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(54) Title: ONE-SHAPE PERMANENT HAIR COLOR OF PASTE TYPE

(57) Abstract: The present invention relates to a one-formulation type oxidative permanent hair dye in the form of paste, in particular, to a one-formulation type oxidative permanent hair dye in the form of paste prepared by incorporating a treatment oil not containing water moisture selected from a fatty oil, a mineral oil, a plant oil and a silicon oil into a conventional one-formulation type oxidative permanent hair dye comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a stabilizing agent, an oil-dispensing agent and a hair protecting agent. The present invention hair color makes it possible to overcome shortcomings such as inconvenience in production and application associated with the occurrence of dust, to color hair in low cost, to exhibit improved durability of hair coloring and treatment effect because the treatment oil is deeply penetrated into cortex layer of hair.



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ONE-SHAPE PERMANANT HAIR COLOR OF PASTE TYPE

FIELD OF THE INVENTION

The present invention relates to a one-formulation type oxidative permanent hair color in the form of paste, in particular, to a one-formulation type oxidative permanent hair color in the form of paste prepared by incorporating a treatment oil not containing water moisture selected from a fatty oil, a mineral oil, a plant oil and a silicone oil into a conventional one-formulation type oxidative permanent hair color comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a stabilizing agent, an oil-dispersing agent and a hair protecting agent. The present hair color makes it possible to overcome shortcomings such as inconvenience in production and application associated with the occurrence of dust, to color hair in low cost, to exhibit improved durability of hair coloring and treatment effect because the treatment oil is deeply penetrated into cortex layer of hair.

DESCRIPTION OF THE RELATED ART

The present invention relates to a one-formulation type oxidative permanent hair color in the form of paste. More particularly, the present invention relates to a one-formulation type oxidative permanent hair color in the form of paste prepared by incorporating a treatment oil not containing water moisture selected from a fatty oil, a mineral oil, a plant oil and a silicone oil into a conventional one-formulation

type oxidative permanent hair dye comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a stabilizing agent, an oil-dispersing agent and a hair protecting agent. The present hair color makes it possible to overcome shortcomings
5 such as inconvenience in production and application associated with the occurrence of dust, to color hair in low cost, to exhibit improved durability of hair coloring and treatment effect because the treatment oil is deeply penetrated into cortex layer of hair.

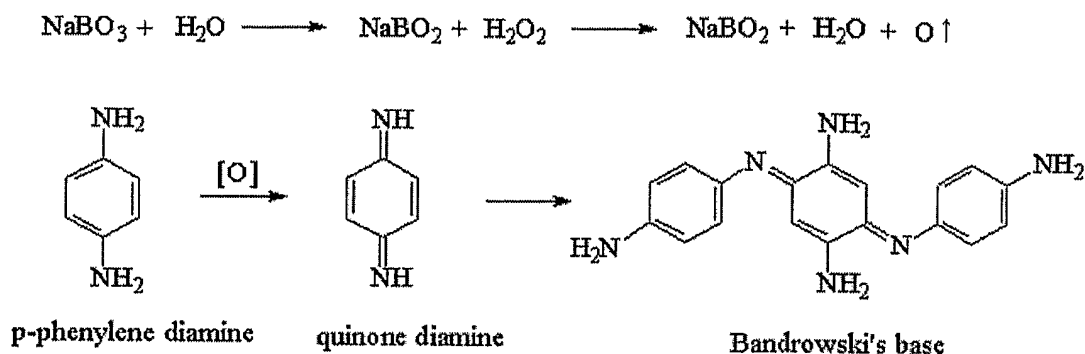
10 A permanent hair color is called an alkaline hair color because its hair-coloring potential becomes higher in pH of alkaline region and also called an oxidative hair color because the coloring by use of it is executed with a dye generated by oxidative polymerization.

