United States Patents

Date revised: May 14, 2026

Description

United States Patents, produced by Clarivate, provides access to the complete text of all granted patents issued by the U.S. Patent and Trademark Office (USPTO) since 1835 and published applications issued since March 15, 2001.

Each patent document contains, when available:

- Front-page information, including title, inventor(s), assignee(s), related applications, classification data, cited references, abstract and front-page drawing,
- The full specification of the original patent or published application,
- Claims,
- Drawing sheets and inline images,
- Citing patents,
- Post-issuance legal status information for patents that have been reassigned, re-examined, granted and extended beyond the normal 17/20-year period, expired prior to the normal 17/20-year period, or reinstated after late payment of the maintenance fee,
- The patent family based on the EPO Simple Family ID[1], and
- Legal status information for each member of the patent family[1].

Subject Coverage
United States Patents includes all granted U.S. utility patents, published applications, defensive publications, design patents, plant patents, reissue patents, and statutory invention registrations (S.I.R.s).

Date Coverage
1835–present

Update Frequency
Twice a week

Geographic Coverage
United States

Document Types
Patents

Publisher
United States Patents database is provided by Clarivate. Questions concerning file content should be directed to Customer Care at: http://clarivate.com/about-us/contact-us/.

Terms & Conditions
Dialog Standard Terms & Conditions apply.

[1] The EPO Simple Family ID is a group of patents that share at least one common application or priority application number.

Sample Document[2]

TI

Process for preparing nitrooxyalkyl substituted esters of carboxylic acids, intermediates useful in said process and preparation thereof

del Soldato, Piero; Santus, Giancarlo; Benedini, Francesca (Inventors). Nicox S.A.(Assignee). **US 7723382 B2**. (Published 25 May 2010).

Pricing

Patent | Citations | Images (1) | Family (35 members)

Bibliographic information | Claims | Legal status | Specification

Abstract (summary) Translate

English:

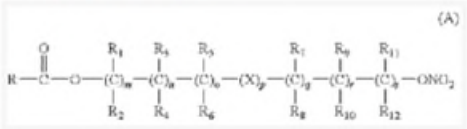
AB, TX, FT

The present invention refers to a process for preparing a compound of general formula (A), as reported in the description, wherein R is a radical of a drug and R1-R12 are hydrogen or alkyl groups, m, n, o, q, r and s are each independently an integer from 0 to 6, and p is 0 or 1, and X is O, S, SO, SO2, NR13 or PR13 or an aryl, heteroaryl group, said process comprising reacting a compound of formula (B) R—COOZ (B) wherein R is as defined above and Z is hydrogen or a cation selected from: Li+, Na+, K+, Ca++, Mg++, tetralkylammonium, tetralkylphosphonium, with a compound of formula (C), as reported in the description, wherein R1-R12 and m, n, o, p, q, r, s are as defined above and Y is a suitable leaving group.

French:

PCT Patent Number : WO2004020385A1, La présente invention se rapporte à un procédé de préparation d'un composé de formule générale (A), comme indiqué dans le descriptif, dans laquelle R désigne un radical d'un médicament et R1-R12 désignent des groupes hydrogène ou alkyle, m, n, o, q, r et s désignent chacun de manière indépendante un entier allant de 0 à 6, et p désigne 0 ou 1, et X désigne O, S, SO, SO2, NR13 ou PR13 ou un groupe aryle, hétéroaryle, ledit procédé consistant à faire réagir un composé de formule (B), dans laquelle R est tel que défini ci-dessus et Z désigne hydrogène ou un cation sélectionné dans : Li+, Na+, K+, Ca++, Mg++, tétralkylammonium, tétralkylphosphonium, avec un composé de formule (C), comme décrit dans le descriptif, dans laquelle R1-R12 et m, n, o, p, q, r, s sont tels que définis ci-dessus et Y désigne un groupe partant convenable.

Front page drawing



Indexing (details) Cite

[3]

PA, CO ACO **Assignee** Nicox S.A. (Non-US Company), Sophia Antipolis - Valbonne, FR, Sophia Antipolis - Valbonne, FR

INV AU ICO **Inventor** del Soldato, Piero, Monza, IT, Monza, IT; Patent rights: US Only;
Santus, Giancarlo, Milan, IT, Milan, IT; Patent rights: US Only;
Benedini, Francesca, Milan, IT, Milan, IT; Patent rights: US Only

PBC PN KC PD **Publication number** US 7723382 B2 (25 May 2010)

APC AP, APD **Application number** US 2003522986 A (06 August 2003)

PPC PRN PRD **Priority number** IT 2002MI1861 (29 August 2002)

Related publication

Publication type	Publication number	Publication date	Application number	Application date
PCT	WO 2004020385	11 March 2004	WO 2003EP8700	06 August 2003
Related publication	US 20070112194	17 May 2007		

APC APNA APDA

DT PBC PNA PDA

[2] To shorten the display length, the Sample Document shows a portion of the complete Claims, Legal status, Specification, Citations, patent family and legal status.

[3] Clicking on hyperlinked values (assignees, inventors, publication and application numbers, classification codes) searches the values in all patent databases.

