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[Continued on next page]

(54) Title: MULTICOLOR COSMETIC PRODUCT



(57) Abstract: The invention concerns a multicolor cosmetic product with solid consistence that comprises two or more cosmetic products of different colour mixed together in a predefined or random way, at least two of said cosmetic products of different colour being substantially present and distinguishable from one another throughout the thickness of said multicolor cosmetic product and a process for its preparation.



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*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.*

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

## MULTICOLOR COSMETIC PRODUCT

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This invention concerns new multicolor cosmetic products suitable for make-up and a process for their preparation.

- 5 In particular, the invention concerns new multicolor cosmetic products having a solid consistence, an excellent powdery marking effect and the appearance of a variously coloured and variegated stone like marble.

**Background of the invention**

- 10 The applicant filed an Italian patent application on 28th December 2001 application number MI2001A002841, filed abroad as international application PCT/IB02/05257, claiming a multi-step process for the preparation of cosmetic products to obtain monochromatic cosmetic products for make-up featuring a solid consistence so that they can  
15 be produced in different formats and with the characteristic of being easy to apply while at the same time having a good powdery marking effect.

- Face and body make-up cosmetics such as blusher and eye shadow are known. These products are normally produced in the form of loose  
20 or compacted powders. Make-up cosmetics are also known consisting of a combination of different cosmetic products in powder or poured, differently coloured, and arranged next to each other in supporting housing.

- Multicolour products have also been prepared by mixing and pressing  
25 variously coloured powders.

**Summary of the Invention**

It has now been found that it is possible to produce solid multicolor cosmetics in which the different colours are variously mixed while remaining clearly distinguishable from one another in all the solid

product this creating, according to the work process adopted, an effect that is variegated, veined, marble-like, spiraliform etc.

### **DRAWINGS**

The figures from 1 to 7 show some examples of the multicolor result  
5 that can be obtained, but many other colour compositions, intentional or deriving from random mixing, can be obtained. In particular, figures 1 and 2 show mixtures created by folding or rolling the variously coloured cosmetic products, while figures 3 to 7 show random mixtures obtained with a mixer. Figures 1 to 7 are black and  
10 white reproductions of multicoloured products.

### **Detailed description of the invention**

According to one of its aspects, the invention concerns a new multicolor cosmetic product with solid consistence characterised in that it comprises two or more cosmetic products of different colour  
15 mixed together in a predefined or random way, at least two of said cosmetic products of different colour being substantially present and distinguishable from each other throughout the thickness of said multicolor cosmetic product.

According to the present invention, "multicolor cosmetic product with  
20 solid consistence" indicates a cosmetic product suitable for make-up of the face and body with a consistence such that it can be processed, sized and packed as a solid, clearly different from the loose or compacted powders, and from poured products. In the "multicolor cosmetic product with solid consistence" of the invention  
25 the colours are clearly evident and separate from one another forming random or predefined variegations, thus having an appearance like multicoloured marble or camouflage fabric or featuring abstract designs with whorls, waves etc., said colours, or at least two of them, being present substantially in all the multicolor

cosmetic product.

The multicolor cosmetic product with solid consistence of the invention can be obtained via a process that provides for the mixing of at least two viscous variously coloured cosmetic products, sizing and  
5 subsequent drying of the multicolor mixture obtained. Advantageously the coloured cosmetic products are extrusion products.

"Coloured products" here means products of any colour, including black and white, or pearly or glitter or otherwise decorative products, suitable for cosmetic use.

10 Variously coloured extrusion cosmetic products can be obtained with the process as described in the Italian and international patent applications referred to above, which will become public at the time of publication of this patent application.

In short, the variously coloured cosmetic products can be obtained  
15 via a process that comprises the extrusion of a paste obtained by mixing of an emulsion of fats for cosmetic use with colouring powders.

Once extruded and while still damp, the coloured cosmetic products are placed next to one another and processed in order to obtain the required chromatic effect; for example they can be folded or rolled  
20 into a spiral or placed in a mixer to obtain random and more thorough mixing of the different colours, thus obtaining a marble or a "camouflage" effect. Alternatively, the coloured cosmetic products can simply be laid one on the other to form strips of different colour.