The permanent hair color is classified into two-formulation type oxidative hair
15 color and one-formulation type oxidative hair color. The two-formulation type hair color includes a first hair color formulation classified into cream, lotion and liquid phase and a second oxidative formulation classified into cream, lotion and liquid phase. In the application of the two-formulation type oxidative hair color, the first and second formulations are mixed in certain ratio just before use and applied to
20 hair, and after allowing to stand for certain period of time, then washed away with soap or shampoo. In the application of the one-formulation type oxidative hair color, the hair color in the form of powder is mixed with water in certain ration just before use and applied to hair, and after allowing to stand for certain period of time, then

washed away with soap or shampoo.

The two-formulation type oxidative hair color comprises a hair color as a first agent formulation including an oxidative dye, an alkaline agent, a penetrant, a stabilizer, a wetting agent, a hair tonic, a colorant, an emulsifier, a perfume and the like, and a second formulation including an oxidizing agent, a penetrant, a stabilizer, a wetting agent, a hair tonic, a colorant, an emulsifier, a perfume and the like. The two-formulation type hair color is manufactured and prepared in two separated formulations thus resulting in increase in its production cost as well as the cost for obtaining raw materials and supplementary materials.

To be free from the cost problem, the one-formulation type oxidative hair color is developed, comprising oxidative dye, oxidizing agent and thickener in one formulation, which contributes to decrease of production cost. However, the one-formulation type oxidative hair color leads to the shortcomings associated with the occurrence of powder dust, e.g., contamination of working environment, elicitation of allergy and rhinitis of a producer, adverse effects to health of a user and inconvenience in use. In addition, since oxidative dye and oxidizing agent are included in one formulation, the ingredients for protecting wet hairs are forced to use in very restricted manner. Thus, the one-formulation type hair color shows lower treatment effect and applicability thus resulting in poor applicability.



Furthermore, in the case that ingredients containing wet are used in the powdered one-formulation type oxidative hair color, oxidant such as sodium perborate and sodium percarbonate is likely to be decomposed and in turn undergone oxidative polymerization with oxidative dye to generate polymeric material. Such undesirable reaction prevents inherent performance of the hair color. Accordingly, the one-formulation type oxidative hair color is generally manufactured and commercialized only in the form of powder not containing water moisture.

In other words, the two-formulation type oxidative hair color exhibits a few problems in treatment effect, hair-coloring potential and production cost, although it has excellent applicability and stability. Although the one-formulation type oxidative hair color makes it possible to color hair in lower cost, it shows disadvantages such as elicitation of allergy and rhinitis of a producer and a user by powder dust and inconvenience in use. Consequently, there remains a need for developing a one-formulation type oxidative hair color with novel formulation that can overcome the shortcomings described above.

Therefore, the present inventors have made intensive researches to develop a

hair color with novel composition, which makes it possible to color hair in low cost, to rapidly penetrate dyes, to exhibit improved durability of hair coloring and treatment effect, to prevent the elicitation of allergy and rhinitis of producer and user due to powder dust and to accomplish convenience in application. As a result,
5 the present inventors have discovered that the incorporation of a treatment oil not containing water moisture selected from a fatty oil, a mineral oil, a plant oil and a silicone oil into a conventional one-formulation type oxidative permanent hair dye comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a
10 stabilizing agent, an oil-dispersing agent and a hair protecting agent permits to accomplish the advantages described above.

Furthermore, the present inventors have discovered a novel method for using a hair color, which comprises mixing the one-formulation type oxidative permanent hair dye in the form of ointment with shampoo or rinse usually used in the
15 household and beauty shops in certain ratio, which increases the treatment effect and convenience in application.

Accordingly, an object of this invention is to provide a novel one-formulation type oxidation permanent hair color, which exhibits longer durability of hair coloring, improves treatment effect and cost effectiveness, occurs no dust in
20 production and application, and shows excellent convenience in application.

