



Bibliographic data: AU 7974700 (A)

AU 7974700 (A)
Bibliographic data
Description
Claims
Mosaics
Original document
INPADOC legal status

In my patents list | Report data error | Emulsion of perfluororganic compounds for medical purposes, method for producing said emulsion and methods for curing and preventing diseases with the aid of the emulsion | Print

Page bookmark [AU 7974700 \(A\) - Emulsion of perfluororganic compounds for medical purposes, method for producing said emulsion and methods for curing and preventing diseases with the aid of the emulsion](#)

Publication date: 2002-02-05

Inventor(s): MAEVSKY EVGENY ILICH; IVANITSKY GENRIKH ROMANOVICH; MAKAROV KIRILL NIKOLAEVICH; KULAKOVA GALINA MIKHAILOVNA; ARKHIPOV VLADIMIR VIKTOROVICH; MOROZ VIKTOR VASILIEVICH; STAROVOITOVA LJUDMILA NIKOLAEV; SENINA RAISA YAKOVLEVNA; PUSHKIN SERGEI JURIEVICH; IVASHINA ALBINA IVANOVNA ±

Applicant(s): OTKRYTOE AKTSIONERNOE OBSHEST ±

Classification: - international: **A61K31/02; A61K31/025; A61K31/13; A61K31/402; A61K31/445; A61K33/00; A61K33/06; A61K33/14; A61K33/42; A61K45/06; A61K47/04; A61K47/26; A61K47/34; A61K9/00; A61K9/10; A61K9/107; A61P7/00; A61P7/08; A61P9/08; A61P9/10; B01F17/42; B01F3/08; C07D295/06**; (IPC1-7): A61K31/02; A61K31/025; A61K31/13; A61K9/107

- European: **A61K33/00; A61K45/06; A61K9/00M5E; A61K33/00; A61K33/06; A61K33/14; A61K33/42**

Application number: AU20000079747D 20000720

Priority number(s): WO2000RU00309 20000720

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Also published as: [EP 1306083 \(A1\)](#)
[EP 1306083 \(A4\)](#)
[US 6562872 \(B1\)](#)
[RU 2206319 \(C2\)](#)
[WO 0207717 \(A1\)](#)
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Abstract not available for AU 7974700 (A)

Abstract of corresponding document: EP 1306083 (A1)

[Translate this text](#)

An emulsion of perfluoroorganic compounds (PFOCs) with gas-transporting properties for intravascular administration comprises a perfluorocarbon rapidly eliminable from the organism and a perfluorinated tertiary amine slowly eliminable from the organism and further comprises at least three kinds of PFOC admixtures taken in small amounts, which are close in their structure and physicochemical properties to the main components and make up a series of PFOCs with gradually changing properties. The emulsion also contains minor admixtures of H-perfluoroalkanes. Such a composition contributes to the formation of a more homogeneous and stable non-clustered perfluorocarbon phase inside the emulsion particles. The PFOC emulsion is stabilized by a polyoxyethylene-polyoxypropylene copolymer.; The formulation of the composition provides stability of the emulsion under storage and on entry into the blood flow, as well as a low viscosity of the PFOC emulsion, which secures a high dynamic oxygen capacity of the preparation and improves the delivery of oxygen to tissues. When preparing the emulsion, the stabilizing agent is heated at a temperature of up to 75 DEG C, all the components are saturated with carbon dioxide gas, and the homogenization is carried out with feeding carbon dioxide gas, whereby the origination of peroxides is minimized and the reactivity is thus reduced. It is proposed to use PFOC emulsions as a means for treating air- and fat embolism, obliterating vascular injuries of extremities and poisoning with lipophilic poisons, as well as for preventing toxic injuries caused by various xenobiotics.

JP 2004504344 (A)
Bibliographic data
Description
Claims
Mosaics
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INPADOC legal status

Bibliographic data: JP 2004504344 (A)

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EMULSION OF PERFLUORORGANIC COMPOUNDS FOR MEDICAL PURPOSES, METHOD FOR PRODUCING SAID EMULSION AND METHODS FOR CURING AND PREVENTING DISEASES WITH THE AID OF THE EMULSION

Page bookmark [JP 2004504344 \(A\) - EMULSION OF PERFLUORORGANIC COMPOUNDS FOR MEDICAL PURPOSES, METHOD FOR PRODUCING SAID EMULSION AND METHODS FOR CURING AND PREVENTING DISEASES WITH THE AID OF THE EMULSION](#)

Publication date: 2004-02-12

Inventor(s):

Applicant(s):

Classification: - international: **A61K31/02; A61K31/025; A61K31/13; A61K31/402; A61K31/445; A61K33/00; A61K33/06; A61K33/14; A61K33/42; A61K45/06; A61K47/04; A61K47/26; A61K47/34; A61K9/00; A61K9/10; A61K9/107; A61P7/00; A61P7/08; A61P9/08; A61P9/10; B01F17/42; B01F3/08; C07D295/06;** (IPC1-7): A61K31/025; A61K31/13; A61K31/402; A61K31/445; A61K47/04; A61K47/26; A61K47/34; A61K9/10; A61P7/00; A61P9/08; C07D295/06; C07M7/00

- European: **A61K33/00; A61K45/06; A61K9/00M5E; A61K33/00; A61K33/06; A61K33/14; A61K33/42**

Application number: JP20020513453T 20000720

Priority number(s): WO2000RU00309 20000720

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Also published as: [EP 1306083 \(A1\)](#)
[EP 1306083 \(A4\)](#)
[US 6562872 \(B1\)](#)
[RU 2206319 \(C2\)](#)
[WO 0207717 \(A1\)](#)
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Abstract not available for JP 2004504344 (A)

Abstract of corresponding document: EP 1306083 (A1)

[Translate this text](#)

An emulsion of perfluoroorganic compounds (PFOCs) with gas-transporting properties for intravascular administration comprises a perfluorocarbon rapidly eliminable from the organism and a perfluorinated tertiary amine slowly eliminable from the organism and further comprises at least three kinds of PFOC admixtures taken in small amounts, which are close in their structure and physicochemical properties to the main components and make up a series of PFOCs with gradually changing properties. The emulsion also contains minor admixtures of H-perfluoroalkanes. Such a composition contributes to the formation of a more homogeneous and stable non-clustered perfluorocarbon phase inside the emulsion particles. The PFOC emulsion is stabilized by a polyoxyethylene-polyoxypropylene copolymer.; The formulation of the composition provides stability of the emulsion under storage and on entry into the blood flow, as well as a low viscosity of the PFOC emulsion, which secures a high dynamic oxygen capacity of the preparation and improves the delivery of oxygen to tissues. When preparing the emulsion, the stabilizing agent is heated at a temperature of up to 75 DEG C, all the components are saturated with carbon dioxide gas, and the homogenization is carried out with feeding carbon dioxide gas, whereby the origination of peroxides is minimized and the reactivity is thus reduced. It is proposed to use PFOC emulsions as a means for treating air-and fat embolism, obliterating vascular injuries of extremities and poisoning with lipophilic poisons, as well as for preventing toxic injuries caused by various xenobiotics.