CPC[4]	**CPC classification**	C07C 269/06 (main); C07C 201/02 (main); C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 271/28; C07C 303/28
		More details ▾
IPC[4]	**IPC classification**	Version 8: A61K 31/21 (main); A61K 31/618 (main); C07C 201/04; C07C 201/08; C07C 203/00; C07C 203/04; C07C 269/06; C07C 271/28; A61K 31/216; A61K 31/40; C07B 61/00; C07C 67/10; C07C 69/00; C07C 69/734; C07C 201/02
		More details ▾
ECLA	**ECLA classification**	C07C 269/06; C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 271/28
USCL	**US classification**	As published: 514/509 (main); 514/413; 514/418; 534/660; 558/480; 558/482; 560/129
LA	**Publication language**	English
--	**Application language**	English
LRP	**Legal representative**	Arent Fox LLP (Attorney)
EXM	**Examiner**	Puttlitz, Karl (examiner)
		Cutliff, Yate' K (assistant examiner)
CLFS	**US field of search**	514/509; 514/413; 514/418; 558/480; 558/482; 560/129; 534/660
NR NCP NCBP NOC NLS	**Document features**	7 literature citations; 22 cited patents; 3 citing patents; 1 images; 12 claims; 11 legal status entries
--	**Source attribution**	United States Patents
AN	**Accession number**	US7723382B2
--	**Document URL**	https://dialog.proquest.com/professional/docview/1000060396791?accountid=176268
FAV	**First available**	2024-10-09
UD	**Updates**	2024-10-09 2024-11-25 2025-09-26 2025-11-27 2026-02-16
	Database	United States Patents (1835 - current)
CLFS	**CPC field of search**	C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 269/06; C07C 271/28; C07C 303/28; C07C 201/02; C07C 203/04; C07C 269/06; C07C 201/02; C07C 69/734; C07C 67/10; C07C 203/04; C07C 271/28; C07C 303/28
CLFS	**IPC field of search**	A61K 31/21; C07C 201/04; C07C 201/08; C07C 203/00; C07C 203/04; C07C 269/06; C07C 271/28; A61K 31/216; A61K 31/618; A61K 31/40; C07B 61/00; C07C 67/10; C07C 69/00; C07C 69/734; C07C 201/02
CLFS	**ECLA field of search**	C07C 269/06; C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 271/28
CLFS	**US field of search**	514/509; 514/413; 514/418; 534/660; 558/480; 558/482; 560/129

Patent | Citations | Images (1) | Family (35 members)

Bibliographic information | Claims | Legal status | Specification

CLM TX FT

The invention claimed is:

1. A process for preparing a compound of general formula (A)

wherein R_1-R_{12} are the same or different and independently are hydrogen, straight or branched C_1-C_6 alkyl, optionally substituted with aryl;

m, n, o, q, r and s are each independently an integer from 0 to 6, and p is 0 or 1, and
X is O, S, SO, SO_2, NR_{13} or PR_{13}, in which R_{13} is hydrogen, C_1-C_6 alkyl, or X is selected from the group consisting of:
saturated or unsaturated C_5-C_7 cycloalkylene, optionally substituted with one or more straight or branched C_1-C_3 alkyl groups;
arylene, optionally substituted with one or more halogen atoms, straight or branched alkyl groups containing from 1 to 4 carbon atoms, or a straight or branched C_1-C_3 perfluoroalkyl;
a 5 or 6 member saturated, unsaturated, or aromatic heterocyclic ring selected from

and R is the radical of a pharmacologically active compound selected from the group consisting of:

.
.
.

[4] Clicking on "More details" displays the attribute values assigned to each code; the attribute values are not indexed for searching.

Patent | Citations | Images (1) | Family (35 members)

Bibliographic information | Claims | Legal status | Specification

	Gazette date	Code	Description	Notes/additional information
LD	2014 Jul 15	US FP -	LAPSED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective: 2014 May 25
LSC	2014 Jun 23	US STCH -	INFORMATION ON STATUS: PATENT DISCONTINUATION	PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
LS	2014 Jun 20	US STCH -	INFORMATION ON STATUS: PATENT DISCONTINUATION	PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
	2014 May 25	US LAPS -	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
	2014 Jan 03	US REMI	MAINTENANCE FEE REMINDER MAILED	
	2009 Dec 07	US FEPP	FEE PAYMENT PROCEDURE	PAYOR NUMBER ASSIGNED (ORIGINAL EVENT CODE: ASPN); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
REA	2005 Sep 15	US AS	ASSIGNMENT	Effective: 2005 Feb 18 ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:SANTUS, GIANCARLO;BENEDINI, FRANCESCA;REEL/FRAME:016994/0054 Assignee: NICOX S.A.,FRANCE
PAOR RR PARE	2005 Jul 14	US AS	ASSIGNMENT	Effective: 1995 Dec 02 NON-COMPT. & CONFIDENTIALITY AGREEMENT;ASSIGNOR:DEL SOLDATO, PIERO;REEL/FRAME:016526/0641 Assignee: NICOX S.A.,FRANCE

.
.
.