DETAILED DESCRIPTION OF THIS INVENTION

The present invention is directed to a one-formulation type oxidative permanent

hair dye in the form of paste comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a stabilizing agent, an oil-dispersing agent and a hair protecting agent, the improvement of which comprises: wherein said one-

5 formulation type oxidative permanent hair dye comprises:

said hair color comprising 0.01-30.0 wt% of the said dye; 1.0-50.0 wt% of said oxidizing agent; 1.0-50.0 wt% of said thickener; and 0.1-70.0 wt% of said additive selected from the group consisting of the chelating agent, the perfume, the surfactant, the pH modifier, the stabilizing agent, the oil-dispersing agent and the hair

10 protecting agent; and

at least one treatment oils of 0.5-70.0 wt% selected from the group consisting of a fatty oil, a mineral oil, a plant oil and a silicone oil, wherein said treatment oil contains no water moisture.

15 The present invention will be described in more detail hereunder:

The present invention relates to a one-formulation type oxidative permanent hair dye in the form of paste, prepared by incorporating a treatment oil not containing water moisture selected from a fatty oil, a mineral oil, a plant oil and a silicone oil into a conventional one-formulation type oxidative permanent hair dye

20 comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a stabilizing agent, an oil-dispersing agent and a hair protecting agent.

According to the instant invention, the disadvantages such as inconvenience in

production and application due to the occurrence of dust in conventional powderized one-formulation type permanent hair colors may be overcome and the hair coloring may be operated in lower cost. In addition, since the treatment oil is deeply penetrated into cortex layer, the durability of hair coloring and treatment effect may be considerably improved.

In the one-formulation type oxidative permanent hair dye in the form of paste, the dye comprises 0.01-30.0 wt% of oxidative dye selected from the group consisting of p-nitro-o-phenylenediamine, nitro-p-phenylenediamine, 2-methyl-5-hydroxyethyl aminophenol, 2-amino-5-nitrophenol, p-amino-o-cresol, m-aminophenol, o-aminophenol, p-aminophenol, nitro-p-phenylenediamine hydrochloride, 2,4-diaminophenoxyethanol hydrochloride, Toluene-2,5-diamine hydrochloride, m-phenylenediamine hydrochloride,

p-phenylenediamine hydrochloride, toluene-2,5-diamine, m-phenylenediamine, p-phenylenediamine, N-phenyl-p-phenylenediamine, picramic acid, p-nitro-o-phenylenediamine sulfate, p-methylaminophenol sulfate, p-amino-o-cresol sulfate, m-aminophenol sulfate, o-aminophenol sulfate, p-aminophenol sulfate, 4-ethoxy-m-phenylenediamine sulfate, toluene-2,5-diamine sulfate, m-phenylenediamine sulfate, p-phenylenediamine sulfate, o-phenylenediamine sulfate, α -naphthol, resorcinol, 2-methylresorcinol, gallic acid, catechol and pyrogallol.

Other conventional dyes may be also used in the present hair color if the similar coloring effect may be anticipated. If the amount is less than 0.01 wt%, the hair coloring becomes poor; in case it exceeds 30.0 wt%, decolorization occurs at the time of washing with shampoo after hair coloring.

The oxidizing agent may comprise 1.0-50.0 wt of sodium perborate, sodium percarbonate or its mixture. The thickener may comprise 1.0-50.0 wt% of at least one selected from the group consisting of gelatin, xanthan gum, carboxymethylcellulose, carbopol and hydroxyethylcellulose.

5 The most prominent feature of this invention lies in the employment of the treatment oil which does not contain water moisture selected from the group consisting of a fatty oil, a mineral oil, a plant oil and a silicone oil, as well as the ingredients for hair color described above.

10 According to the present invention, the employment of the treatment oil enables the dye to be deeply penetrated into cortex layer, dusts to be prevented, and a treatment effect to be increased. The dye may be deeply penetrated into inner part of hair in which it undergoes oxidative polymerization to color hairs, which is responsible for improved durability of hair coloring. In addition, the ingredient for
15 treatment exhibits its excellent efficacy and no occurrence of dusts during production or application permits to highly increase the convenience in production and application.