JP 2004517119 (A)
Bibliographic data
Description
Claims
Mosaics
Original document
INPADOC legal status

Bibliographic data: JP 2004517119 (A)

In my patents list Report data error PERFLUORONATED CYCLE-CONTAINING TERTIARY AMINES USED AS A BASIS FOR GAS-CONVEYING EMULSIONS AND DEVICE FOR THE PRODUCTION THEREOF Print

Page bookmark [JP 2004517119 \(A\) - PERFLUORONATED CYCLE-CONTAINING TERTIARY AMINES USED AS A BASIS FOR GAS-CONVEYING EMULSIONS AND DEVICE FOR THE PRODUCTION THEREOF](#)

Publication date: 2004-06-10

Inventor(s):

Applicant(s):

Classification: - international: [A01N1/02](#); [A61K31/13](#); [A61K31/40](#); [A61K31/445](#); [A61K9/00](#); [A61P41/00](#); [A61P43/00](#); [A61P7/00](#); [A61P7/04](#); [A61P7/08](#); [A61P9/08](#); [C07C211/37](#); [C07D207/08](#); [C07D207/10](#); [C07D211/38](#); [C25B3/08](#); (IPC1-7): [A61K31/13](#); [A61K31/40](#); [A61K31/445](#); [A61P41/00](#); [A61P7/08](#); [A61P9/08](#); [C07C211/37](#); [C07D207/10](#); [C07D211/38](#); [C25B3/08](#)

- European: [A01N1/02](#); [A01N1/02C](#); [A61K9/00M5E](#); [C07C211/37](#); [C07D207/08](#); [C25B3/08](#)

Application number: JP20020554644T 20001229

Priority number(s): WO2000RU00547 20001229

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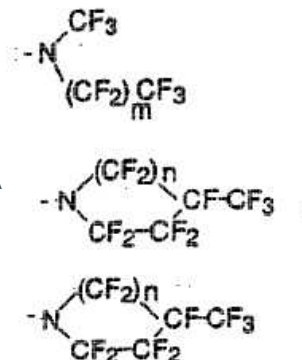
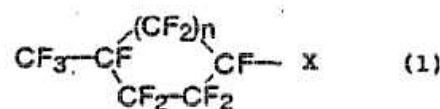
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Also published as: [EP 1354868 \(A1\)](#)
[US 2004054184 \(A1\)](#)
[US 6878826 \(B2\)](#)
[WO 02053525 \(A1\)](#)
[MX PA03005940 \(A\)](#)
[more](#)

Abstract not available for JP 2004517119 (A)
Abstract of corresponding document: EP 1354868 (A1)

[Translate this text](#)

Tertiary perfluorocycloamines (TPFCAs) of general formula (1) <CHEM> where n = 1 or 2, m = 2 or 3, X is <CHEM> or <CHEM> wherein at n = 2 X is <CHEM> as the basis for gas transport emulsions. <??>TPFCAs comprise a group of compounds which are close in their physicochemical properties to perfluoro-N-(4-methylcyclohexyl)-piperidine, particularly in the critical temperature of dissolution in hexane, and which are used in a mixture, forming a number of compounds with gradually varying characteristics. Owing to this, a greater homogeneity of the fluorocarbon phase is achievable in the emulsions and it becomes possible to enhance the stability of the emulsion particles stabilized by an ethylene oxide-propylene oxide block copolymer, with the absence of toxicity for large animals.; A mixture of TPFCAs is prepared by electrochemical fluorination of n-piperidinoheptafluorotoluene in anhydrous hydrogen fluoride. The use of this mixture of TPFCAs instead of individual perfluoro-N-(4-methylcyclohexyl) piperidine simplifies, speeds up the process for preparing perfluorinated organic compounds, makes it cheaper, and provides conditions for broader application of gas transport emulsions based thereon.



CN 1241901 (C)
Bibliographic data
Description
Claims
Mosaics
Original document
INPADOC legal status

Bibliographic data: CN 1241901 (C)

In my patents list Report data error Print
Perfluorinated cycle-containing tertiary amines used as basis for gas-conveying emulsions and preparation method

Page bookmark [CN 1241901 \(C\) - Perfluorinated cycle-containing tertiary amines used as basis for gas-conveying emulsions and preparation method](#)

Publication date: 2006-02-15

Inventor(s): MAERSKY LEV LVOVICH GERVITS KI [RU] ±

Applicant(s): PERFTORAN SCIENCE RES AND PROD [RU] ±

Classification: - international: [A01N1/02](#); [A61K31/13](#); [A61K31/40](#); [A61K31/445](#); [A61K31/452](#); [A61K9/00](#); [A61K9/107](#); [A61P41/00](#); [A61P43/00](#); [A61P7/00](#); [A61P7/04](#); [A61P7/08](#); [A61P9/08](#); [C07C211/37](#); [C07D207/08](#); [C07D207/10](#); [C07D211/38](#); [C07D211/66](#); [C25B3/08](#)

- European: [A01N1/02](#); [A01N1/02C](#); [A61K9/00M5F](#); [C07C211/37](#); [C07D207/08](#); [C25B3/08](#)

Application number: CN20008020113 20001229

Priority number(s): WO2000RU00547 20001229

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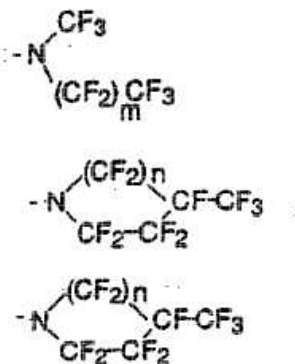
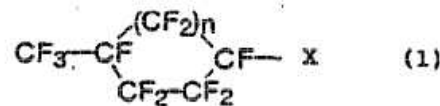
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Also published as: [CN 1489573 \(A\)](#)
[EP 1354868 \(A1\)](#)
[US 2004054184 \(A1\)](#)
[US 6878826 \(B2\)](#)
[WO 02053525 \(A1\)](#)
[MX PA03005940 \(A\)](#)
[JP 2004517119 \(A\)](#)
[CA 2433580 \(A1\)](#)
[less](#)

Abstract of CN 1489573 (A)

[Translate this text](#)

The inventive perfluorinated cycle-containing tertiary amines (FPCTA) of general formula (1) where n=1 or 2; m=2 or 3 x represents or, at n=2 X represents are used as a basis of gas conveying emulsions. PFCTA is a group of compounds near to perfluor-N-(4-methylcyclohexyl)-piperidine with respect to the properties thereof, in particular with respect to a critical solution temperature in hexane. Said compounds are used in a mixture, thereby producing a range of compounds which exhibit gradually changing characteristics and making it possible to obtain highly uniform fluorocarbon phases of the emulsions and to increase the stability of emulsion particles which are stabilised with the aid of ethylene oxide-propylene oxide block polymers without being toxic for small and large animals. The PFCTA is produced by electrochemical fluorination of n-piperidine heptane fluor toluene in anhydrous hydrogen fluoride. The user of said PFCTA mixture instead of the individual perfluor-N-(4-methylcyclohexyl)-piperidine makes it possible to simplify, accelerate and lower the price of the production of perfluorinated organic compounds and extend the user of gas conveying emulsions produced on the basis thereof.



РОССИЙСКАЯ ФЕДЕРАЦИЯ



ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ИНТЕЛЛЕКТУАЛЬНОЙ
СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ

(19) RU⁽¹¹⁾

2263662⁽¹³⁾ C2

(51) МПК 7 C07C211/37, C07D211/66,
A61K31/13, A61K31/40,
A61K31/452, A61K31/445,
A61K9/107, C25B3/08, A61P7/00,
A61P7/04, A61P7/08, A61P43/00,
A01N1/02

(12) ОПИСАНИЕ ИЗОБРЕТЕНИЯ К ПАТЕНТУ

Статус: по данным на 20.10.2011 - действует
Пошлина: учтена за 12 год с 30.12.2011 по 29.12.2012

(21), (22) Заявка: 2003123103/04, 29.12.2000

(24) Дата начала отсчета срока действия патента:
29.12.2000

(43) Дата публикации заявки: 20.02.2005

(45) Опубликовано: [10.11.2005](#)

(56) Список документов, цитированных в отчете о
поиске: EP 778262 A1, 16.06.1997.

