, as prescribed by Articles 22 and 39 and the applicable national laws. In addition, the applicant may also have to comply with **other special requirements** applicable in certain Offices. It is the **applicant's responsibility** to ensure that the necessary steps to enter the national phase are taken in a timely fashion. Most Offices do not issue reminders to applicants in connection with the entry into the national phase.

The **applicable time limit** for entering the national phase will, **subject to what is said in the following paragraph**, be **30 MONTHS** from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date (see Article 39(1)), but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see *PCT Gazette* No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the *PCT Newsletter*, October and November 2001 and February 2002 issues.

In practice, **time limits other than the 30-month time limit will continue to apply, for various periods of time**, in respect of certain designated or elected Offices. For **regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit)**, Office by Office, refer to the *PCT Gazette* ("Section IV" part published on a weekly basis), to the *PCT Newsletter* (on a monthly basis) and to the relevant National Chapters in Volume II of the *PCT Applicant's Guide* (the paper version of which is updated usually twice a year and the Internet version of which is updated usually on a weekly basis). Finally, a cumulative table of all applicable time limits for entering the national phase is available from WIPO's Internet site, via links from various pages of the site, including those of the *Gazette*, *Newsletter* and *Guide*, at <http://www.wipo.int/pct/en/index.html>.

Information about the requirements for **filing a demand for international preliminary examination** is set out in the *PCT Applicant's Guide*, Volume I/A, Chapter IX. Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before the date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau and if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances (Rule 17.1(c)).

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit (and all other PCT time limits) is the filing date of the earliest application whose priority is claimed (Article 2(xi)(b)).

RECEIVED
- 9 SEP 2008

PATENT COOPERATION TREATY

PCT/GB2008/050656

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

GIBSON, SARA
Johnson Matthey Catalysts
P.O. Box 1
Belasis Avenue
Billingham Cleveland TS23 1LB
ROYAUME-UNI

Date of mailing (day/month/year) 01 September 2008 (01.09.2008)	
Applicant's or agent's file reference SYN 60124/WO	IMPORTANT NOTIFICATION
International application No. PCT/GB2008/050656	International filing date (day/month/year) 04 August 2008 (04.08.2008)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 28 September 2007 (28.09.2007)
Applicant JOHNSON MATTHEY PLC et al	

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable) An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
28 September 2007 (28.09.2007)	0718934.3	GB	18 August 2008 (18.08.2008)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Dorothee Mülhausen

e-mail PT01.PCT@WIPO.INT

Telephone No. +41 22 338 74 01

Facsimile No. +41 22 338 82 70

PATENT COOPERATION TREATY

WO 2009/040563
PCT/GB2008/050656

From the INTERNATIONAL BUREAU

PCT

FIRST NOTICE INFORMING THE APPLICANT OF
THE COMMUNICATION OF THE INTERNATIONAL
APPLICATION (TO DESIGNATED OFFICES WHICH
DO NOT APPLY THE 30 MONTH TIME LIMIT
UNDER ARTICLE 22(1))

(PCT Rule 47.1(c))

To:

GIBSON, SARA
Johnson Matthey Catalysts
P.O. Box 1
Belasis Avenue
Billingham Cleveland TS23 1LB
ROYAUME-UNI

Date of mailing (day/month/year)
30 April 2009 (30.04.2009)

Applicant's or agent's file reference
SYN 60124/WO

IMPORTANT NOTICE

International application No.
PCT/GB2008/050656

International filing date (day/month/year)
04 August 2008 (04.08.2008)

Priority date (day/month/year)
28 September 2007 (28.09.2007)

Applicant

JOHNSON MATTHEY PLC et al

- ATTENTION:** For any designated Office(s), for which the time limit under Article 22(1), as in force from 1 April 2002 (30 months from the priority date), **does apply**, please see Form PCT/IB/308(Second and Supplementary Notice) (to be issued promptly after the expiration of 28 months from the priority date).
- Notice is hereby given that the following designated Office(s), for which the time limit under Article 22(1), as in force from 1 April 2002, **does not apply**, has/have requested that the communication of the international application, as provided for in Article 20, be effected under Rule 93bis.1. The International Bureau has effected that communication on the date indicated below:
02 April 2009 (02.04.2009)

None

In accordance with Rule 47.1(c-bis)(i), those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

- The following designated Offices, for which the time limit under Article 22(1), as in force from 1 April 2002, **does not apply**, have not requested, as at the time of mailing of the present notice, that the communication of the international application be effected under Rule 93bis.1 :

LU, TZ, UG

In accordance with Rule 47.1(c-bis)(ii), those Offices accept the present notice as conclusive evidence that the Contracting State for which that Office acts as a designated Office does not require the furnishing, under Article 22, by the applicant of a copy of the international application.