Patent | Citations | Images (1) | Family (35 members)

Bibliographic information | Claims | Legal status | Specification

English:

SPEC TX FT

CROSS-REFERENCE TO RELATED APPLICATION

This application is a National Stage entry of International Application No. PCT/EP2003/008700, filed Aug. 6, 2003, the entire specification and claims of which are incorporated herewith by reference.

The present invention relates to a process for preparing nitrooxyalkyl substituted esters of carboxylic acids, to intermediates useful in said process and to their preparation.

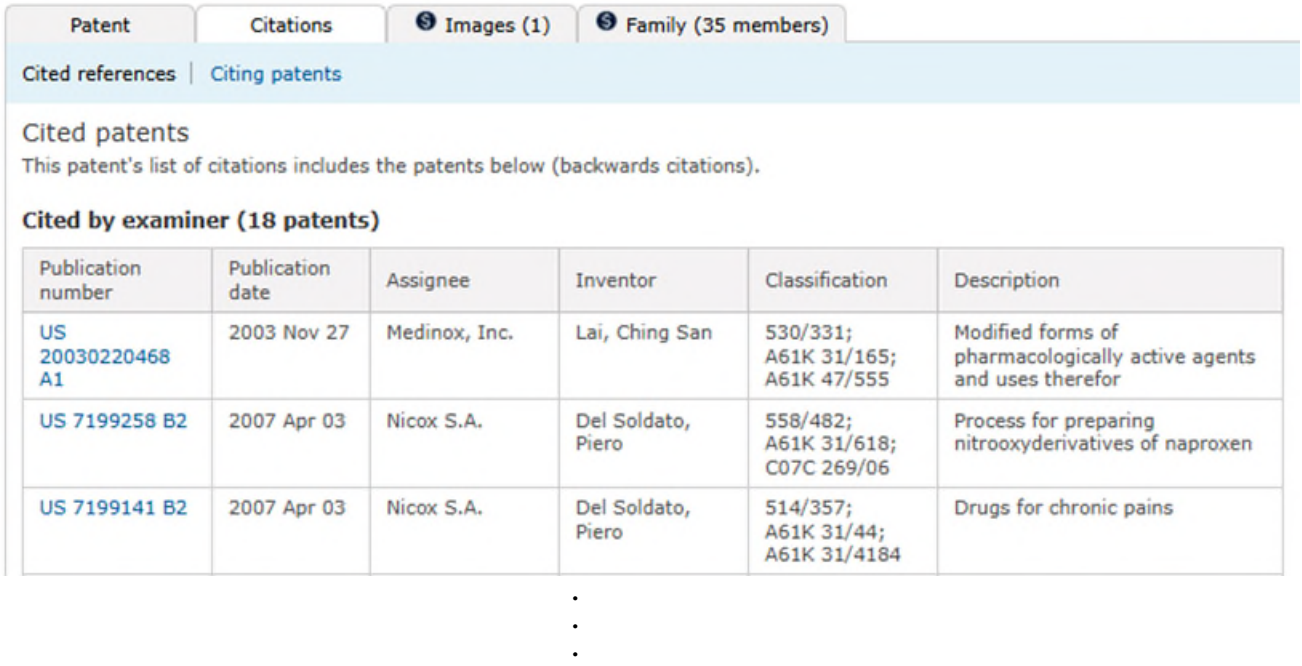
Many carboxylic acid nitrooxyalkyl esters are pharmacologically active products. For example, 1,4-dihydropyridine derivatives having nitrooxy moieties at the C-3 and/or C-5 ester position have shown to be active calcium-channel blockers similar to nifedipine and nicardipine (J. Chem. Soc. Perkin Trans I, 525 (1993)). In literature, several methods for synthesizing nitrooxyalkyl esters are reported. In this way, the nitrooxy moiety may be for example introduced by nucleophilic substitution of a leaving group already present on the alkyl chain of alkyl ester precursor. In particular, 2-(6-methoxy-2-naphtyl)-propionic acid 4-nitrooxybutyl ester has been synthesized reacting 4-chlorobutyl 2-(6-methoxy-2-naphtyl)-propionate with silver nitrate (WO 95/09831), whereas 2-(benzoylphenyl)propionic acid 4-nitrooxybutyl ester (ketoprofen nitrooxybutyl ester) has been prepared reacting the 2-(3-benzoylphenyl)propionic acid sodium salt with 1,4-dibromobutane to give the corresponding bromobutyl ester, which was then treated with silver nitrate to yield the desired nitrooxy derivative. Both processes have the disadvantage that during the introduction of nitrooxy group, impurities of difficult removal are often obtained, such as silver salts (AgCl, AgBr) and silver metal, this being prejudicial to the use of the end-products in therapeutic field, in which an improved purity is always requested.