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SU 546607 A, 21.07.1977.

EP 0517356 A2, 09.12.1992.

WO 92/02488 A1, 12.02.1992.

(85) Дата перевода заявки PCT на национальную фазу:
29.07.2003

(86) Заявка PCT:
RU 00/00547 .2000).12.(29.

(87) Публикация PCT:
WO 02/053525 .2002).07.(11.

Адрес для переписки:
103735, Москва, ул. Ильинка, 5/2, ООО
"Союзпатент", пат. пов. А. П. Агуреву

(72) Автор(ы):

Гервиц Л. Л. (RU),
Макаров К. Н. (RU),
Маевский Е. И. (RU),
Иваницкий Г. Р. (RU),
Пушкин С. Ю. (RU),
Масленников И. А. (RU)

(73) Патентообладатель(и):

**ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО
НАУЧНО-ПРОИЗВОДСТВЕННАЯ ФИРМА
"ПЕРФТОРАН"** (RU)

[54] SCANNING METHOD AND A SCAN MICROSCOPE FOR ITS REALIZATION

[76] Inventors: Zhora Melkonovich Agadzhanian, Puschino, Mikroraion "V", 9, kv. 51, Moskovskaya oblast; Genrikh Romanovich Ivanitsky, ulitsa Festivalnaya, 15, Korpus 4, kv. 12, Moscow; Alvian Matveevich Shamarov, Puschino, Mikroraion "V", 6, kv. 22, Moskovskaya oblast, all of U.S.S.R.

[22] Filed: July 15, 1971

[21] Appl. No.: 162,797

[52] U.S. Cl. 250/202, 356/158, 250/214 R

[51] Int. Cl. G05b 1/00

[58] Field of Search 250/202, 83.3 UV, 250/214 R, 219 CR; 356/157, 158; 235/92 V

[56] References Cited

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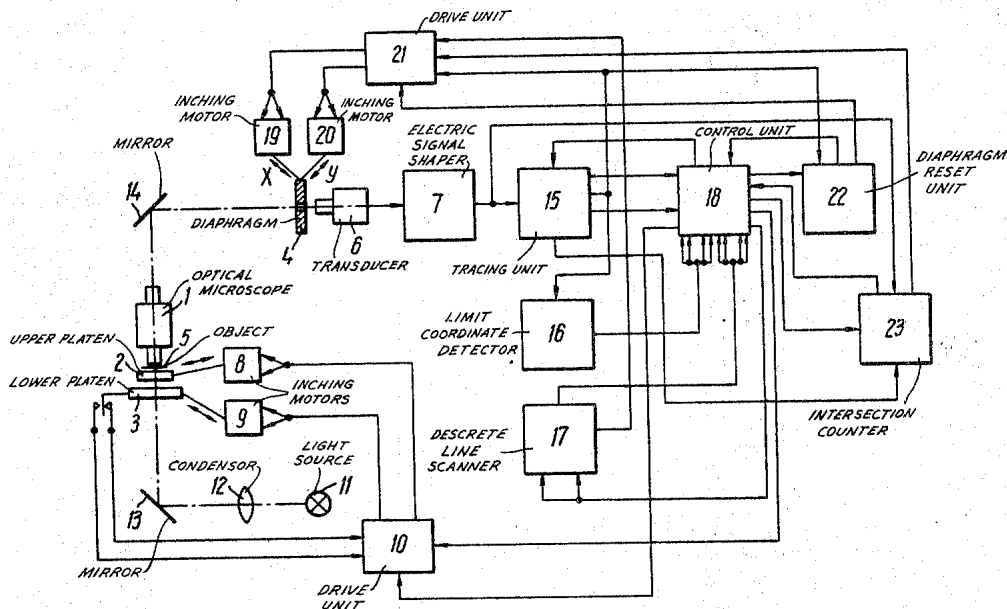
Primary Examiner—Walter Stolwein
Attorney—Eric H. Waters et al.

[57] ABSTRACT

A scanning method in which an object under investigation is stopped as soon as its outline is intersected by the optical axis of a fixed optical system and the outline of the object is traced out. After that, the image of the object is line-scanned within a rectangle in which the image is inscribed, while an indication that the next object has come into view is given by the equality of intersections of the object outline by the optical axis both when the object and when its image are displaced.

A scanning microscope using the above-mentioned method which has a tracing unit to trace out the outline of the object, while a limit-coordinate detector determining the extreme rectangular X- and Y-coordinates of the outline of the object "memorizes" these coordinates in the subsequent line scanning, the travel of the diaphragm of the optical microscope is limited by the extreme rectangular coordinates of the image. In the microscope, provisions are made for resetting the diaphragm to the starting position in which the outline of the object is intersected by the optical axis of the optical microscope, while an intersection counter determining how many times the diaphragm of the optical microscope intersects the outline of the object gives an unambiguous indication when the object leaves the scanned zone.

2 Claims, 4 Drawing Figures



Bibliographic data: CN 1215834 (C)

CN 1215834 (C)
Bibliographic data
Description
Claims
Mosaics
Original document
INPADOC legal status

In my patents list Report data error Emulsion of perfluororganic compounds for medical purposes, method for producing said emulsion and methods for curing and preventing diseases with the aid of the emulsion Print

Page bookmark [CN 1215834 \(C\) - Emulsion of perfluororganic compounds for medical purposes, method for producing said emulsion and methods for curing and preventing diseases with the aid of the emulsion](#)

Publication date: 2005-08-24

Inventor(s): ILIICH MAEVSKY EVGENY [RU]; ROMANOVICH IVANITSKY GENRIKH [RU]; KIRILLNIKOLAEVICH MAKAROV [RU] ±

Applicant(s): PAYLFTOLA SCIENCE & SEARCH PRO [RU] ±

Classification: - international: **A61K31/02; A61K31/025; A61K31/13; A61K31/402; A61K31/445; A61K33/00; A61K33/06; A61K33/14; A61K33/42; A61K45/06; A61K47/04; A61K47/26; A61K47/34; A61K9/00; A61K9/10; A61K9/107; A61P7/00; A61P7/08; A61P9/08; A61P9/10; B01F17/42; B01F3/08; C07D295/06**; (IPC1-7): A61K31/02; A61K31/025; A61K31/13; A61K9/107

- European: [A61K33/00; A61K45/06; A61K9/00M5F; A61K33/00; A61K33/06; A61K33/14; A61K33/42](#)

Application number: CN20008019762 20000720

Priority number(s): WO2000RU00309 20000720

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Also published as: [CN 1454084 \(A\)](#)
[EP 1306083 \(A1\)](#)
[EP 1306083 \(A4\)](#)
[US 6562872 \(B1\)](#)
[RU 2206319 \(C2\)](#)
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Abstract not available for CN 1215834 (C)

Abstract of corresponding document: EP 1306083 (A1)

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An emulsion of perfluoroorganic compounds (PFOCs) with gas-transporting properties for intravascular administration comprises a perfluorocarbon rapidly eliminable from the organism and a perfluorinated tertiary amine slowly eliminable from the organism and further comprises at least three kinds of PFOC admixtures taken in small amounts, which are close in their structure and physicochemical properties to the main components and make up a series of PFOCs with gradually changing properties. The emulsion also contains minor admixtures of H-perfluoroalkanes. Such a composition contributes to the formation of a more homogeneous and stable non-clustered perfluorocarbon phase inside the emulsion particles. The PFOC emulsion is stabilized by a polyoxyethylene-polyoxypropylene copolymer.; The formulation of the composition provides stability of the emulsion under storage and on entry into the blood flow, as well as a low viscosity of the PFOC emulsion, which secures a high dynamic oxygen capacity of the preparation and improves the delivery of oxygen to tissues. When preparing the emulsion, the stabilizing agent is heated at a temperature of up to 75 DEG C, all the components are saturated with carbon dioxide gas, and the homogenization is carried out with feeding carbon dioxide gas, whereby the origination of peroxides is minimized and the reactivity is thus reduced. It is proposed to use PFOC emulsions as a means for treating air- and fat embolism, obliterating vascular injuries of extremities and poisoning with lipophilic poisons, as well as for preventing toxic injuries caused by various xenobiotics.