4. TIME LIMITS for entry into the national phase

For the designated Office(s) listed above, and unless a demand for international preliminary examination has been filed before the expiration of **19 months** from the priority date (see Article 39(1)), the applicable time limit for entering the national phase will, **subject to what is said in the following paragraph**, be **20 MONTHS** from the priority date.

In practice, **time limits other than the 20-month time limit** will continue to apply, for various periods of time, in respect of certain of the designated Offices listed above. For **regular updates on the applicable time limits** (20 or 21 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

It is the applicant's **sole responsibility** to monitor all these time limits.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Dorothee Mülhausen

Facsimile No. +41 22 338 82 70

e-mail: pt01.pct@wipo.int

PATENT COOPERATION TREATY

From the RECEIVING OFFICE

To:
Johnson Matthey Catalysts
Intellectual Property Department
PO Box 1
Belasis Avenue, Billingham
Cleveland
TS23 1LB

RECEIVED
- 7 AUG 2008

PCT

NOTIFICATION OF THE INTERNATIONAL APPLICATION NUMBER AND OF THE INTERNATIONAL FILING DATE

(PCT Rule 20.2(c))

Date of mailing (day/month/year) **5 AUG 2008**

Applicant's or agent's file reference SYN 60124/WO		IMPORTANT NOTIFICATION	
International application No. PCT/GB2008/050656	International filing date (day/month/year) 04/08/2008	Priority date (day/month/year) 28/09/2007	
Applicant Johnson Matthey plc et al			
Title of the invention Tagging Method			

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.

2. The applicant is further notified that the record copy of the international application:

☒ was transmitted to the International Bureau on **5 AUG 2008**

☐ has not yet been transmitted to the International Bureau for the reason indicated below and a copy of this notification has been sent to the International Bureau*:

☐ because the necessary national security clearance has not yet been obtained.

☐ because (reason to be specified):

* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

Name and mailing address of the receiving Office UK Intellectual Property Office Cardiff Road, Newport South Wales NP10 8QQ	Authorized officer Steve Bevan
Facsimile No.	Telephone No. 01633 814588

PATENT COOPERATION TREATY

WO 2009/040563
PCT/GB2008/050656

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
AVAILABILITY OF THE PUBLICATION
OF THE INTERNATIONAL APPLICATION

To:

GIBSON, SARA
Johnson Matthey Catalysts
P.O. Box 1
Belasis Avenue
Billingham Cleveland TS23 1 9
ROYAUME-UNI

RECEIVED
- 9 APR 2009

Date of mailing (day/month/year)
02 April 2009 (02.04.2009)

Applicant's or agent's file reference
SYN 60124/WO

IMPORTANT NOTICE

International application No.
PCT/GB2008/050656

International filing date (day/month/year)
04 August 2008 (04.08.2008)

Priority date (day/month/year)
28 September 2007 (28.09.2007)

Applicant

JOHNSON MATTHEY PLC et al

The applicant is hereby **notified** that the International Bureau:

☒ has **published** the above-indicated international application on 02 April 2009 (02.04.2009) under
No. WO 2009/040563

☐ has **republished** the above-indicated international application on under
No. WO
For an explanation as to the reason for this republication of the international application, reference is made to INID codes (15), (-48)
or (88) (as the case may be) on the front page of the published international application.

A copy of the international application is available for viewing and downloading on WIPO's website at the following address:
www.wipo.int/pctdb (in the appropriate field of the structured search, enter the PCT or WO number).