A further known process for preparing the above mentioned nitrooxyalkyl esters is the insertion of nitrooxyalkyl group by reacting the carboxylic acid or a derivative thereof (halide) with a nitrooxyalkyl alcohol or with a nitrooxyalkyl bromide. For example, 2-(S)-(6-methoxy-2-naphtyl)-propionic acid 4-nitrooxybutyl ester is prepared treating the corresponding acid chloride with 4-nitrooxybutan-1-ol in methylene chloride and in presence of potassium carbonate (WO 01/10814). This method has also the disadvantage that several by-products are formed, being in fact very difficult to obtain nitrooxyalkyl alcohols and the acyl halide in a pure form; moreover, for example 4-nitrooxybutan-1-ol is stable only in solution and it cannot be isolated as a pure substance.

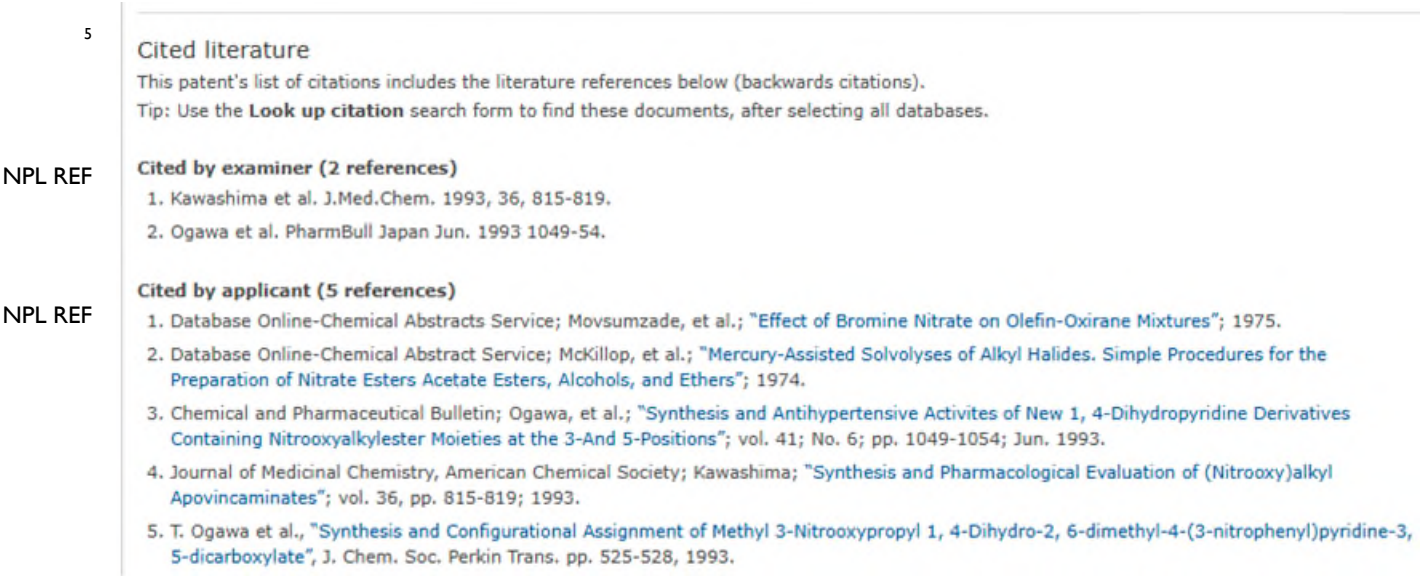
It was thus an object of the present invention to provide a new process for preparing carboxylic acid nitrooxyalkyl esters not having the above mentioned disadvantages and wherein impurities and by-products are present in an essentially negligible amount.

The present invention relates to a process for preparing a compound of general formula (A)

.
.
.



.
.
.



[5] Clicking on hyperlinked journal titles automatically searches the journal title in all general (non-patent) databases.

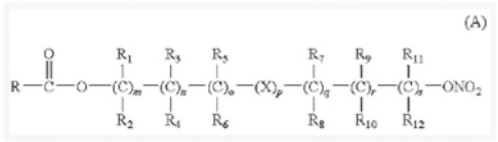
Patent | Citations | Images (1) | Family (35 members)

Images

6 Showing **1** of **1** images

Front page drawing

IMGANY(yes)



Patent | Citations | Images (1) | Family (35 members)

Family members (35) | Family legal status

FID[1] --

EPO family

Simple family ID: 31972201
Includes: 35 patents; 20 countries

3, 7

	Publication number	Kind	Publication date	Application number	Application date	Type
⊞	IT 2002MI1861	A1	20040229	IT 2002MI1861	20020829	B
⊞	CA 2497187	A1	20040311	CA 2497187	20030806	
⊞	WO 2004020385	A1	20040311	WO 2003EP8700	20030806	
⊞	WO 2004020384	A1	20040311	WO 2003EP8698	20030806	
⊞	AU 2003266261	A1	20040319	AU 2003266261	20030806	
⊞	AU 2003266966	A1	20040506	AU 2003266966	20030806	
⊞	EP 1532098	A1	20050525	EP 2003747879	20030806	

Title: PROCESS FOR PREPARING NITROOXYDERIVATIVES OF NAPROXEN

Assignee: NicOx S.A. (Non-US Company), Taissounières HB4, 1681 route des Dolines, BP 313, 06560 Sophia Antipolis - Valbonne, FR, 06560 Sophia Antipolis - Valbonne, FR