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ПО ИНТЕЛЛЕКТУАЛЬНОЙ
СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ

(19) RU⁽¹¹⁾

2393849⁽¹³⁾ C2

(51) МПК
A61K31/02 (2006.01)
A61K9/107 (2006.01)
B01F3/08 (2006.01)
A61P7/08 (2006.01)
A61P9/10 (2006.01)

(12) ОПИСАНИЕ ИЗОБРЕТЕНИЯ К ПАТЕНТУ

Статус: по данным на 20.10.2011 - действует
Пошлина: учтена за 5 год с 29.12.2010 по 28.12.2011

(21), (22) Заявка: 2006146746/15, 28.12.2006

(24) Дата начала отсчета срока действия патента:
28.12.2006

(43) Дата публикации заявки: 20.07.2008

(45) Опубликовано: [10.07.2010](http://www.cbio.ru/)

(56) Список документов, цитированных в отчете о поиске: **Масленников И.А., Пушкин С.Ю., к.б.н. Бондарь О.Г. Обзор технологий создания перфторуглеродных эмульсий. Опубликовано в Интернет-журнале "Коммерческая биотехнология"**
<http://www.cbio.ru/>, дата публикации: 01.12.06, найдено в сети Интернет по адресу
<http://www.cbio.ru/modules/news/article.php?storyid=2454>. RU 2206319 C2, 20.06.2003. RU 2259819 C1, 10.09.2005.

Адрес для переписки:
107078, Москва, а/я 265, ООО
"Прозоровский и партнеры"

(72) Автор(ы):

Маевский Евгений Ильич (RU),
Иваницкий Генрих Романович (RU),
Макаров Кирилл Николаевич (RU),
Гервиц Лев Львович (RU),
Мороз Виктор Васильевич (RU)

(73) Патентообладатель(и):

Общество с ограниченной ответственностью "Биология и фармакология перфторсоединений" (RU),
Институт теоретической и экспериментальной биофизики РАН (RU)

(54) **ЭМУЛЬСИЯ ПЕРФТОРОРГАНИЧЕСКИХ СОЕДИНЕНИЙ МЕДИЦИНСКОГО НАЗНАЧЕНИЯ, СПОСОБ ЕЕ ПРИГОТОВЛЕНИЯ И СПОСОБ ЕЕ ПРИМЕНЕНИЯ**

(57) Реферат:

Заявленное изобретение относится к химико-фармацевтической промышленности и касается эмульсии перфторорганических соединений (ПФОС) для биологических и медицинских целей, содержащей смесь перфторуглеродов (ПФУ), основным компонентом которой является перфтордекалин (ПФД) и смесь перфторированных третичных аминов (ПФТА), основным компонентом которой является перфтор-N-(4-метилциклогексил)-пиперидин (ПФМЦП), имеющий меньшие, чем ПФД, скорости выведения из организма, стабилизирующий агент и физиологически приемлемый водно-солевой раствор с субстратами энергетического обмена, отличающейся тем, что все компоненты ПФОС имеют значения критической температуры растворения в гексане ($T_{крГ}$), различающиеся не более чем на 2-4°C, а стабилизирующий агент представляет собой смесь блок-сополимеров из группы блок-сополимеров полиоксиэтилена-полиоксипропилена со средним массовым содержанием полиоксипропилена 20%. Изобретение также касается способа получения эмульсии и способа лечения с применением заявленной эмульсии. Эмульсии обладают высокой стабильностью и нетоксичны. 3 н. и 18 з.п. ф-лы, 5 табл., 2 ил.

Заявляемая группа изобретений относится к области биомедицины, трансфузиологии, фармакологии, биофизики, в частности к

РОССИЙСКАЯ ФЕДЕРАЦИЯ



(19) RU⁽¹¹⁾

2206319⁽¹³⁾ C2

(51) МПК 7 A61K31/02, A61K9/107,
B01F3/08, A61P7/08, A61P9/10

**ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ИНТЕЛЛЕКТУАЛЬНОЙ
СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ**

(12) ОПИСАНИЕ ИЗОБРЕТЕНИЯ К ПАТЕНТУ

Статус: по данным на 20.10.2011 - действует
Пошлина: учтена за 12 год с 21.07.2011 по 20.07.2012

(21), (22) Заявка: 2001126062/14, 20.07.2000
(24) Дата начала отсчета срока действия патента:
20.07.2000
(45) Опубликовано: 20.06.2003
(56) Список документов, цитированных в отчете о
поиске: RU 2070033 **С1**, 10.12.1996. RU
2088217 **С1**, 27.08.1997. SU 797546 **А**,
15.01.1981. **ЕР** 0307087 **А1**, 15.03.1989. DE
4325100 **А1**, 02.02.1995.
(85) Дата перевода заявки РСТ на национальную фазу:
18.09.2001
(86) Заявка РСТ:
RU 00/00309 .2000).07.(20.
(87) Публикация РСТ:
WO 00/00309 .2000).11.(21.
Адрес для переписки:
103735, **Москва, ул. Ильинка, 5/2, ООО**
"Союзпатент", пат. пов. А. П. Агурееву, рег. №
0590

(71) Заявитель(и):
Открытое акционерное общество
Научно-производственная фирма
"Перфторан"
(72) Автор(ы):
Маевский Е.И.,
Иваницкий Г.Р.,
Макаров К.Н.,
Кулакова Г.М.,
Архипов В.В.,
Мороз В.В.,
Старовойтова Л.Н.,
Сенина Р.Я.,
Пушкин С.Ю.,
Ивашина А.И.
(73) Патентообладатель(и):
Открытое акционерное общество
Научно-производственная фирма
"Перфторан"

(54) ЭМУЛЬСИЯ ПЕРФТОРОРГАНИЧЕСКИХ СОЕДИНЕНИЙ ДЛЯ МЕДИЦИНСКИХ ЦЕЛЕЙ, СПОСОБ ЕЕ ПРИГОТОВЛЕНИЯ И СПОСОБЫ ЛЕЧЕНИЯ И ПРОФИЛАКТИКИ ЗАБОЛЕВАНИЙ С ЕЕ ИСПОЛЬЗОВАНИЕМ

(57) Реферат:

Эмульсия перфторорганических соединений (ПФОС) для внутрисосудистого введения состоит из быстро выводящегося перфторуглерода и медленно выводящегося перфторированного третичного амина и дополнительно содержит не менее трех видов взятых в небольших количествах примесей ПФОС. Примеси ПФОС близки по структуре и физико-химическим свойствам к основным ПФОС. Эмульсия также содержит минорные примеси Н-перфторалканов. Эмульсия ПФОС стабилизируется сополимером полиоксиэтилен-полиоксипропилена. При получении эмульсии стабилизирующий агент прогревают при температуре до 75⁰С, все компоненты насыщают углекислым газом и гомогенизацию выполняют при поддуве углекислого газа. Предложенный способ позволяет минимизировать появление перекисей и тем самым снизить реактогенность эмульсии. Состав композиции обуславливает стабильность эмульсии при хранении и при попадании в кровоток, а



US006562872B1

(12) **United States Patent**
Maevsky et al.