The applicant may also obtain a paper copy of the published international application from the International Bureau by sending an e-mail to
patentscope@wipo.int or by submitting a written request to the contact details provided below.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Dorothee Mülhausen

Facsimile No. +41 22 338 82 70

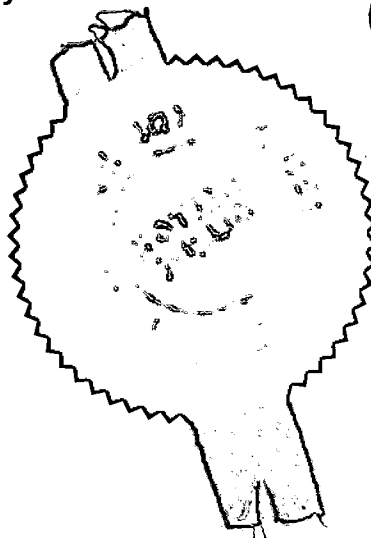
e-mail: pt01.pct@wipo.int

I FREDERICK JOHN PACEY Notary Public duly authorised admitted
and sworn and practising within the United Kingdom of Great Britain
and Northern Ireland do hereby certify that the signatures of
DARRELL GREEN and DUNCAN WILLIAM JOHN McCALLIEN and
CHRISTOPHER THOMAS LLEWELLYN and JOHN RIDLAND
appearing on the document attached hereto are verily the signatures
of the said DARRELL GREEN and DUNCAN WILLIAM JOHN
McCALLIEN and CHRISTOPHER THOMAS LLEWELLYN and JOHN
RIDLAND all known to me and that JOHN RIDLAND is entitled to sign
on behalf of JOHNSON MATTHEY PLC

Dated this 9th day of March Two thousand and ten

Frederick John Pacey
Notary Public
10 Finkle Street
Stockton on Tees
England
TS18 1AS

F J Pacey



APOSTILLE

(Hague Convention of 5 October 1961 / Convention de La Haye du 5 octobre 1961)

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

1. Country: United Kingdom of Great Britain and Northern Ireland
Pays: Royaume-Uni de Grande-Bretagne et d'Irlande du Nord
This public document / Le présent acte public
2. Has been signed by **Frederick John Pacey**
a été signé par
3. Acting in the capacity of **Notary Public**
agissant en qualité de
4. Bears the seal/stamp of **The Said Notary Public**
est revêtu du sceau/timbre de
5. at London/à Londres
6. the/le **12 March 2010**
Certified/Attesté
7. by Her Majesty's Principal Secretary of State for Foreign and Commonwealth Affairs /
par le Secrétaire d'Etat Principal de Sa Majesté aux Affaires Etrangères et du Commonwealth.

8. Number/sous No **I439806**

9. Stamp:
timbre:

10. Signature: **C Woolley**



For the Secretary of State / Pour le Secrétaire d'Etat

If this document is to be used in a country which is not party to the Hague Convention of 5th October 1961, it should be presented to the consular section of the mission representing that country.

An apostille or legalisation certificate only confirms that the signature, seal or stamp on the document is genuine. It does not mean that the content of the document is correct or that the Foreign & Commonwealth Office approves of the content.

THIS DEED OF ASSIGNMENT is made the 6th day of October 2007

BETWEEN

DARRELL GREEN of 5 Hallmoor Close, Kirklevington, Yarm, Cleveland TS15 9NN, United Kingdom, DUNCAN WILLIAM JOHN McCALLIEN of 108 Neville Road, Darlington, County Durham DL3 8NE, United Kingdom and CHRISTOPHER THOMAS LLEWELLYN of 49 Appleby Close, Darlington, County Durham DL1 4AJ (hereinafter referred to as "Inventors")

and

Johnson Matthey PLC of 40-42 Hatton Garden, London, EC1N 8EE, United Kingdom. (hereinafter referred to as "JM").

WHEREAS

(a) The Inventors have made an invention (hereinafter referred to as the "Invention"), which is described in the specification entitled "TAGGING METHOD", relating to a method of tagging a natural product and methods of identifying such a product using the tagging method. filed with GB application No. 0718934.3 (hereinafter referred to as the Application) made to the UK Patent Office for grant of letters patent by JM on 28 September 2007.

(b) The Inventor(s), by virtue of their Employment by JM, have agreed to assign to JM their entire right, title and interest in and to the Invention and the Application.

NOW THIS ASSIGNMENT WITNESSETH AS FOLLOWS and it is hereby agreed as follows:

In consideration of their employment or other AGREEMENT, the Inventors hereby assign unto JM their entire right, title and interest in and to

- (i) the Invention
- (ii) the Application
- (iii) any and all Letters Patent or other form of protection which may be granted for the Invention.

together with the sole and exclusive benefit thereof and all rights, privileges and advantages whatsoever appertaining thereto (as far as the same would but for this assignment arise or accrue to the benefit of the Inventors) to hold the same unto JM for its sole use and benefit exclusively.