Inventor: DEL SOLDATO, Piero, Via E. Toti 22, I-20052 Monza, IT, I-20052 Monza, IT (Residence); SANTUS, Giancarlo, Via Zuara, 8, I-20146 Milano, IT, I-20146 Milano, IT (Residence); BENEDINI, Francesca, Via Padova, 286, I-20132 Milano, IT, I-20132 Milano, IT (Residence)

Priority number: IT 2002MI1861 (29 August 2002)

CPC classification: C07C 269/06 (main); C07C 201/02 (main); C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 271/28; C07C 303/28

IPC classification: Version 8: A61K 31/618 (main); C07C 203/04; C07C 269/06; C07C 271/28; A61K 31/216; C07B 61/00; C07C 67/10; C07C 69/734; C07C 201/02; C07C 201/04; C07C 201/08; C07C 203/00
Version 1-7: C07C 201/02 (main); C07C 203/04

Publication language: English

Document features: 1 literature citations; 1 cited patents; 1 citing patents; 17 images; 8 claims; 103 legal status entries

CPC field of search: C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 269/06; C07C 271/28; C07C 303/28; C07C 201/02; C07C 203/04; C07C 269/06; C07C 201/02; C07C 69/734; C07C 67/10; C07C 203/04; C07C 271/28; C07C 303/28

IPC field of search: C07C 201/02; C07C 203/04; A61K 31/618; C07C 203/04; C07C 269/06; C07C 271/28; A61K 31/216; C07B 61/00; C07C 67/10; C07C 69/734; C07C 201/02; C07C 201/04; C07C 201/08; C07C 203/00

ECLA field of search: C07C 269/06; C07C 67/10; C07C 69/734; C07C 201/02; C07C 203/04; C07C 271/28

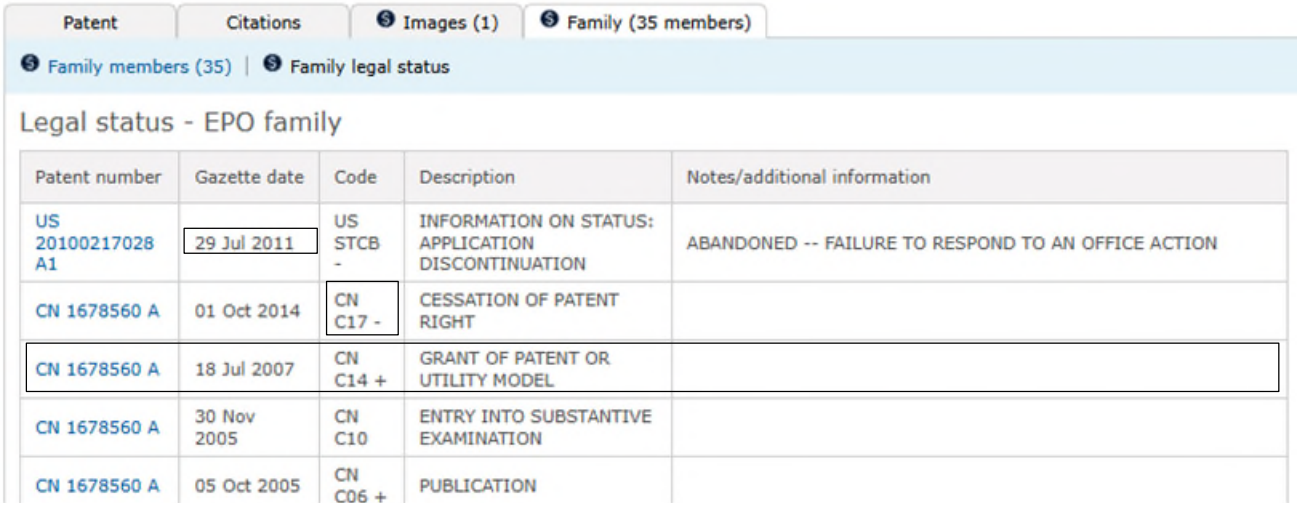
Abstract: The present invention refers to a process for preparing a compound of general formula (A), as reported in the description, wherein R is a radical of a drug and R1-R12 are hydrogen or alkyl groups, m, n, o, q, r and s are each independently an integer from 0 to 6, and p is 0 or 1, and X is O, S, SO, SO2, NR13 or PR13 or an aryl, heteroaryl group, said process comprising reacting a compound of formula (B) R—COOZ (B) wherein R is as defined above and Z is hydrogen or a cation selected from: Li+, Na+,...

⊞	EP 1537070	A1	20050608	EP 2003790866	20030806	
⊞	KR 2005057057	A	20050616	KR 20057003509	20030806	
⊞	CN 1678560	A	20051005	CN 2003820605	20030806	

….etc.

[6] Clicking on an image will launch a full-size image viewer.

[7] The complete set of patent family members for the patent document are displayed in a table (sorted by publication date). To view the bibliographic details of a member, expand the table entry by clicking on the "plus" sign preceding the publication number.