(10) **Patent No.:** **US 6,562,872 B1**
(45) **Date of Patent:** **May 13, 2003**

(54) **EMULSION OF PERFLUOROORGANIC COMPOUNDS FOR MEDICAL PURPOSES, A PROCESS FOR THE PREPARATION THEREOF AND METHODS FOR TREATING AND PREVENTING DISEASES WITH THE USE THEREOF**

RU	797546	1/1981
RU	2070033	12/1996
RU	2088217	8/1997
RU	2107496	3/1998
RU	2122404	11/1998
RU	2144817	1/2000
WO	WO 95/33447	12/1995

(75) Inventors: **Evgeny Ilich Maevsky**, Puschino (RU); **Genrikh Romanovich Ivanitsky**, Puschino (RU); **Kirill Nikolaevich Makarov**, Moscow (RU); **Galina Mikhailovna Kulakova**, Puschino (RU); **Vladimir Viktorovich Arkhipov**, Puschino (RU); **Viktor Vasilievich Moroz**, Moscow (RU); **Ljudmila Nikolaevna Starovoitova**, Puschino (RU); **Raisa Yakovlevna Senina**, Puschino (RU); **Sergei Jurievich Pushkin**, Noginsk (RU); **Albina Ivanovna Ivashina**, Moscow (RU)

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K. Vaichulis, et al., *Physiological Activity of Fluorine-Containing Compounds (Experiment and Clinical Practice)*, pp. 213–216, “Use of Perftoran in Intensive Therapy of Alcoholic Psychosis”, 1995 (with English translation).

Editor-in-chief V.I. Pokrovskii, *small Medical Encyclopedia*, Meditsina Publishers, vol. 6, pp. 259–360, 1996.

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L. E. McCoy, et al., *Scanning Electron Microscopy*, pp. 311–319, “Endothelial Response to Perfluorochemical Perfusion”, 1984.

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Primary Examiner—Richard D. Lovering
(74) *Attorney, Agent, or Firm*—Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

(57) **ABSTRACT**

An emulsion of perfluoroorganic compounds (PFOC) comprises a rapidly eliminable perfluorocarbon (PFC) and a slowly eliminable perfluorinated cyclic tertiary amine, perfluoro-N-4-(methylcyclohexyl)-piperidine and additionally comprises not less than three rapidly eliminable and three slowly eliminable PFOC admixtures with the critical temperature of dissolution in hexane (CTDH) close to that of main PFOC. The PFOC emulsion is stabilized with a polyoxyethylene-polyoxypropylene copolymer having low viscosity to provide high dynamic oxygen capacity and enhancing oxygen delivery to tissues. To prepare the emulsion the stabilizing agent is heated up to 75° C., all components are saturated with carbon dioxide gas to minimize the reactogenicity in intravessel injection as a means of compensation for mass blood losses, perfusion of organs cut of blood flow, treating air-and fat embolism, obliterating vascular injuries of extremities and preventing toxic injuries caused by various xenobiotics.

(73) Assignee: **Otkrytoe Aktsionernoe Obschestvo Nauchno-Proizvodstven-Naya Firma “Perftoran”**, Puschino Moskovskaya oblast (RU)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/830,563**

(22) PCT Filed: **Jul. 20, 2000**

(86) PCT No.: **PCT/RU00/00309**

§ 371 (c)(1),
(2), (4) Date: **May 7, 2001**

(87) PCT Pub. No.: **WO02/07717**

PCT Pub. Date: **Jan. 31, 2002**

(51) **Int. Cl.**⁷ **A61K 31/02**; A61K 31/025;
A61K 31/13; A61K 9/107; B01F 17/42

(52) **U.S. Cl.** **514/672**; 514/757; 514/824;
514/832; 514/833; 516/76; 516/929

(58) **Field of Search** 516/76, 929; 514/672,
514/757, 832, 833, 824

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EP 0 307 087 3/1989

54 Claims, 2 Drawing Sheets

РОССИЙСКАЯ ФЕДЕРАЦИЯ



(19) RU⁽¹¹⁾

2169559⁽¹³⁾ C2

(51) МПК⁷ A61K31/02, A61P43/00

**ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ИНТЕЛЛЕКТУАЛЬНОЙ
СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ**

(12) ОПИСАНИЕ ИЗОБРЕТЕНИЯ К ПАТЕНТУ

Статус: по данным на 20.10.2011 - прекратил действие
Пошлина: учтена за 7 год с 18.05.2005 по 17.05.2006

(21), (22) Заявка: 99110352/14, 17.05.1999

(24) Дата начала отсчета срока действия патента:
17.05.1999

(45) Опубликовано: 27.06.2001

(56) Список документов, цитированных в отчете о поиске: THOMAS S.R. et al. Perfluorocarbon compound aerosols for delivery to the lung as potential 19 F Magnetic resonance reportes of regional pulmonary pO₂, Invest - Radiol, 1997, Jan. 32(1), p. 29-38. **РОМОДАНОВ А.П. и др. Перфторан при внутричерепной гипертензии и отеке - набухании головного мозга. Перфторуглеродные активные среды для медицины и биологии. - Пущино, 1993, с. 63-69. САИТГАРЕЕВ Р.Ш. и др. О целесообразности использования перфторана для профилактики реперфузионного повреждения легких и сердца в раннем посттрансплантационном периоде. Физиологическая активность фторсодержащих соединений. - Пущино, 1995.**

Адрес для переписки:
193019, Санкт-Петербург, ул. Бехтерева, 1,
**Государственное учреждение науки
Институт токсикологии**

(71) Заявитель(и):

**Государственное учреждение науки
Институт токсикологии**

(72) Автор(ы):

**Иваницкий Г.Р.,
Колбасов С.Е.,
Ливанов Г.А.,
Мороз В.В.**

(73) Патентообладатель(и):

**Государственное учреждение науки
Институт токсикологии**

(54) **ПРИМЕНЕНИЕ ПЕРФТОРАНА ДЛЯ ЛЕЧЕНИЯ ХИМИЧЕСКИХ ПОРАЖЕНИЙ ЛЕГКИХ**

(57) Реферат:

Изобретение относится к медицине. Предложен перфторан в качестве средства для лечения химических поражений легких. Средство повышает выживаемость, облегчает течение интоксикации, вдвое снижает гидратацию легочной ткани. 2 табл.

Изобретение относится к области медицины и может найти применение при лечении химических поражений легких (ХПЛ).

Проблема лечения ХПЛ является весьма актуальной. Это связано с тем, что при массовых отравлениях широко распространенными в промышленности сильнодействующими ядовитыми

РОССИЙСКАЯ ФЕДЕРАЦИЯ



(19) RU⁽¹¹⁾

2070033⁽¹³⁾ C1

(51) МПК⁶ A61K9/10

**ФЕДЕРАЛЬНАЯ СЛУЖБА
ПО ИНТЕЛЛЕКТУАЛЬНОЙ
СОБСТВЕННОСТИ,
ПАТЕНТАМ И ТОВАРНЫМ ЗНАКАМ**

(12) ОПИСАНИЕ ИЗОБРЕТЕНИЯ К ПАТЕНТУ

Статус: по данным на 20.10.2011 - прекратил действие
Пошлина: учтена за 3 год с 29.11.1996 по 28.11.1997

(21), (22) Заявка: 94040982/14, 28.11.1994

(45) Опубликовано: 10.12.1996

(56) Список документов, цитированных в отчете о
поиске: **Патент СССР** N 797546, кл. А 61 К
9/10, 1981.