In particular, the treatment oil may comprise 0.5-70.0 wt% of vaseline, paraffin, lanolin, wax, bees wax, squalane, liquid paraffin, glycerine, olive oil, castor oil,
20 soybean oil, coconut oil, palm oil or silicone oil based on the total weight of the permanent hair color. If the amount is less than 0.5 wt%, the prevention of dust occurrence, durability of hair coloring and treatment effect is neglect; in the case of exceeding 70.0 wt%, the formulation becomes worse, so that its use is inconvenient.

The present hair color may comprise the additive of 0.1-70.0 wt% selected from the group consisting of the chelating agent, the perfume, the surfactant, the pH modifier, the stabilizing agent, the dispersion oil agent and the hair protecting agent, that are conventional ingredients for hair color.

5 The existing one-formulation type oxidative permanent hair dye in the form of powder is usually mixed with water at a certain ratio just prior to use, which leads to inconvenience in its application. However, the one-formulation type oxidative permanent hair dye in the form of paste may be prepared in the form of ointment, may easily color hairs with material for external use such as shampoo or rinse
10 usually used in the household and beauty shops, and enable to increase the treatment effect and hair coloring potential.

For example, for low-cost hair coloring, the one-formulation type oxidative permanent hair dye in the form of ointment is mixed with water. At this time, the mixing ratio, preferably, is 5:10-1 and may be adjusted to have excellent convenience
15 in application.

The one-formulation type oxidative permanent hair dye in the form of paste or ointment may be applied by mixing with a mixture containing at least two selected from the group consisting of water, tepid water, shampoo and rinse. The mixing ratio of the hair color to at least one selected from the group consisting of water, tepid water, shampoo and rinse, preferably, is 1:5-10 and may be adjusted in certain
20 ratio. The employment of shampoo or rinse increases the treatment effect and convenience in application.

The following specific examples are intended to be illustrative of the

invention and should not be construed as limiting the scope of the invention as defined by appended claims.

EXAMPLES 1-3

- 5 The ingredients of Table 1 were charged into a homogenizer in the amounts indicated in Table 1 and mixed homogeneously, thereby preparing the one-formulation type oxidative permanent hair dye in the form of paste.

TABLE 1

Ingredients	Amounts (wt%)		
	Exa.1	Exa.2	Exa.3
Liquid paraffin	10.00	20.00	30.00
Vaseline	-	25.00	30.00
Lanolin	20.00	-	-
Sodium silicate	1.00	1.00	1.00
Carboxymethyl cellulose sodium (10M15)	5.25	5.00	4.50
Carboxymethyl cellulose sodium (KDA6600)	15.00	-	-
Xanthan gum	2.00	1.00	1.50
Polyvinyl pyrrolidone	1.00	1.50	1.50
Ethylenediaminetetra tetrasodium acetate	0.50	0.20	0.20
p-phenylene diamine	17.00	17.00	11.00
m-phenylene diamine sulfate	0.50	0.50	0.50
o-aminophenol	0.25	0.25	0.25
Sodium perborate	20.00	20.00	13.00
Tartaric acid	5.00	5.05	5.05
Sodium sulfate	2.00	3.00	1.00
sodium lauryl sulfate	0.50	0.50	0.50

Application Method 1

1 g of the one-formulation type oxidative permanent hair dye in the form of paste prepared in Example 1 is mixed with 10 ml of water (1:10) just before use and applied homogeneously to hairs. After 20-30 min, hairs are washed out with tepid
5 water and clearly washed with soap or shampoo. The volume of hair color applied is controlled depending on the amount of hair.