Once mixing has been completed, the multicolor cosmetic product,  
25 still damp, is sized as required and oven-dried.

The invention also concerns a process for the preparation of a multicolor cosmetic product with solid consistence that comprises preparation of the coloured cosmetic products according to the stages from (a) to (c):

a) prepare two phases called here "colouring powders" and "emulsion of fats";

b) mix the above phases;

c) extrude the paste obtained;

5 combine as required at least two extrusion products of phase (c) of different colour, size and dry the damp multicolor cosmetic product obtained.

If required, the end product can be further cut, finished or sized.

The expression "emulsion of fats" as used here is a mixture that can be  
10 obtained by treatment of fats for cosmetic use with a neutral or coloured solvent, for example water or any solvent suitable for cosmetic use, including their mixtures; an essential characteristic of the solvent used is that it must be possible to eliminate it by drying after extrusion at temperatures that do not alter the end product,  
15 advantageously at temperatures not exceeding 50°C. Water, being readily available and inexpensive, is the preferred solvent for this invention.

According to this invention, the expression "fats for cosmetic use" indicates any fatty material suitable for the preparation of cosmetics  
20 such as the esters of fatty acids, triglycerides, waxes, fruit and seed oil derivatives and extracts etc.

Useful fats for cosmetic use are, for example, sorbitan stearate, isopropyl stearate, caprylic/capric triglycerides, dipentaerythrityl hexahydroxystearate/ stearate/rosinate (sold under the trademark  
25 Cosmol 168AR), magnesium myristate and olive oil.

According to this invention, the expression "colouring powders" indicates any powder, or mixture of powders, containing colouring pigments suitable for cosmetic use.

Suitable colouring powders are, for example, those obtained by

mixing synthetic and/or natural pigments, matte or pearly, with inert powders as diluents such as mica or talc, in varying quantities according to the powdery effect and colouring power required.

The colouring powders are generally prepared by mixing the required pigments with inert substances such as talc, silica and mica. According to a preferred aspect, parabenes and sodium dehydroacetate are added to the mixture which have the function of preserving the entire product during all the work phases.

The "fatty emulsion" and "colouring powders" phases are preferably mixed in equal quantities, i.e. 50-50% by weight.

The extrusion process of this invention can be performed by passing the paste (neutral or coloured) obtained in phase (b) through a normal extruder (or drawing machine) to obtain a semi-solid product, still damp, of the required shape.

The extruders useful in the process of the invention are, for example, piston or screw extruders. The product comes out of the extruder in different shapes according to the dies used (for example cylinder, parallelepiped etc.) and is cut to the required length.

The different viscous coloured cosmetic products can be mixed, as said, in a mixer, for example of the planetary type, but mixing can also be performed by hand or with appropriate machines to obtain only spiral patterns or simple overlapping of different coloured cosmetic products, as shown figure 1.

The mixing operation generally lasts from a few seconds to a few minutes, according to the type of chromatic effect required. Once the mixing has been completed, the multicolor cosmetic product still damp is cut into the required form and then dried.

Two or more coloured cosmetic products can be mixed, for example 3 or 4 or more, according to the chromatic effect required and the use

for which the product is intended. For example coloured cosmetic products of similar colours can be mixed to obtain chromatic effects based on variations in tone of the same colour or coloured cosmetic products of clearly different shades or coloured cosmetic products  
5 can be mixed with matte or pearly pigments.

The drying phase of the process of the invention can be performed according to the conventional techniques, for example in an oven, in a vacuum or with fluidised bed on condition that said process creates conditions that ensure the evaporation of almost all the solvent used  
10 for preparation of the paste to be extruded, whatever it is. Obviously lower temperatures require longer drying times whereas at higher temperatures drying times will be shorter. The drying (or baking) will be preferably performed at low temperatures in order to permit slow elimination of the solvent from the paste and to obtain a well-  
15 compacted and uniform end product, without altering the end product.