(71) Заявитель(и):

**Научно-производственная фирма -
Акционерное общество "Перфторан",
Институт теоретической и
экспериментальной биофизики РАН**

(72) Автор(ы):

**Воробьев С. И.,
Иваницкий Г. Р.,
Маевский Е. И.,
Склифас А. Н.,
Исламов Б. И.,
Шibaев Н. В.,
Белоярцев Ф. Ф.**

(73) Патентообладатель(и):

**Воробьев Сергей Иванович,
Иваницкий Генрих Романович**

(54) **СПОСОБ ПОЛУЧЕНИЯ ПЕРФТОРУГЛЕРОДНЫХ ЭМУЛЬСИЙ ДЛЯ МЕДИЦИНСКИХ ЦЕЛЕЙ**

(57) Реферат:

Изобретение предназначено для получения эмульсий, способных переносить кислород и предназначенных для использования в качестве кровезаменителей, рентгеноконтрастных средств, а также сред для сохранения изолированных органов. Задачей изобретения является получение монодисперсной субмикронной эмульсии, упрощение технологии и улучшение условий стерильности процесса. В соответствии с изобретением, весь процесс проводят в замкнутом циркуляционном контуре. Сначала прокапывают смесь перфторорганических соединений через водный раствор эмульгирующего агента, затем пропускают полученную предэмульсию попеременно через основной и дополнительный циркуляционный контур гомогенизатора, повышая давление в дополнительном контуре в 1,1 - 1,2 раза по сравнению с давлением в основном контуре. Для получения эмульсий берут смесь перфтордекалина или перфтороктилбромида и перфторметилциклогексилпиперидина в соотношении 2:1, а в качестве эмульгирующего агента используют сополимер полиоксипропилен-полиоксипропилен. Средний размер частиц составляет от 0,06 до 0,11 мкм, доля частиц размером до 0,10 мкм достигает 85%. Эмульсия хранится при $t^{\circ} = +20^{\circ}\text{C}$ до одного месяца, а в замороженном виде до 3-х лет. 1 з.п. ф-лы, 9 табл., 1 ил.

Изобретение относится к медицинской промышленности и касается способа получения перфторуглеродных эмульсий, способных переносить кислород и предназначенных преимущественно для использования в медицине в качестве кровезаменителей,



US006878826B2

(12) **United States Patent**
Gervits et al.(10) **Patent No.:** US 6,878,826 B2(45) **Date of Patent:** Apr. 12, 2005(54) **PERFLUORONATED CYCLE-CONTAINING TERTIARY AMINES USED AS A BASIS FOR GAS-CONVEYING EMULSIONS AND DEVICE FOR THE PRODUCTION THEREOF**(75) Inventors: **Lev Lvovich Gervits**, Moscow (RU); **Kirill Nikolaevich Makarov**, Moscow (RU); **Evgeny Ilich Maevsky**, Puschino (RU); **Genrikh Romanovich Ivanitsky**, Puschino (RU); **Sergei Jurievich Pushkin**, Sadikovaya (RU); **Igor Alexeevich Maslennikov**, Moscow (RU)(73) Assignee: **Otkrytoe Aktsionernoe obschestvo Nauchno-proizvodstvennaya firma Perftoran**, Moskovskaya Obl. (RU)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 3 days.

(21) Appl. No.: 10/451,763

(22) PCT Filed: Dec. 29, 2000

(86) PCT No.: PCT/RU00/00547

§ 371 (c)(1),

(2), (4) Date: Oct. 7, 2003

(87) PCT Pub. No.: WO02/053525

PCT Pub. Date: Jul. 11, 2002

(65) **Prior Publication Data**

US 2004/0054184 A1 Mar. 18, 2004

(51) **Int. Cl.**⁷ C07D 207/04; C07D 211/06(52) **U.S. Cl.** 546/192; 548/400(58) **Field of Search** 546/192; 548/400(56) **References Cited**

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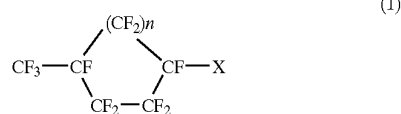
Ivanitskii, G.R., et al. "Life of Perfluorocarbon Emulsion" In Physiological Activity of Fluorine-Containing Compounds (Experiments and Clinical Tests) Push Chino (1995) pp 5-32 with English Translation.

Primary Examiner—Taofiq Solola

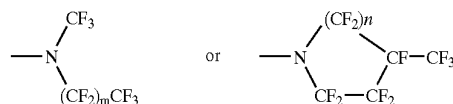
(74) Attorney, Agent, or Firm—Ladas & Parry LLP

(57) **ABSTRACT**

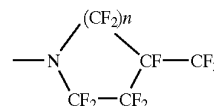
Tertiary perfluorocycloamines (TPFCAs) of general formula (1)



where n=1 or 2, m=2 or 3, X is



wherein at n=2 X is



as the basis for gas transport emulsions.

TPFCAs comprise a group of compounds which are close in their physicochemical properties to perfluoro-N-(4-methylcyclohexyl)-piperidine, particularly in the critical temperature of dissolution in hexane, and which are used in a mixture, forming a number of compounds with gradually varying characteristics. Owing to this, a greater homogeneity of the fluorocarbon phase is achievable in the emulsions and it becomes possible to enhance the stability of the emulsion particles stabilized by an ethylene oxide-propylene oxide block copolymer, with the absence of toxicity for large animals. A mixture of TPFCAs is prepared by electrochemical fluorination of n-piperidinoheptafluorotoluene in anhydrous hydrogen fluoride. The use of this mixture of TPFCAs instead of individual perfluoro-N-(4-methylcyclohexyl) piperidine simplifies, speeds up the process for preparing perfluorinated organic compounds, makes it cheaper, and provides conditions for broader application of gas transport emulsions based thereon.

3 Claims, 1 Drawing Sheet

(21) Application No. 35552/71 (22) Filed 28 July 1971
 (44) Complete Specification published 12 June 1974
 (51) International Classification G01N 21/22
 (52) Index at acceptance
 GIA 247 248 269 357 358 369 401 402 404 406 428 429
 42X 42Y 432 433 436 438 43Y 447 448 457 458
 463 465 467 46X 46Y 475 478 479 482 491 49X
 504 506 512 514 520 52Y 530 537 53Y 580 589
 58Y 590 596 599 59Y 691 761 763
 (72) Inventor ZHORA MELKONOVICH AGADZHANIAN
 GENRIKH ROMANOVICH IVANITSKY
 ALVIAN MATVEEVICH SHAMAROV



(54) SCANNING METHOD AND A SCANNING MICROSCOPE

(71) We, INSTITUT BIOLOGICHESKOI FIZIKI AKADEMII NAUKSSSR, of Moskovskoi oblasti, Purchino na Oke, Union of Soviet Socialist Republics, a Corporation organised and existing under the laws of the Union of Soviet Socialist Republics, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to scanning methods and to scanning microscopes for their realization, which are used to determine the optical and geometrical characteristics of objects, for example, in biology to construct a karyotype of chromosomes or histograms of areal distributions of objects.

According to one aspect of this invention there is provided a scanning method in which an object under investigation is moved to a starting position whereat a point in the outline of an image of the object enters the optical axis of an optical system which is fixed, the outline of an image of said object is traced, the extremal X- and Y-rectangular coordinates of the object occurring during tracing are found, the image of the object is line-scanned within a rectangle having at its corners points with extremal rectangular coordinates of an image of the object and during tracing and line-scanning the optical signal of the optical system is converted to an electric signal from which the optical and geometrical characteristics of the object are evaluated.