[8]

LSD

LSC

LS

.
.
.

Search fields

Field Name	Field Code	Search examples[9]	Description and Notes
Abstract	AB	ab(*ammonium)	Use adjacency and/or Boolean operators to narrow search results.
Abstract present	ABANY	tetralkylphosphonium AND abany(yes)	Add: *AND ABANY(YES)* to a query to limit retrieval to records with abstracts.
Accession number	AN	an(US7723382B2)	A unique document identification number assigned by the information provider.
All fields	ALL	all(Li Na K Ca Mg)	All fields *except* the full text. Use proximity and/or Boolean operators to narrow search results.
All fields + text	--	Li AND Na AND K AND Ca AND Mg	Using no field code searches all fields including the full text.
Any number, in many formats	PNUM	pnum(US7723382) pnum(US7723382 B2) pnum(7723382)	Publication, application, priority application, related application, and related publication number. Includes various forms of the number. Search cited and citing publication numbers with CTPN and CGPN.
Application country	APC	apc(us)	Application, priority application, and related application country.
Application date	APD	apd(20060913)	The main application date.
Application dates – all	APDA	apda(2003-08-06) apda(20030806)	Application, priority, and related application dates.
Application number	APN	apn(US 2006522986)	The main application number.
Application numbers – all	APNA	apna(IT 2002MI1861)	Application, priority application, and related application numbers.
Assignor	PAOR	paor("DEL SOLDATO, PIERO")	An assignor is a former assignee transferring rights to a new assignee (PARE).
Author	AU	au(Santus, Giancarlo)	Author names in patent databases are inventors but can be searched using the AU field code.
Cited and citing patent references	PAR	par(WO 95009831) par(US 7186753) par(Letts)	Cited and citing patent references but not cited literature.
Cited non-patent literature	NPL	npl(Ogawa) npl("Bromine Nitrate")	Cited literature references.
Cited patent publication date	CTDA	ctda(19971223)	The publication date of a cited patent in the document.

[8] The complete set of legal status actions for each patent family member are displayed.

[9] Most, but not all, of the search examples are from the sample record.

Field Name	Field Code	Search examples	Description and Notes
Cited patent publication number	CTPN	ctpn(US 6040341 A) ctpn(6040341) ctpn(US 6040341)	Includes enhanced/variant forms of the number.
Cited references – all	REF	ref(WO98007701) ref(US8062653) ref("Medicinal Chemistry")	Cited/citing patent and cited literature references.
Citing patent publication date	CGDA	cgda(20111122)	The publication date of a citing patent in the document.
Citing patent publication number	CGPN	cgpn(US 8062653 B2) cgpn(US 8062653) cgpn(8062653)	Includes enhanced/variant forms of the number.
Claims	CLM	clm("ferulic acid")	Claims are the legal text describing the patent.
Classification – CPC[10]	CPC	cpc(C07C 69/734) cpc(C07C 69) cpc(C07C) cpc(C07) cpc(C)	The Cooperative Patent Classification (CPC) is available for searching from March 2013 forward.
Classification – ECLA	ECLA	ecla(C07C 201/02) ecla(C07C 201) ecla(C07C) ecla(C07) ecla(C)	European Class codes.
Classification – IPC[11]	IPC	ipc(C07C 69/734) ipc(C07C 69) ipc(C07C) ipc(C07) ipc(C)	International Patent Class codes. IPC Version 7 and earlier is used prior to 2006. The IPC Version 8 is used from 2006 forward.
Classification – US	USCL	uscl(514/509) uscl(514)	National Class codes (United States).
Company information	CO	co("Nicox S.A.")	The as-published patent assignee, new assignee and assignor.
Document text	TX	tx("nitrooxyalkyl substituted esters") tx(nitrooxy* NEAR/5 ester?)	Abstract, claims, and specifications. Use adjacency and/or Boolean operators to narrow search results. May also search using FT.
Document type	DTYPE	dtype(patent)	The only document type in United States Patents is "patent".
Examiner	EXM	exm(Puttlitz, Karl) exm(1621)	Examiner and examiner reference code (USPTO Art Unit). Not available for published applications.
EPO simple family ID	FID	fid(133531253)	The EPO simple family ID is a type of accession number assigned to patents that share an identical priority application number.
First available	FAV	fav(20120325)	Indicates the first time a document was loaded in a database. It will not change however many times the record is subsequently reloaded.
From database[12]	FDB	nitrooxy* N/5 ester AND fdb(1008365)	Useful in multi-database searches to isolate records from a single database. FDB cannot be searched on its own; specify at least one search term then AND it with FDB.
Full text	FT	ft("nitrooxyalkyl substituted esters") ft(nitrooxyalkyl substituted esters)	Abstract, claims, and specification. May also search using TX.

[10] The Cooperative Patent Classification (CPC) was introduced in January 2013. It is structurally similar to the International Patent Classification (IPC), so CPC classes are searched the same way using the CPC field code. CPC attributes are the same as the IPC attributes with the exception of the Value attribute (I - Inventive, A - Additional).

