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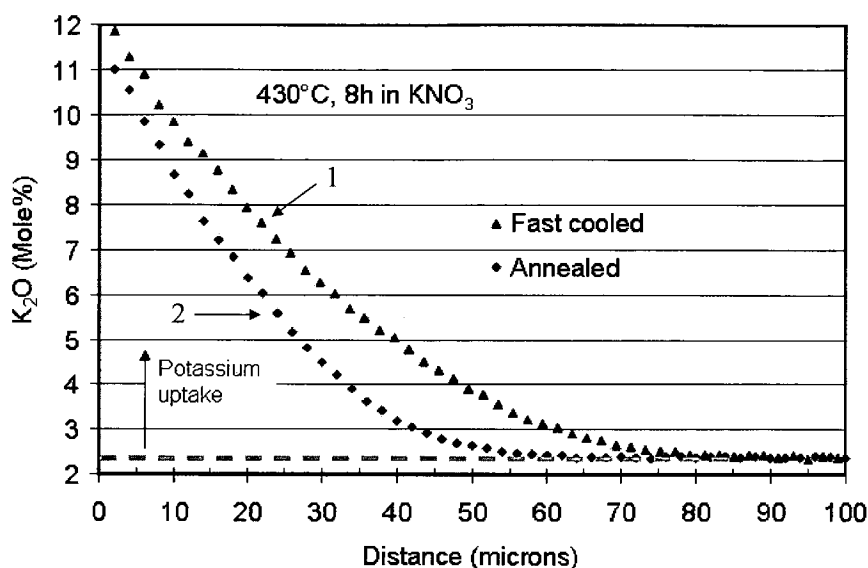
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(54) Title: ION EXCHANGED, FAST COOLED GLASSES

FIG. 1



(57) Abstract: A glass that is ion exchangeable to a depth of at least 20 μm (microns) and has an internal region having a tension of less than or equal to 100 MPa. The glass is quenched or fast cooled from a first temperature above the anneal point of the glass to a second temperature that is below the strain point of the glass. In one embodiment, the glass is a silicate glass, such as an alkali silicate glass, an alkali aluminosilicate glass, an aluminosilicate glass, a borosilicate glass, an alkali aluminogermanate glass, an alkali germanate glass, an alkali gallogermanate glass, and combinations thereof.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/01230

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C03C 15/00 (2009.01)

USPC - 65/30.14

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)

IPC(8) - C03C 15/00 (2009.01)

USPC - 65/30.14

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

IPC(8) - C03C 15/00 (2009.01) (text search only - see search history printout)

USPC - 65/30.14 (text search only - see search history printout)

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

(USPT, PGPB, EPAB, JPAB); Google Patent, Google Scholar, Dialog Web

Search terms on extra sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,751,238 A (Grego et al.) 07 Aug 1973 (07.08.1973) (Abstract, Col. 3, ln 6-26, Col. 4, ln 3-10, Col. 4, ln 49-54, Col. 6, ln 52-55, Col. 5, ln 66 - Col. 6, ln 7, Col. 4, ln 3-6, Col. 6, ln 12-20, Col. 4, ln 66 - Col. 5, ln 12, Col. 2, ln 60 - Col. 3, ln 5).	1-2, 5-7, 10-13, 15, 17
Y		3-4, 8-9, 14, 16, 18-20
Y	US 3,723,080 A (Howell et al.) 27 Mar 1973 (27.03.1973) (Col. 4, ln 44-51).	3, 16, 19-20
Y	US 2005/0250639 A1 (Siebers et al.) 10 Nov 2005 (10.11.2005) (para [0017], [0019], [0068]).	4
Y	US 4,859,636 A (Aratani et al.) 22 Aug 1989 (22.08.1989) (Col. 7, ln 60-64, col. 9, ln 10-15).	8
Y	US 2004/0075086 A1 (Wolff et al.) 22 Apr 2004 (22.04.2004) (para [0008], [0030]).	9, 14, 18

Further documents are listed in the continuation of Box C.

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continued from box B

Search terms:

borosilicate, boro-silicate, aluminosilicate, alumino-silicate, alumino silicate, boro silicate, boroalumino, boro-alumino, aluminoborosilicate, boroaluminosilicate, aluminitesilicate, silicate, glass, aluminogermanate, germanate glass, gallogermanate, alkali germanate, gallo-germanate, ion exchange, annealing, rate, quench, quenching, strain, fast cooling, rapid cooling, rapidly cooling, stress, central, internal, tension, compressive, tensile, down drawn, fusion draw, slot draw, cta, above, below, depth, thickness