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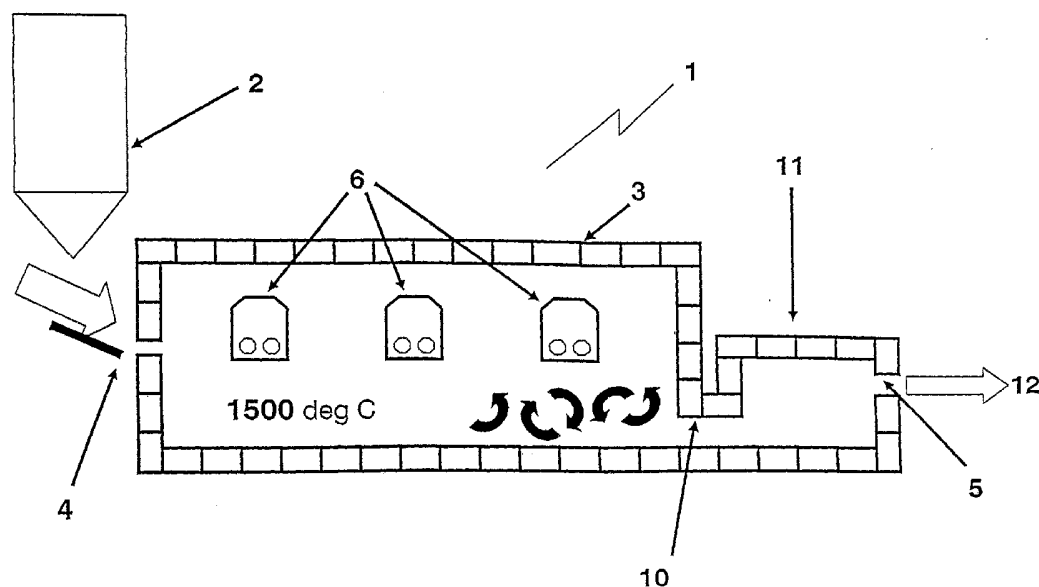
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(54) Title: SODA LIME GLASS COMPOSITIONS AND PROCESS FOR MANUFACTURING CONTAINERS FROM SAID COMPOSITIONS



(57) Abstract: The invention relates to soda lime glass compositions for producing glass containers having pre-determined light transmission properties, the composition including at least one rare earth element or a compound thereof in an amount ranging from 0.3 to 10% by weight of the total composition so as to affect the light transmission properties of the glass to provide U.V. absorbing and/or fluorescent and/or dichroic glass. The invention also relates to a process for manufacturing soda lime glass containers using the above compositions.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2006/000057

A. CLASSIFICATION OF SUBJECT MATTER

INV. C03C3/095

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)

C03C C09K

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, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 200219 Derwent Publications Ltd., London, GB; Class L01, AN 2002-143386 XP002396076	1-4,7,8, 10,17-25
A	-& JP 2001 278636 A (KOA GLASS KK) 10 October 2001 (2001-10-10) abstract; table 1 paragraphs [0007], [0018] - [0024], [0052], [0056], [0066] ----- -/--	11,13-16

☒ 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.

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2006/000057

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 200460 Derwent Publications Ltd., London, GB; Class L01, AN 2000-491548 XP002396077 & CN 1 045 078 C (GUANGFA GLASS TECHNOLOGY CO LIWAN DISTRI) 15 September 1999 (1999-09-15)	1-10, 13-16, 20-25
Y	abstract	11
X	EP 0 790 219 A (ASAHI GLASS COMPANY LTD) 20 August 1997 (1997-08-20) page 2, line 31 - page 3, line 54; claim 1; examples 53,54 page 4, line 25 - line 29	1-10, 13-16, 20-25
Y	CA 1 334 306 C (BRITISH TELECOMMUNICATIONS P.L.C) 7 February 1995 (1995-02-07)	11
A	page 2, line 12 - line 15; claim 3 page 4, line 4 - line 8 page 6, line 4 - line 5	2,10,21
X	DATABASE WPI Week 200024 Derwent Publications Ltd., London, GB; AN 2000-277097 XP002407065 -& JP 2000 075128 A (OSAKA MEGANE GLASS KK) 14 March 2000 (2000-03-14)	1,4-8, 10,20-25
A	abstract paragraph [0020]	12
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A	abstract	12
X	EP 0 842 906 A (NIPPON SHEET GLASS CO. LTD) 20 May 1998 (1998-05-20) page 4, line 25 - line 35; claim 1	1-10, 13-16, 20-25
X	US 2 444 976 A (BROWN WILBUR F) 13 July 1948 (1948-07-13)	1-10,13, 14,20-25
A	page 1, line 1 - line 5; examples page 3, line 15 - page 4, line 18	15,16
P,X	DE 10 2004 026257 A1 (FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V) 10 November 2005 (2005-11-10) claim 1; table 2	1-10

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2006/000057

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Section Ch, Week 200234 Derwent Publications Ltd., London, GB; Class L03, AN 2002-296450 XP002396173 & JP 2001 282153 A (KOA GLASS KK) 12 October 2001 (2001-10-12) abstract	2,10,11, 21
X	DATABASE WPI Week 198110 Derwent Publications Ltd., London, GB; AN 1981-16919D XP002407066 -& SU 745 875 A1 (GUSEV GLASS RES INST) 7 July 1980 (1980-07-07) abstract; examples	1,4-8, 10,20-25
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A	DATABASE WPI Week 199514 Derwent Publications Ltd., London, GB; AN 1995-104962 XP002407068 -& RU 2 016 860 C1 (OPTICAL INST RES INST) 30 July 1994 (1994-07-30) abstract	1-25
A	DATABASE WPI Week 198521 Derwent Publications Ltd., London, GB; AN 1985-126906 XP002407069 & SU 1 121 247 A (CURRENT SOURCES RES) 30 October 1984 (1984-10-30) abstract	12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IE2006/000057

Box 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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 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 all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers 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.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: -

The present claims 1-7,9,17-25 relate to an extremely large number of possible products. Support and disclosure in the sense of Article 6 and 5 PCT is to be found however for only a very small proportion of the products claimed, see pages 3-6, 10, 13-16. The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search of claims 1-7,9,17-25 (PCT Guidelines 9.19 and 9.23).

The search of claims 1-7,9,17-25 was restricted to those claimed compositions and products which appear to be supported, namely soda-lime silica glasses according to description pages 3-6, 10, 13-16, and a generalisation of their structural formulae (e.g. broader concentration ranges of ingredients).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

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(part)-10(part), 11, 17(part)-25(part)

A soda-lime silica glass composition including at least one rare earth element, or a compound thereof, characterized in that the said rare earth element compounds comprise 0.5-10 wt% Pr₂O₃ and 0.4-10 wt% Er₂O₃, the effect of which is to cause the glass product made of said composition to fluoresce.

1.1. claims: 1(part)-10(part), 13-16, 17(part)-25(part)

A soda-lime silica glass composition including at least one rare earth element, or a compound thereof, characterized in that the said rare earth element compound is CeO₂ (2-10 wt%) and that the glass composition additionally comprises TiO₂ (2-10 wt%). The effect of CeO₂ and TiO₂ is to cause the glass product made of said composition to absorb UV radiation.

2. claims: 1(part)-10(part), 12, 17(part)-25(part)

A soda-lime silica glass composition including at least one rare earth element, or a compound thereof, characterized in that the said rare earth element compounds comprise 4-10 wt% Pr₂O₃ and 3-10 wt% Nd₂O₃, the effect of which is to provide a glass composition with a dichroic effect.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IE2006/000057

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