[11] IPC Version 7 and earlier is used from 1970 through 2005. IPC Version 8 is used from 2006 forward. With the introduction of the Reformed International Patent Classification (IPCR/8) on January 1, 2006, the format of the IPC group increased in length from 3 to 4 digits. For comprehensive retrieval, both forms of the classification codes should be searched. Some records may contain IPCR/8 codes as well as earlier versions of IPC codes, indicating that an older patent has been reclassified. Each IPCR/8 classification code is also assigned a series of attributes. These include classification level (A - Advanced, C - Core, S - Subclass), value (I - Inventive, N - Non-inventive), position (F - First, L - Later), status (B - Basic, R - Reclassified, V - Various, D - Deleted), version date, action date, source (H - Human, M - Machine, G - Generated), and assigning office.

[12] FDB searches the database ID. Click the "Field codes" hyperlink at the top right of the Advanced Search page. Click "Search syntax and field codes", then click on "FDB command" to get a list of database names and codes that can be searched with FDB.

Field Name	Field Code	Search examples	Description and Notes
Full text present	FTANY	ft(nitrooxyalkyl substituted esters) AND ftany(yes)	Add: *AND FTANY(YES)* to a query to limit your search to documents with full text (i.e., Specification)
Image present	IMGANY	ft(nitrooxyalkyl substituted esters) AND imgany(yes)	Add: *AND IMGANY(YES)* to a query to limit your search to documents with an image.
Inventor	INV	inv(Santus, Giancarlo)	May also search inventor names using the AU field code.
Inventor country	ICO	ico(IT)	
Language	LA	la(english)	The language in which the document was originally published.
Language of abstract	SL	sl(english)	
Legal representative	LRP	lrp(Arent Fox)	The legal representative, attorney, agent, or firm who represents the patent assignee.
Legal representative location	LRL	lrl(CA)	The mailing address if available.
Legal status	LS	ls(lapse) ls("US AS") ls(20140715) ls("CONFIDENTIALITY AGREEMENT")	Legal status Gazette date, code, code description, and notes.
Legal status code	LSC	lsc("US AS") lsc(Assignment)	Legal status code and code description.
Legal status date	LD	ld(201407) ld(20140715)	Legal status Gazette date and effective date in notes.
New assignee	PARE	pare(NICOX)	The name of the patent assignee who is receiving transfer rights from an assignor (PAOR).
Number of cited literature references	NR	nr(>5) nr(7)	NR is a numeric field so using "greater than" (>) and "less than" (<) symbols, for example, is possible.
Number of cited patents	NCP	ncp(23) ncp(22 OR 23 OR 24)	NCP is a non-numeric field; using symbols such as "greater than" (>), "less than" (<) is not possible.
Number of citing patents	NCBP	ncbp(2)	NCBP is a non-numeric field; using symbols such as "greater than" (>), "less than" (<) is not possible.
Number of claims	NOC	noc(1-25) noc(>10)	NOC is a numeric field; using "greater than" (>) and "less than" (<) symbols, for example, is possible.
Number of legal status entries	NLS	nls(<=10) nls(1-10)	NLS is a numeric field; using "greater than" (>) and "less than" (<) symbols, for example, is possible.
Patent assignee	PA	pa("NICOX ")	The as-published applicant or patent assignee names.
Patent assignee country	ACO	aco(fr)	The mailing address country for the patent assignee consisting of the ISO-standard 2-letter country code.
Patent publication country	PBC	pbc(us)	The 2-letter ISO standard country code for the main publication and related publication country.
Patent publication country and kind code	KC	kc(us b2) kc(us)	The kind code indicates the publication level of a patent document. KC searches main publication country and kind code, or the country only.
Patent publication country and kind code – all	KCA	kca(US B*) kca(US)	The kind code indicates the publication level of a patent document. KCA searches the main or related publication country with kind code, or the country only.
Patent publication date	PD	pd(20100525) pd(201005)	Main publication date.
Patent publication dates – all	PDA	pda(2010) pda(20040311)	Main and related publication dates.
Patent publication number	PN	pn(US 7723382B2) pn(US 7723382)	Main publication number.
Patent publication numbers – all	PNA	pna(US 7723382) pna(WO2004020385)	Main and related publication numbers.
Patent title	TI	ti(nitrooxyalkyl substituted esters)	
Priority application country	PPC	ppc(it)	The 2-letter ISO-standard country code associated with the priority application number.
Priority application date	PRD	prd(20020829) prd(200208)	The 8-digit date assigned to a priority application number.