Application Method 2

1 g of the one-formulation type oxidative permanent hair dye in the form of
10 paste prepared in Example 1 is mixed with 10 ml of shampoo (1:10) just before use and applied homogeneously to hairs. After 20-30 min, hairs are washed out with tepid water and clearly washed with soap or shampoo. The volume of hair color applied is controlled depending on the amount of hair.

Application Method 3

1 g of the one-formulation type oxidative permanent hair dye in the form of paste prepared in Example 1 is mixed with 10 ml of a mixture of water and shampoo (1:10) just before use and applied homogeneously to hairs. After 20-30 min, hairs are washed out with tepid water and clearly washed with soap or shampoo. The volume
20 of hair color applied is controlled depending on the amount of hair.

Experimental Example

The one-formulation type oxidation permanent hair colors in the form of paste

prepared in Examples 1-3 and the one-formulation type oxidative permanent hair dye in the form of powder commercially available were evaluated in terms of the following factors. The results are summarized in Table 2.

(1) Durability of Coloring

5 (i) According to the application methods, the mixture was prepared just before use and coated to experimental Swatch [(2.5 g, 10 cm) white hairs (sheep hairs), 50% prematurely gray hairs (human hairs) and black hairs (human hairs)]. After allowing to stand for 30 min at 25°C, hairs were washed out with tepid water and clearly washed with shampoo and rinse, followed by drying. The experimental
10 Swatch colored was evaluated according to the following testing methods, and Swatches evaluated and colored were compared.

1) SLES 30% solution: Five beakers (500 ml) containing 200 ml of SLES 30% solution (pH 8.50) were prepared and the experimental Swatch colored was washed in beaker and washed with water, followed by drying.

15 2) Shampoo 10% solution: 200 ml of shampoo 10% solution (pH 8.50) were added to a closed vessel, in which the experimental Swatch colored was immersed. The Swatch was agitated for 24 hr at 45°C and washed with water, followed by drying.

20 3) Sweat solution: 0.5 g of L-cysteine-HCl (monohydrate), 0.5 g of sodium chloride, 5.0 g of sodium monohydrogen phosphate (12 hydrates), sodium hydroxide and distilled water were mixed to prepare 1000 ml of a sweat solution (pH 11.0).

4) UV exposure: The experimental Swatch colored was exposed to UV for 7

days.

(ii) According to the application method, hairs of men and women aged tens, twenties, thirties, forties and fifties were bisected in center part (i.e., half test), colored with tested and control solutions and then durability of hair coloring was
5 observed over time.

(2) Evaluation on Hair Damage

(i) According to the application methods, the mixture was prepared just before use and coated to experimental Swatch [white hairs (sheep hairs), 50%
10 prematurely gray hairs (human hairs) and black hairs (human hairs)]. After allowing to stand for 20 min at 25°C, hairs were washed out with tepid water and clearly washed with shampoo and rinse, followed by drying. The experimental Swatch colored was taken a rubbing and the rubbed copy was observed under microscope to measure the damage of cuticle layer.

15 (ii) After hair coloring according to half test, the combing sense was compared.

(3) Hair Coloring Potential

According to the application methods, the experimental white patch (KSK
20 0905 patch for color fastness experiment, sheep hairs) and the experimental Swatch (2.5 g, 10 cm) (white hairs, 50% prematurely gray hairs and black hairs) were colored with tested and control solutions.

(4) Occurrence of Dust Experiment

10 g of each of the one-formulation type oxidative permanent hair dye in the form of paste prepared in Example 1 and the commercially available permanent hair colors (Comparative Examples 1 and 2) were dropped in certain velocity in
 5 cylindrical glass tube with closed bottom (diameter 50 mm and length 500 mm) and then the occurrence of dust in the cylindrical glass tube was observed with naked eye.