Advantageously, the drying is performed in an oven at temperatures of 35-55°C, around 40°C for example, until almost complete evaporation of the solvent, for example until the residual humidity is  
20 below or equal to 5%.

The machines and processing techniques individually used in the process of the invention are known to persons skilled in the art.

Other components, inert or non-inert, can be added to the colouring powder and fatty emulsion phases of the invention or directly to the  
25 paste to be extruded. As an example, additives can be added, as solid and liquid preserving agents, such as sodium benzoate, thickeners such as starch and its derivatives, diluents, gelling agents and adhesives, in order to make the paste obtained by mixture of the two phases suitable for extrusion, various inert powders, fragrances if

required, etc. Said additives and their properties and uses in the field of cosmetics are well known to persons skilled in the art.

Once drying has been completed, the multicolor cosmetic product appears to all intents and purposes like a solid while at the same time  
5 facilitating pick-up with ordinary make-up tools (brushes, sponges etc.) for easy application on the area in question.

The process of the invention therefore permits the production of innovative multicolor cosmetics for decorative or curative make-up that represent a valid original alternative to the conventional products  
10 in powder, loose or compacted, and to the creamy type products.

The products that can be obtained with the process of the invention represent another aspect of the invention.

Different multicolor cosmetic products of the invention can be combined in appropriate containers, for example side by side or  
15 assembled in one single container, to form original chromatic effects and/or to offer the user various make-up possibilities in one single solution.

The following examples are designed to illustrate the invention without limiting it in any way. It is understood that technically equivalent  
20 alternatives within reach of persons skilled in the art, even if not explicitly indicated, come under protection of the invention.

#### EXAMPLE 1

##### GENERAL OPERATING METHOD

Appropriately clean and sanitise all the machinery required for the  
25 work process.

##### Preparation of the fatty emulsion

Weigh the water in an emulsifier; add the selected preservative and mix until fully dispersed. Add any thickeners and the mixture of liquid preservatives and disperse by means of a homogeniser. Weigh and

dissolve the fatty mass (stearates, triglycerides) at approximately 60°C, add it to the previously prepared mixture and homogenise. Add some gelling agent and process for a few minutes. Check the viscosity and pour into clean drums.

5 Preparation of the colouring powders

Weigh the inert components, binders and any preservatives (talc, parabenes etc.) and grind for a few minutes. Weigh and add the raw materials making up the required colour and grind until obtaining a uniform mixture. Preparation of the paste to be extruded

- 10 Mix the fatty emulsion and colouring powders for approximately 10 minutes in a mixer. Empty into clean bags and extrude in the drawing machine.

Mixtures of two or more coloured cosmetics and drying of the multicolor cosmetic product obtained

- 15 In a planetary type mixer, mix two or more extrusion products from the previous phase for a few seconds. Size and bake the multicolor product for 3 days at approximately 50°C.

Variation: place two or more extrusion products of the previous phase on top of one another and fold them or roll them to form spirals. Size

- 20 and bake the multicolor product for 3 days at approximately 50°C.

EXAMPLE 2

Quality-quantity composition of a typical paste before extrusion

|    |                                                       |        |
|----|-------------------------------------------------------|--------|
|    | Water                                                 | 39.40% |
|    | Fats for cosmetic use (mixture of isopropyl stearate, |        |
| 25 | di-C12-13 alkyl malate, Cosmol 168AR)                 | 6.00%  |
|    | Pigments in a mixture with mica                       | 38.4%  |
|    | Xanthan gum                                           | 0.05%  |
|    | Preservatives (mixture of sorbic acid and parabenes)  | 1.1%   |
|    | Inert components (mixture of zea mays, nylon          |        |

|               |        |
|---------------|--------|
| powder, talc) | 14.55% |
| Fragrance     | 0.5%   |