According to another aspect there is provided apparatus for carrying out the last mentioned method which comprises a scanning microscope having an optical system which is fixed, means for moving an object under investigation to a position whereby a point in the outline of an image of the object can enter the optical axis of

the optical system, means for tracing the outline of an image of said object, means for line scanning the image of the object within a rectangle having at its corners points with external rectangular coordinates of an image of the object and means for converting an optical signal of the optical system to an electric signal from which the optical and geometrical characteristics of the object are evaluated.

The invention will be further described by way of example with reference to the accompanying drawings wherein:

Figure 1 is a block diagram of a scanning microscope;

Figure 2 is a detailed block-diagram of the same microscope;

Figure 3 is the field of vision of the scanning microscope disclosed herein, using the scanning method described, explaining the search algorithm;

Figure 4 is an object bounded by a rectangle which has as its corners the points with external X and Y coordinates and within which the line scan is performed, and also adjacent objects.

Referring to Figures 1 and 2, there is shown a scanning microscope, which comprises an optical microscope 1 which has a stage made up of an upper platen 2 and a lower platen 3, a diaphragm 4 arranged to lie in the plane of an image of the object 5, mounted on the top platen 2 of the stage, and a transducer 6 converting the optical signal into an electric signal carrying information about the optical and geometrical characteristics of the object 5, electrically connected to an electric signal shaper 7. The upper platen 2 and the lower platen 3 of the stage are driven by a moving mechanism consisting of inching motors 8 and 9, respectively, coupled to a drive contrast unit 10.

In the scanning microscope, according to the invention, the object 5 is illuminated

(12)

(21) 2 433 580

(22) 29.12.2000

(51) Int. Cl.⁷: C07C 211/37, A61P 7/00, A61P 43/00, A01N 1/02, A61P 7/04, C25B 3/08, A61P 7/08, A61K 9/107, A61K 31/13, A61K 31/40, A61K 31/445, A61K 31/452, C07D 211/66

(85) 25.06.2003

(86) PCT/RU00/00547

(87) WO02/053525

(71) OTKRYTOE AKTSIONERNOE OBSHCHESTVO NAUCHNO-PROIZVODSTVENNAYA FIRMA "PERFTO, Korpus "iskusstvennoi krovi", Puschino 142290, MOSKOVSKAYA OBL., XX (RU).

PUSHKIN, SERGEI JURIEVICH (RU).
IVANITSKY, GENRIKH ROMANOVICH (RU).
MASLENNIKOV, IGOR ALEXEEVICH (RU).
MAEVSKY, EVGENY ILIICH (RU).
GERVITS, LEV LVOVICH (RU).
MAKAROV, KIRILL NIKOLAEVICH (RU).

(72)

(74)

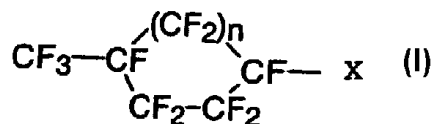
SMART & BIGGAR

(54) AMINES TERTIAIRES PERFLUOREES CONTENANT DES NOYAUX, UTILISEES COMME EMULSIONS DE TRANSPORT DE GAZ ET PROCEDES DE FABRICATION CORRESPONDANTS

(54) TERTIARY PERFLUOROCYCLOAMINES AS A BASIS FOR GAS TRANSPORT EMULSIONS AND PROCESS FOR PREPARING THEREOF

(57)

The inventive perfluorinated cycle-containing tertiary amines (PFCTA) of general formula (1) where $n=1$ or 2 ; $m=2$ or 3 X represents or , at $n=2$ X represents are used as a basis for gas conveying emulsions. PFCTA is a group of compounds near to perfluor-N-(4-methylcyclohexyl)-piperidine with respect to the properties thereof, in particular with respect to a critical solution temperature in hexane. Said compounds are used in a mixture, thereby producing a range of compounds which exhibit gradually changing characteristics and making it possible to obtain highly uniform fluorocarbon phases of the emulsions and to increase the stability of emulsion particles which are stabilised with the aid of ethylene oxide-propylene oxide block polymers without being toxic for small and large animals. The PFCTA is produced by electrochemical fluorination of n-piperidine heptane fluor toluene in anhydrous hydrogen fluoride. The use of said PFCTA mixture instead of the individual perfluor-N-(4-methylcyclohexyl)-piperidine makes it possible to simplify, accelerate and lower the price of the production of perfluorinated organic compounds and extend the use of gas conveying emulsions produced on the basis thereof.





(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
02.05.2003 Bulletin 2003/18

(51) Int Cl.⁷: **A61K 31/02, A61K 31/025,**
A61K 31/13, A61K 9/107

(21) Application number: **00970349.7**

(86) International application number:
PCT/RU00/00309

(22) Date of filing: **20.07.2000**

(87) International publication number:
WO 02/007717 (31.01.2002 Gazette 2002/05)

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

- **ARKHIPOV, Vladimir Viktorovich**
Moskovskaya obl., 142290 (RU)
- **MOROZ, Viktor Vasilievich**
Moscow, 107497 (RU)
- **STAROVOITOVA, Ljudmila Nikolaevna**
Moskovskaya obl., 142290 (RU)
- **SENINA, Raisa Yakovlevna**
Moskovskaya obl., 142290 (RU)
- **PUSHKIN, Sergei Jurievich**
Moskovskaya obl., 142409 (RU)
- **IVASHINA, Albina Ivanovna**
Moscow, 127247 (RU)

(71) Applicant: **Otkrytoe Aktsionerhoe Obchestvo**
Nauchno-Proizvodstvennaya Firma "Perftoran"
Moskovskaya obl., 142290 (RU)

(72) Inventors:

- **MAEVSKY, Evgeny Iliich**
Moskovskaya obl., 142290 (RU)
- **IVANITSKY, Genrikh Romanovich**
Moskovskaya obl., 142290 (RU)
- **MAKAROV, Kirill Nikolaevich**
Moscow, 113208 (RU)
- **KULAKOVA, Galina Mikhailovna**
Moskovskaya obl., 142290 (RU)

(74) Representative: **Onn, Thorsten et al**
Zacco Sweden AB
P.O. Box 23101
104 35 Stockholm (SE)

(54) **EMULSION OF PERFLUOROORGANIC COMPOUNDS FOR MEDICAL PURPOSES, METHOD FOR PRODUCING SAID EMULSION AND METHODS FOR CURING AND PREVENTING DISEASES WITH THE AID OF THE EMULSION**

(57) An emulsion of perfluoroorganic compounds (PFOCs) with gas-transporting properties for intravascular administration comprises a perfluorocarbon rapidly eliminable from the organism and a perfluorinated tertiary amine slowly eliminable from the organism and further comprises at least three kinds of PFOC admixtures taken in small amounts, which are close in their structure and physicochemical properties to the main components and make up a series of PFOCs with gradually changing properties. The emulsion also contains minor admixtures of H-perfluoroalkanes. Such a composition contributes to the formation of a more homogeneous and stable non-clustered perfluorocarbon phase inside the emulsion particles. The PFOC emulsion is stabilized by a polyoxyethylene-polyoxypropylene copolymer. The formulation of the composition provides stability of the

emulsion under storage and on entry into the blood flow, as well as a low viscosity of the PFOC emulsion, which secures a high dynamic oxygen capacity of the preparation and improves the delivery of oxygen to tissues.

When preparing the emulsion, the stabilizing agent is heated at a temperature of up to 75°C, all the components are saturated with carbon dioxide gas, and the homogenization is carried out with feeding carbon dioxide gas, whereby the origination of peroxides is minimized and the reactogenicity is thus reduced.

It is proposed to use PFOC emulsions as a means for treating air- and fat embolism, obliterating vascular injuries of extremities and poisoning with lipophilic poisons, as well as for preventing toxic injuries caused by various xenobiotics.

