

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

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

To:

see form PCT/ISA/220

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

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

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2018/033133

International filing date (day/month/year)
17.05.2018

Priority date (day/month/year)
30.05.2017

International Patent Classification (IPC) or both national classification and IPC
INV. A61F11/08 C08L23/14 C08L23/22 C08L45/00 C08L75/04 C08L83/04 H04R1/10

Applicant
BOSE CORPORATION

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

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

2. FURTHER ACTION

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

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

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

Name and mailing address of the ISA:



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Date of completion of this opinion

see form
PCT/ISA/210

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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

1. Statement

Novelty (N)	Yes: Claims	<u>6-15, 18-31</u>
	No: Claims	<u>1-5, 16, 17</u>
Inventive step (IS)	Yes: Claims	<u>21-25</u>
	No: Claims	<u>1-20, 26-31</u>
Industrial applicability (IA)	Yes: Claims	<u>1-31</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

1. Reference is made to the following document/s; the numbering will be adhered to in the rest of the procedure:

- D1 WO 2011/135742 A1 (YUPO CORP [JP]; UCHINO RYOUICHI [JP]; ISHIMOTO SHOUICHI [JP]; SUZUKI T) 3 November 2011 (2011-11-03)
- D2 WO 2013/001506 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; BURDINSKI DIRK [DE]; VAN ZANTEN J) 3 January 2013 (2013-01-03)
- D3 KR 2015 0101243 A (PHILOS CO LTD [KR]) 3 September 2015 (2015-09-03)
- D4 WO 2009/021849 A1 (CIBA HOLDING INC [CH]; LOEHNER BEATRIX [GB]; BUTTERS MARTIN [GB]; NORM) 19 February 2009 (2009-02-19)

Box V

2. Subject matter of claims 1-19 is a composition comprising:

a) elastomers (rubber or thermoplastic elastomer, thermoset urethanes, butyl rubbers, nitriles, thermoplastic vulcanizate polypropylene, thermoplastic silicone vulcanizate, styrenic-based thermoplastic elastomers, polynorbomene, interpenetrating polymer networks, silicone, or polyisobutylene)

b) 10-40% hydrophilic or oleophilic agents (cross-linked polyacrylic acid, polyamide, cross-linked carboxymethylcellulose, cross-linked polyvinyl alcohol, polyacrylic acid cross-linked with allyl sucrose, allyl pentaerythritol, or divinyl glycol; or poly acrylic acid with C₁₀₋₃₀ alkyl acrylate cross-linked with allyl pentaerythritol) or inorganic additive (alkali metal salt) or extractable agent: (water soluble sugar, water soluble polymer, polyvinylpyrrolidone or polyvinyl alcohol, organic solvent soluble wax: liquid paraffin, mineral oil, or wax micro powder)

wherein the composition has water permeability greater than about 20 g/(hr* m²)

Subject matter of claim 20 is a method for the preparation of a composition by puncturing

Subject matter of claim 21 is a method for the preparation of a composition by curing in presence of water

Subject matter of claim 23 is the method of preparation of a composition by extraction

Subject matter of claim 26 is an earpiece

Subject matter of claim 30 is an acoustical device

3. The present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of claims 1-5, 16 and 17 is not new in the sense of Article 33(2) PCT

2.1 D1 (WO-A-2011/135742) is a water permeable film of polypropylene, thermoplastic elastomer and inorganic fine powder having a water permeability of 0.1-2000.

Consequently D1 discloses the subject matter of claims 1-5,16 and 17.

4. The present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of claims 1-20 and 26-31 does not involve an inventive step in the sense of Article 33(3) EPC.

4.1 Subjective problem underlying the present application is the provision of ear pieces having a high water permeability to avoid liquid built up in the ears.

The closest prior art therefore has to relate to earpieces.

D2 relates to ear plugs (page 1, lines 25-28, page 21, lines 7-18) which avoid moisture built up in the ear by high water absorption.

The difference to D2 therefore is the missing disclosure of a water permeability range.

The present application does not provide any comparative measurements. There are examples disclosing how the claimed water permeability can be obtained and there is no comparison to the prior art.

The problem to be solved is therefore to provide an alternative composition with high water permeability.

The problem is solved by compositions of elastomers and agents.

The claimed compositions are known from D2 itself. D2 discloses compositions of silicone elastomers and agents such crown ether and sulfonates.

D2 alone therefore renders the present solution obvious.

D3 and D4 both relate to compositions of elastomers and agents with high water uptake and water vapour transmission rate. D3 (WO-A-2009/021849) discloses water-swellaible material of hydrophilic crosslinked particles (polyacrylic acid) in water insoluble polymeric material (polyamide, polyurethane etc.). D4 (KR-A-2015101243) discloses high molecular weight polymer (polyvinylidene fluoride, polyethersulfone, polysulfone, polyacrylonitrile, polyimide, polyamideimide, polyurethane, polystyrene, polyacryl sulfone (Polyacrylsulfone) and water absorbing material PVOH with solvents for water permeable membrane. Therefore D3 and D4 make obvious that there is a wide range of combinations of elastomers with agents for the provision of alternative materials for ear plugs with high water permeability.

4.2 Subject matter of claim 20 is a method of achieving the high water permeability by micropores obtained by puncturing with a puncturing apparatus.

Such a process is well known and therefore cannot be the basis for an inventive step.

Box VII

5. Fig. 4, 5 and 7 are not readable

Box VIII

6. Claims 1, 6, 7, 19 and 21 are not clear in view of Art. 6 PCT

6.1 "about" in combination with ranges renders the extent of protection of claims 1-4, 20-21, 23 and 28 unclear.

6.2 The standard of measurement of the water permeability is not disclosed in claims 1-4, 20-21, 23 and 28. The claims are unclear unless a reference to the standard ASTM E96 disclosed in paragraph [028] of the application is added.

6.3 Subject matter of claims 6, 7 and 19 are compounds useful for a) or b) characterised by tradenemes. Characterisation by tradenames is not allowable and renders the extent of protection unclear.