## CLAIMS

1. Multicolor cosmetic product with solid consistence characterised in that it comprises two or more cosmetic products of different colour mixed together in a pre-defined or random way, at least two of said cosmetic products of different colour being substantially present and distinguishable from one another throughout the thickness of said multicolor cosmetic product.
2. Multicolor cosmetic product according to claim 1, characterised in that said cosmetic products of different colour are extruded products.
3. Multicolor cosmetic product according to claim 2, characterised in that said cosmetic products of different colour are placed side by side and mixed after extrusion, then sized and dried.
4. Multicolor cosmetic product according to claim 3, characterised in that said cosmetic products of different colour are mixed at random in a mixer.
5. Multicolor cosmetic product according to claim 3, characterised in that said cosmetic products of different colour are mixed together to form variously coloured layers, marbled effects, waves or spirals.
6. Multicolor cosmetic product according to any one of the claims from 2 to 5 characterised in that said cosmetic products of different colour can be obtained by extrusion of a paste obtained by mixing of an emulsion of fats for cosmetic use with colouring powders.
7. Process for the preparation of a multicolor cosmetic product according to any one of the previous claims, having solid consistence which comprises preparation of the coloured cosmetic products according to the following phases from (a) to (c):
  - a) prepare two phases, one of "colouring powders" and

one of "emulsion of fats";

b) mix said phases;

c) extrude the paste obtained;

combine as required at least two extrusion products of phase (c) to  
5 obtain the required multicolor effect, size and dry the damp multicolor  
cosmetic product obtained.

8. Process according to claim 7, in which drying is performed at  
a temperature of 35-55°C.

9. Process according to claims 7 or 8, in which the dried  
10 multicolor cosmetic product is further processed in order to modify its  
dimensions and/or form.

10. Process according to claims from 7 to 9, in which different  
multicolor cosmetic products are combined in appropriate containers.