TABLE 2

Items	One-formulation type oxidative hair color				
	Exa.1	Exa.2	Exa.3	Com.Exa.1	Com.Exa.2
Durability of hair coloring	Above 2 months	Above 2 months	Above 2 months	Above 2 months	Above 2 months
Hair damage	No	No	No	Yes	Yes
Hair coloring potential	Good	Very Good	Very Good	Good	Good
Occurrence of dust	No	No	No	Severe	Severe
Purchase Price (5g)/1 person	Similar to Com.Exa.1	Similar to Com.Exa.1	Similar to Com.Exa.1	1300 won	1500 won

Comparative Example 1: manufactured by Dong-A Pharmaceutical, Co. Ltd. BIGENT™
 10 (black)

Comparative Example 2: manufactured by Dong Sung Pharmaceutical, Co. Ltd. YANGGUIBEE™ (black)

Reference: Two-formulation type oxidative hair color

Feria Color of L'OREAL: 10,000 won/one person

15 Viva Color of FELLA: 9,000 won/one person

Double Rich Color of LG Chem, Ltd: 8,000 won/one person

(*won=Korean Currency)

Industrial Applicability

- 5 As described above, since the one-formulation type oxidative permanent hair dye in the form of paste may be prepared in the form of paste by use of the treatment oil not containing water moisture, it helps to overcome shortcomings associated with the occurrence of dust as well as inconvenience in production and application, to exhibit improved durability of hair coloring and treatment effect
- 10 because the treatment oil is deeply penetrated into cortex layer of hair. Specifically, the present invention permits a hair color in the form of liquid or cream, which can be prepared as two-formulation type, to be prepared as one-formulation type, so that the difficulties in raw materials and production process could be overcome, thereby accomplishing cost-effectiveness in hair coloring.

What is claimed is:

1. A one-formulation type oxidative permanent hair dye in the form of paste comprising a dye, an oxidizing agent, a thickener and an additive selected from the group consisting of a chelating agent, a perfume, a surfactant, a pH modifier, a
5 stabilizing agent, an oil-dispersing agent and a hair protecting agent, wherein said one-formulation type oxidative permanent hair dye comprises:

said hair color comprising 0.01-30.0 wt% of the said dye; 1.0-50.0 wt% of said oxidizing agent; 1.0-50.0 wt% of said thickener; and 0.1-70.0 wt% of said additive selected from the group consisting of the chelating agent, the perfume, the surfactant,
10 the pH modifier, the stabilizing agent, the oil-dispersing agent and the hair protecting agent; and

at least one treatment oils of 0.5-70.0 wt% selected from the group consisting of a fatty oil, a mineral oil, a plant oil and a silicone oil, wherein said treatment oil contains no water moisture.

15 2. The one-formulation type oxidative permanent hair dye in the form of paste according to claim 1, wherein said treatment oil is selected from the group consisting of vaseline, paraffin, lanolin, wax, bees wax, squalane, liquid paraffin, glycerine, olive oil, castor oil, soybean oil, coconut oil, palm oil and silicone oil.

20 3. A one-formulation type oxidative permanent hair dye in the form of ointment, which comprises the permanent hair color of claim 1.

4. A method for using a permanent hair color, which comprises mixing the oxidative permanent hair dye of claim 1 or 3 with at least one selected from the group consisting of water, tepid water, shampoo and rinse.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2003/002811

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 A61K 7/13

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)

IPC7 A61K 7/13, A61K 7/11, C09B 67/22, C09B 67/46, C09B 61/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and applications for inventions since 1975

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	JP8143434 (CHUO AEROSOL KAGAKU KK) 04 JUNE 1996 (04.06.1996) See abstract, claims 1-2 and pages 2-3	1-4
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A	JP1165514 (HOOU KK) 29 JUNE 1989 (29.06.1989) See claims 1-2 and page 3	1-2
A	JP1175925 (NAKANO SEIYAKU KK) 12 JULY 1989 (12.07.1989) See claims 1-2 and page 2	1-2

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)	"&" document member of the same patent family
"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	

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