Field Name	Field Code	Search examples	Description and Notes
Priority application number	PRN	prn(IT 2002MI1861)	The priority application number is the number assigned to the original or first application.
Publication title	PUB	pub(United States Patents)	In a patent database, the publication title is the database name.
Publication type	PT	pt("Government & Official Publications")	The only publication type in United States Patents is "Government & Official Publications".
Reassignment date	RAD	rad(20061201) rad(2006-12-01)	The effective date of a reassignment.
Reassignment information	REA	rea(20050714) rea("NON-COMPT. & CONFIDENTIALITY AGREEMENT") rea(NICOX)	Reassignment effective date, new assignee, assignor, reel/frame, and assignment description.
Reel and frame	RR	rr(016994/0054)	Reel/frame data is available in legal status.
Related publication and application type	DT	dt(PCT) dt("Related publication")	The type of related publication and application, such as PCT, Continuation in part, etc.
Relevance category	RI	ri(a)	A cited reference may include single letter codes that indicate how it is relevant to the patent.
Specification	SPEC	spec(objet cylindrique)	The specification of the patent. To search all text (abstracts, claims, specification), use the TX or FT field code.
Updates	UD	ud(20140730)	The date(s) the record was loaded as a result of an update provided by the supplier.
Field of search	CLFS	clfs(514/509) clfs(514)	Class codes used by examiners for their prior art search report.

Search tools

Field codes are used to search document fields, as shown in the sample document. Field codes may be used in searches entered on the **Basic Search**, **Advanced Search**, **Command Line** and **Look Up Patent** search pages. **Limit options**, **Look up lists**, **Patent families option**, **"Narrow results by" filters**, and **Look up patent** tools are also available for searching. Some data can be searched using more than one tool.

Limit options

Limit options are quick and easy ways of searching certain common concepts. Check boxes are available for:
Full text and **Images included.**

The Advanced search page also contains a short list of choices for **Patent publication country, Language** and dates**. Date limiters** are available in which you can select single dates or ranges for date of **publication, priority, application,** and **updated**.

Look up lists

Browse the contents of certain fields by using Look up lists. These are particularly useful for validating spellings or the presence of specific data. Terms found in the course of browsing may be selected and automatically added to the Advanced Search boxes. Look up lists are available in the Advanced Search drop-down fields for: **Inventor, Patent assignee, Patent assignee (reassigned), Patent assignor, Publication kind code, Classification (CPC), Classification (ECLA), Classification (IPC), Classification (US) and Legal status code (LSC).**

Individual Look Up lists are also available on the Advanced search options form for:
Patent assignee, Inventor, Classification (IPC), and **Publication kind code**

Patent family options

Condense your results to one patent per family by using the patent families search tool on the right-hand panel of the results page. Click "Show one member per family" to reduce the list of results to 1 publication for each patent family. Click "Show all results" to reinstate the full list of results.

“Narrow by results” filter

The results display is accompanied by a list of “Narrow results by” options shown on the right-hand panel. Click on any of these filters to see a ranked list showing the most frequently occurring terms in your results. Click on the term to apply it to (“narrow”) your search results. Narrow results by filters include:

Full text, Patent assignee, Patent assignee country, Inventor, Patent publication country, Publication kind code, Classification (IPC), Classification (CPC), Classification (ECLA), Classification (US), Legal status, Database (appears when searching multiple databases), and **Publication date.**

Look up patent

If you need help finding a patent, use the Look Up Patent page to enter any known patent details including: Number, Patent title, Assignee, Inventor, any free-text search terms, Publication date, and Application date.

Document formats

Pre-defined document formats are available for viewing and download. Search results can be downloaded with the Download all results, Email, Print and Export/Save options, and when creating an alert.

Each U.S. patents document contains the bibliographic data, patent specification, images, claims and legal status of a single patent. In addition, the complete patent family plus legal status data is provided for each family member related to the main patent of the document.

Document format	Description	Online	Export/ Download[13]
Brief view result listing[14]	Original patent title, assignee, inventor, patent number and kind, date, database name.	✓	✓
Detailed view result listing[14]	Brief view plus a 3-line KWIC window, front page drawing, number of citations, number of citing patents, and the number of legal status entries.	✓	
KWIC (Keyword in context)	Detailed view plus all occurrences of your search terms, highlighted within the fields where the terms occur.	✓	✓
Preview[14]	Brief view plus the abstract, front page drawing, IPCs and US class codes.	✓	
Brief citation	Bibliographic information (title, assignee, inventor, publication number and date, application number and date, priority application number and date, related filing details, IPC, CPC, ECLA and US classifications, legal representative, publication and application languages, document features, source attribution, accession number, document URL, update dates, database name), images, patent family members and family legal status	✓	
Citation/Abstract	Bibliographic information, abstract, front-page drawing, legal status, cited references, images, patent family members and family legal status. A Citation only format is offered when the abstract is not available.	✓	✓
Full text and graphics	The complete document. A full text only format is offered when images are not available. Clicking on the title in the result listing also provides the complete document.	✓	✓
Custom	Choose the fields you want. To design your own download format, choose the “Custom” format option in the Export/Save menu, and check the fields to be downloaded.		✓
Image of the original patent	A link to the image of the complete patent document in PDF format.	✓	✓

Contact: **Dialog Global Customer Support**
Email: Customer@dialog.com
Within North America **1 800 3 DIALOG (1 800 334 2564)**
Outside North America **00 800 33 DIALOG (00 800 33 34 2564)**

[13] Export/download choices include PDF, RTF (Microsoft Word), XLS (Microsoft Excel) and XML. XLS output is only available with a custom format.
[14] Transactional accounts display the title, publication country and the publication date in the brief view, detailed view and preview formats.