11. Cosmetic product obtainable via the process of any one of  
15 the claims from 7 to 10.

12. Cosmetic product of claims from 1 to 6, or 11 which is an  
eyeshadow, a foundation or a blusher.

13. Use of the product of any one of the claims 1-6 or 11-12 as a  
cosmetic.

1/2

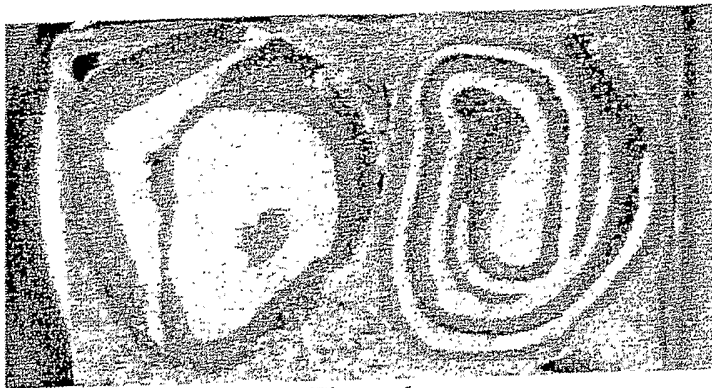


Figura 1



Figura 2

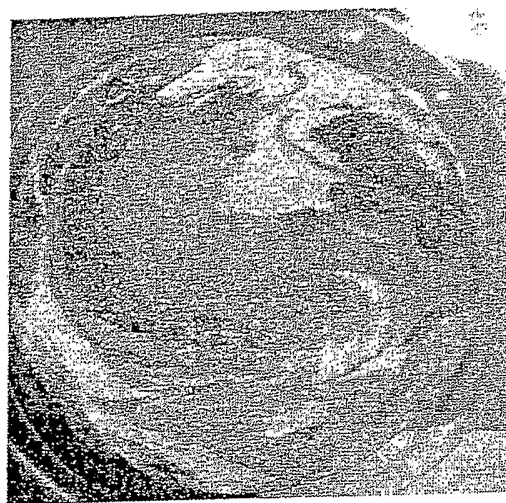


Figura 3

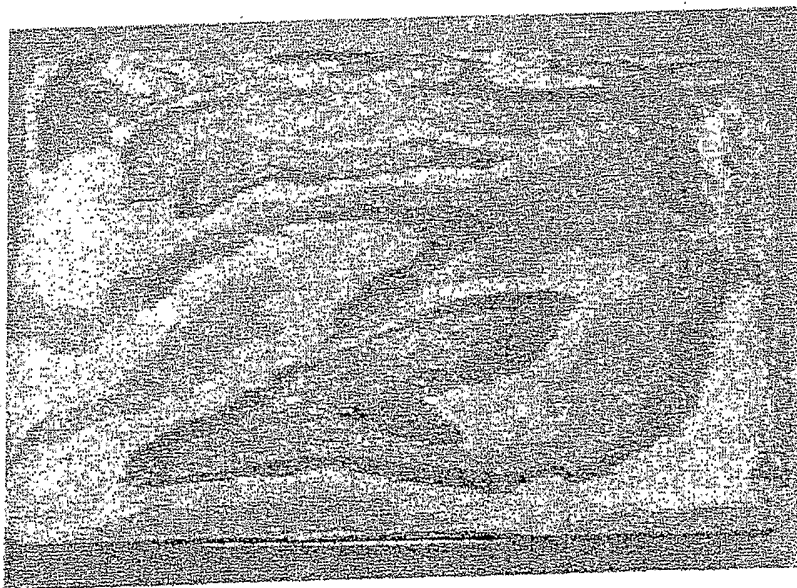


Figura 4



Figura 5



Figura 6

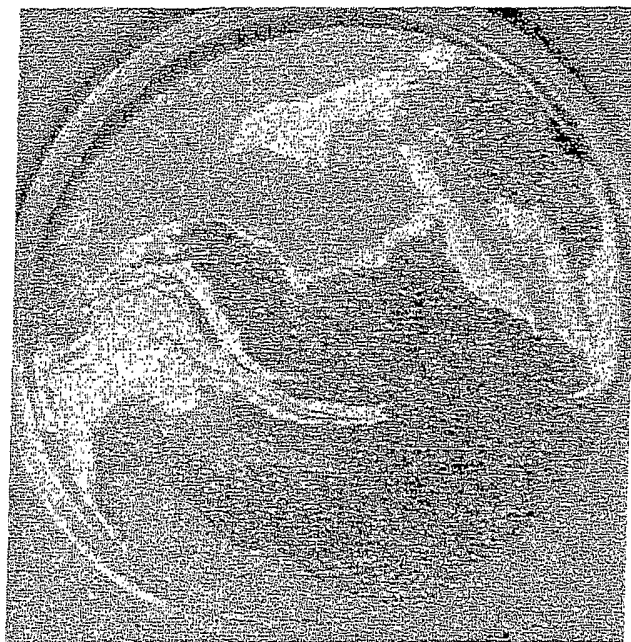


Figura 7

## INTERNATIONAL SEARCH REPORT

onal Application No

IB2004/001671

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61K7/02

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 7 A61Q A61K

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                | Relevant to claim No. |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | GB 1 013 559 A (WARNER LAMBERT<br>PHARMACEUTICAL)<br>15 December 1965 (1965-12-15)<br>page 1, line 11 - line 25<br>page 3, line 10 - line 64; claims 1,8<br>----- | 1-13                  |
| X          | EP 0 953 330 A (OREAL)<br>3 November 1999 (1999-11-03)<br>paragraph '0052! - paragraph '0054!;<br>claims 1,6,10,12,13,16,17,24,36-45<br>-----                     | 1-13                  |
| X          | EP 0 720 844 A (MITSUBISHI PENCIL CO)<br>10 July 1996 (1996-07-10)<br>page 1, line 3 - line 11; claims 1,6-8<br>-----                                             | 1-13                  |
| A          | US 5 352 441 A (MAUSNER JACK)<br>4 October 1994 (1994-10-04)<br>claims 1,2,8,14,19,20<br>-----<br>-/--                                                            | 1-13                  |



Further documents are listed in the continuation of box C.