The Inventors assign unto JM the right to make further applications for Letters Patent or other form of protection for the Invention in any and all countries where such applications may be made by another than the inventors and to claim priority for such applications from the Applications.

JM hereby accepts this assignment.

The Inventors covenant and agree to sign all papers and drawings, take all rightful oaths and do all acts necessary or required by JM to be done for the procurement of Letters Patent or other form of protection for the Invention and for further vesting or confirming the right and title thereof in JM without charge to JM but at its expense.

This assignment shall be deemed to have come into full force and effect on the 28 September 2007.

IN WITNESS WHEREOF the inventors have executed this deed.



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SIGNED AS A DEED by the said

DARRELL GREEN

Darrell Green

DUNCAN WILLIAM JOHN McCALLIEN

Duncan W J McCallien

CHRISTOPHER THOMAS LLEWELLYN

C.T. Llewellyn

in the presence of:

Signature of Witness:

Address of Witness:

Occupation of Witness:

11 TENNYSON ROAD
BILLINGHAM UK
DEVELOPMENT MANAGER

SIGNED AS A DEED on behalf of JM;

SARA HILLARY MARGARET GIBSON, Patent Attorney

in the presence of:

Signature of Witness:

Address of Witness:

Occupation of Witness:

Shirley Adams
20 Regency Park, Ingleby Barwick
Cleveland TS17 0 QR, UK.
Patent Administrator



PATENTE DE INVENCION ☐

MODELO DE UTILIDAD ☐

Art 33 Decisión 486/00

☐

Indicación que se solicita una patente.

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Descripción de la invención

☐

Dibujos de ser estos pertinentes

☐

Comprobante de pago de las tasas establecidas (De ser el caso formato de descuento)

Completa ☐

Incompleta ☐

PATENTE DE INVENCION PCT ☒

MODELO DE UTILIDAD PCT ☐

Art.33 Decisión 486/00, Circular Única

☒

Indicación que se solicita una PCT

☒

Copia de la solicitud en español, tal como fue presentada inicialmente (capítulo descriptivo, reivindicatorio, resumen)

☐

Dibujos de ser estos pertinentes

☒

Comprobante de pago de las tasas establecidas (de ser el caso formato de descuento)

Completa ☐

Incompleta ☐

DISEÑO INDUSTRIAL ☐

(Art. 119 Decisión 486/00)

☐

Indicación que se solicita Diseño industrial

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Representación gráfica y fotográfica del Diseño industrial o muestra del material que incorpora el diseño

☐

Comprobante de pago de las tasas establecidas

Completa ☐

Incompleta ☐

ESQUEMA DE TRAZADO ☐

(Art. 92 Decisión 486/00)

☐

Indicación que se solicita un esquema de trazado

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Representación gráfica de un esquema de trazado

☐

Comprobante de pago de las tasas establecidas

Completa ☐

Incompleta ☐



Bogotá D.C.,
2020

Doctor(a)
RODRIGUEZ D' ALEMAN DILIA MARIA
Apoderado(a) y/o Representante de
JOHNSON MATTHEY PLC

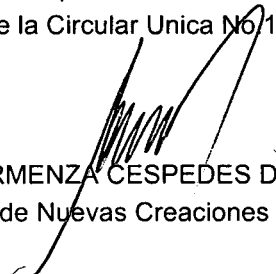
REFERENCIA	Radicación No.	10 037473
	Solicitud internacional	PCT/GB2008/050656
	Fecha inicio fase nacional	28/04/2010
	Trámite	11
	Evento	378
	Actuación	430
	Oficio No.	06389

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, se le comunica que:

1. El solicitante debe presentar un nuevo título que permita identificar la materia de la cual trata la solicitud, ya que el título relacionado no se encuentra con la precisión necesaria para identificar claramente el objeto de la solicitud de patente. (Regla 4.3 PCT, Art 26-27 D-486, Circular única 5.2.9)

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 Unica No. 10 de 2001.


ALIX CARMENZA CESPEDES DE VERGEL
Directora de Nuevas Creaciones (c)

El anterior requerimiento fue notificado por fijación en lista de fecha 14 MAYO 2010
adpa11