①⑨ RÉPUBLIQUE FRANÇAISE
INSTITUT NATIONAL
DE LA PROPRIÉTÉ INDUSTRIELLE
PARIS

①① N° de publication : **2.153.723**
(A n'utiliser que pour
le classement et les
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②① N° d'enregistrement national : **71.34025**
(A utiliser pour les paiements d'annuités,
les demandes de copies officielles et toutes
autres correspondances avec l'I.N.P.I.)

①⑤ BREVET D'INVENTION

PREMIÈRE ET UNIQUE
PUBLICATION

②② Date de dépôt 22 septembre 1971, à 14 h 10 mn.
Date de la décision de délivrance..... 9 avril 1973.
Publication de la délivrance..... B.O.P.I. — «Listes» n. 18 du 4-5-1973.

⑤① Classification internationale (Int. Cl.) G 06 k 9/00//G 02 b 21/00; G 02 f 3/00.

⑦① Déposant : INSTITUT BIOLOGICHESKOI FIZIKI AKADEMII NAUK SSSR, résidant
en U.R.S.S.

⑦③ Titulaire : *Idem* ⑦①

⑦④ Mandataire : Cabinet Lavoix, 2, place d'Estienne-d'Orves, Paris (9).

⑤④ Procédé de balayage d'objets et microscope à balayage pour sa mise en œuvre.

⑦② Invention de : Zhora Melkonovich Agadzhanian, Genrikh Romanovich Ivanitsky, Alvia
Matveevich Shamarov.

③③ ③② ③① . Priorité conventionnelle :

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 354 868 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 158(3) EPC

(43) Date of publication:

22.10.2003 Bulletin 2003/43

(21) Application number: 00992767.4

(22) Date of filing: 29.12.2000

(51) Int Cl.⁷: C07C 211/37, C07D 211/66,
A61K 31/13, A61K 31/40,
A61K 31/452, A61K 31/445,
A61K 9/107, C25B 3/08,
A61P 7/00, A61P 7/04,
A61P 7/08, A61P 43/00,
A01N 1/02

(86) International application number:

PCT/RU00/00547

(87) International publication number:

WO 02/053525 (11.07.2002 Gazette 2002/28)

(84) Designated Contracting States:

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR

Designated Extension States:

AL LT LV MK RO SI

(71) Applicant: Otkrytoe Aktsionerное Obchestvo
Nauchno-Proizvodstvennaya Firma "Perforan"
Moskovskaya obl., 142290 (RU)

(72) Inventors:

- GERVITS, Lev Lvovich
Moscow, 117311 (RU)
- MAKAROV, Kirill Nikolaevich
Moscow, 113208 (RU)

- MAEVSKY, Evgeny Ilich

Pushino Moskovskaya obl., 142290 (RU)

- IVANITSKY, Genrikh Romanovich

Puschino Moskovskaya obl., 142290 (RU)

- PUSHKIN, Sergei Jurievich

Noginsk Moskovskaya obl. 142409 (RU)

- MASLENNIKOV, Igor Alexeevich

Moscow, 113587 (RU)

(74) Representative: UEXKÜLL & STOLBERG

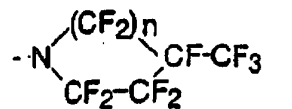
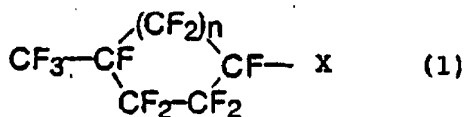
Patentanwälte

Beselerstrasse 4

22607 Hamburg (DE)

(54) **PERFLUORONATED CYCLE-CONTAINING TERTIARY AMINES USED AS A BASIS FOR GAS-CONVEYING EMULSIONS AND DEVICE FOR THE PRODUCTION THEREOF**

(57) Tertiary perfluorocycloamines (TPFCAs) of or
general formula (1)

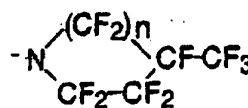
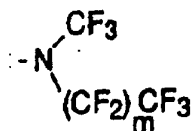


where n = 1 or 2, m = 2 or 3,

X is

wherein at n = 2

X is



as the basis for gas transport emulsions.

TPFCAs comprise a group of compounds which are



(12)

SOLICITUD de PATENTE

(43) Fecha de publicación: **04/05/2004**
(22) Fecha de presentación: **27/06/2003**
(21) Número de solicitud: **PA03005940**

(51) Int. Cl. 7: **A01N 01/02, A61K 31/13,
A61K 31/40, A61K 31/445,
A61K 31/452, A61K 09/107,
A61P 43/00, A61P 07/00,
A61P 07/04, C07C 211/37,
C07D 211/66, C25B 03/08**

(86) Número de solicitud PCT: **RU 00/00547**

(87) Número de publicación PCT: **WO 02/053525 (11/07/2002)**

(71) Solicitante:
**OTKRYTOE AKTSIONERNOE OBSHESTVO
NAUCHNO-PROIZVODSTVENNAYA FIRMA
PERFTORAN.*
Puschino, korpus "iskusstvennoi
Krovi" 142290 Moskovskaya obl. RU**

(72) Inventor(es):
**LEV LVOVICH GERVITS
pr. Venadskogo, 9-588 Moscu 117311 RU**

(74) Representante:
**JOSE B. DUMONT*
Varsovia 44 - Desp. 1005 Distrito Federal 06600 MX**

(54) Título: **PERFLUOROCICLOAMINAS TERCIARIAS COMO UNA BASE PARA EMULSIONES DE TRANSPORTE DE GAS Y PROCESO PARA PREPARAR LAS MISMAS.**

(54) Title: **PERFLUORONATED CYCLE-CONTAINING TERTIARY AMINES USED AS A BASIS FOR GAS-CONVEYING EMULSIONS AND DEVICE FOR THE PRODUCTION THEREOF.**

(57) **Resumen**

Perfluorocicloaminas terciarias (TPFCA) de la formula general (I) (ver formula I) donde $n = 1$ o 2 , $m = 2$ o 3 , X es (ver formula) o en donde $n = 2$ X es (ver formula) como la base para emulsiones de transporte de gas. Las TPFCA comprenden un grupo de compuestos que estan cercanos en sus propiedades fisicoquimicas a la perfluoro-N-(4-metil-ciclohexil)-piperidina, particularmente en la temperatura critica de disolucion en hexano, y que se usan en una mezcla, que forman varios compuestos con características gradualmente variables. Debido a esto, se puede lograr una mayor homogeneidad de la fase de fluorocarburo en las emulsiones y llega a ser posible mejorar la estabilidad de las particulas de la emulsion estabilizadas por un copolimero de bloques de oxido de etileno-oxido de propileno, con la ausencia de toxicidad para animales grandes, se prepara una mezcla de TPFCA Por fluoracion electroquimica de n-piperidinoheptafluorotolueno en fluoruro de hidrogeno anhidro. El uso de esta mezcla de TPFCA en lugar de la perfluoro-N-(4-metil-ciclohexil)-piperidina individual simplifica y acelera el proceso para preparar compuestos organicos perfluorados, lo hace mas barato y proporciona condiciones para la aplicacion mas amplia de emulsiones de transporte de gas basadas en las misma.

(57) **Abstract**

The inventive perfluoronated cycle-containing tertiary amines (PFCTA) of general formula (1) where $n=1$ or 2 ; $m=2$ or 3 X represents or , at $n=2$ X represents are used as a basis for gas conveying emulsions. PFCTA is a group of compounds near to perfluor-N-(4-methylcyclohexyl)-piperidine with respect to the properties thereof, in particular with respect to a critical solution temperature in hexane. Said compounds are used in a mixture, thereby producing a range of compounds