Patent family members are listed in 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

29 September 2004

Date of mailing of the international search report

06/10/2004

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

ional Application No

IB2004/001671

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                       | Relevant to claim No. |
|------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A          | US 6 517 820 B1 (ROBERT VALERIE)<br>11 February 2003 (2003-02-11)<br>claims 1,12-15,24,34<br>-----                       | 1-13                  |
| P,A        | WO 03/082603 A (GAMMA CROMA S P A)<br>9 October 2003 (2003-10-09)<br>cited in the application<br>claims 1-9,136<br>----- | 7,11-13               |

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: -

Present claims 1-13 relate to a product or process defined by reference to a desirable characteristic: chromatic effects such as coloured layers, marbled effects, waves or spirals.

Thus the core of the invention appears to reside in the aesthetic creation of in this case a cosmetic composition as described on page 2, lines 1-2, 23-29, page 3, lines 17-23 of the present application. The creation itself does not comprise any technical feature which could be the examined in terms of novelty, inventive step and industrial applicability (Articles 6 PCT and 33(2)(3)(4) & Article 33(5) PCT).

Therefore the products and processes are considered with which the desired chromatic effects appear to be achieved. In independent claims 1, 7, 11-13 cosmetic products are mentioned which are either a colouring powder or an emulsion of fats. These features have technical character and could be examined. Therefore, the search has been restricted to colouring powder(s) and emulsion of fats as claimed and disclosed on page 4, lines 18 to page 5, line 10.

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.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/001671

## 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:

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.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

IB2004/001671

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| GB 1013559                                | A  | 15-12-1965          | BE 647759 A                | 12-11-1964          |
|                                           |    |                     | CH 456046 A                | 15-05-1968          |
|                                           |    |                     | DE 1492241 A1              | 12-02-1970          |
|                                           |    |                     | DK 109105 C                | 18-03-1968          |
|                                           |    |                     | FR 1403700 A               | 25-06-1965          |
|                                           |    |                     | NL 132478 C                |                     |
|                                           |    |                     | NL 6406209 A               | 04-03-1965          |
| EP 0953330                                | A  | 03-11-1999          | FR 2777178 A1              | 15-10-1999          |
|                                           |    |                     | BR 9901615 A               | 30-05-2000          |
|                                           |    |                     | CA 2266792 A1              | 10-10-1999          |
|                                           |    |                     | EP 0953330 A2              | 03-11-1999          |
|                                           |    |                     | JP 11322541 A              | 24-11-1999          |
|                                           |    |                     | JP 2003160438 A            | 03-06-2003          |
|                                           |    |                     | US 2003012753 A1           | 16-01-2003          |
|                                           |    |                     | US 6451294 B1              | 17-09-2002          |
| EP 0720844                                | A  | 10-07-1996          | JP 3526939 B2              | 17-05-2004          |
|                                           |    |                     | JP 8188518 A               | 23-07-1996          |
|                                           |    |                     | DE 69624953 D1             | 09-01-2003          |
|                                           |    |                     | DE 69624953 T2             | 18-09-2003          |
|                                           |    |                     | EP 0720844 A2              | 10-07-1996          |
|                                           |    |                     | US 5882683 A               | 16-03-1999          |
| US 5352441                                | A  | 04-10-1994          | NONE                       |                     |
| US 6517820                                | B1 | 11-02-2003          | FR 2790386 A1              | 08-09-2000          |
|                                           |    |                     | AT 270085 T                | 15-07-2004          |
|                                           |    |                     | BR 0000798 A               | 10-10-2000          |
|                                           |    |                     | CN 1269203 A               | 11-10-2000          |
|                                           |    |                     | DE 60011829 D1             | 05-08-2004          |
|                                           |    |                     | EP 1033126 A1              | 06-09-2000          |
|                                           |    |                     | JP 2000256135 A            | 19-09-2000          |
| WO 03082603                               | A  | 09-10-2003          | IT MI20020672 A1           | 29-09-2003          |
|                                           |    |                     | WO 03082603 A2             | 09-10-2003          |