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(71) Applicant: **SAGEM Communication**
75015 Paris (FR)

(72) Inventors:
- **Hense Klaus**
  2514 Traiskirchen (AT)
- **Sudrat, Erwan**
  1050 Wien (AT)

(74) Representative: **Gibler & Poth Patentanwälte OEG**
Dorotheergasse 7
1010 Wien (AT)

(54) **Toner**

(57) It is proposed in a toner, preferably a CP toner, that it comprises predeterminable odorous substances in order to prevent the unpleasant odors arising during printing as well as the unpleasant odors arising and/or transferred during the printing on paper.

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Description

[0001] The invention relates to a toner, preferably CP toner, in accordance with the preamble of claim 1.

[0002] The toner, preferably the CP toner (chemical prepared toner), is used in laser printing for example. Laser printing is often and preferably used mostly in the office field because it offers a simple cost-effective method for reproduction and the print-out of electronically stored information. The toner is stored in the interior of the printer in a toner storage container and transferred during printing from the toner storage container to the paper and fixed on the paper.

[0003] The printed paper, especially when it is still warm from printing, often has a smell which is conceived at least to be weird and/or unpleasant.

[0004] It is therefore the object of the present invention to provide a toner, preferably a CP toner, of the kind mentioned above with which the mentioned disadvantages can be avoided, with which the smells often conceived to be unpleasant can be avoided, which smells originate from the toner and by the printing process and/or the paper, and with which the paper, and especially the printout, can be provided with a predetermined smell.

[0005] This is achieved by the features of claim 1.

[0006] Odorous substances can thus be applied to the sheet. The odorous substances are distributed over a large surface on the paper, so that olfactory perception is ensured. The odorous substances are fixed to the paper like the graphite components of the printout, so that consistency of the smell is ensured. The volatility of the odorous substances can be predetermined, so that the initial intensity and the permanence of the small can be predetermined.

[0007] It can be provided advantageously that the odorous substances are substantially enclosed at least partly in a carrier substance and can be activated in a predeterminable temperature range. As a result, the odorous substance can be activated only during the printout. The toner in a toner cartridge and/or a printer containing the toner can thus be arranged in a manner so as to be free from undesirable odor.

[0008] The carrier substance can substantially enclose the toner, so that an even delivery of the odorous substance is ensured over a prolonged period.

[0009] As a result of the activation of the odorous substances, this volatility can be lower before the activation than after the activation. In this way, the toner can be provided with little smell and the concentration of the odorous substance can be high on the printout. The activation can be effected by thermal action and/or light action. Said actions can occur during the application of the toner and/or during the fixing of the toner, so that no additional components need to be provided in the printer. The activation and fixing of the odorous substances can thus occur in an especially simple and cost-effective manner and/or without any technical changes to the printer.

[0010] The invention also relates to a printout with a toner according to the preamble of claim 5.

[0011] Printouts as are made in laser printing are frequently and often used in the office field, but not exclusively so.

[0012] Often and especially after printing, the printed paper has a smell which is conceived at least to be weird and/or unpleasant.

[0013] It is therefore the object of the invention to provide a printout with a toner in accordance with the invention, with which the mentioned disadvantages can be avoided, with which both the unpleasant smells produced during printing as well as the unpleasant smells originating and transmitted from printing on paper can be avoided and with which the paper, and especially the printout, can have a predetermined smell.

[0014] This is achieved in accordance with the invention by the features of claim 5.

[0015] A printout comprising odorous substances can thus be arranged. Unpleasant smells occurring during printing can thus be avoided, masked and/or substituted. The printout can contain a predetermined concentration of the odorous substances, through which the perception of the intensity of the odorous substances can be controlled. The printout can contain a plurality of odorous substances.

[0016] The invention is now explained in closer detail by reference to possible embodiments, with individual features, especially various embodiments, being realized for themselves alone or in combination.

[0017] Smells are released during the movement of the paper through the printer and through the heating zones of the printer, which smells are often perceived to be disturbing and/or unpleasant. The surface of the toner applied to the printout is high in relationship to its volume, so that the smells can be emitted easily and rapidly to the ambient environment.

[0018] The smells released during printing can originate from the particles of the toner itself, during the melting of the particles of the toner and/or by the printing process, especially by the action of light and temperature on the paper during the printing process.

[0019] The printed paper is mostly provided with a smell, especially when the paper is still warm from printing, which is perceived to be at least weird and/or unpleasant.

[0020] Within the scope of this specification it can be distinguished between the smell produced by a substance and an odorous substance. Every substance can release smells under certain conditions and produce smells in the process. The smells are usually a side effect of the use and/or processing of a substance. An odorous substance, and especially a predetermined odorous substance and/or an aromatic substance, is a predetermined substance with a predetermined production of smell. The smell of the odorous substance is the predetermined main effect of the substance and/or the use and/or the process of the substance.

[0021] The advantageous embodiments of the invention which are described below in closer detail describe a toner, preferably a CP toner, in which it is proposed that it comprises predeterminable odorous substances in order to avoid the unpleasant smells originating during printing as well as the unpleasant smells originating from and/or released during the printing and during the printing on paper.

[0022] Odorous substances can thus be applied to the paper. The odorous substances are distributed over a large surface area on the paper, so that olfactory perception is ensured. The odorous substances are fixed to the paper like the graphite components of the printout, so that constancy of the smell is ensured. The volatility of the odorous substances can be predetermined, so that the initial intensity and the permanent continuance of the smell can be predetermined.

[0023] This toner can be used especially in high-speed printing which is defined for example by printing speeds of more than 20 A4 pages per minute. Especially this toner can be used for a printing speed between 24 and 30 pages per minute. As a result, the unpleasant smells which might be smelled considerably at least in the area of the printer can thus be avoided, prevented and/or masked.

[0024] Similarly, the CP toner can prevent the escape of odorous substances from the toner. The CP toner can be predetermined precisely in its composition, especially in chemical composition, in the size, the distribution of size and in the mixture ratio of the individual components of the toner, as a result of which the escape of odorous substances from the toner can be influenced or prevented. In particular, the strong release of smell of the toner and the decreasing concentration of odorous substance in the toner can be prevented.

[0025] It can be provided advantageously that the carrier substance is wax. This enables an effective occlusion of the odorous substances in the toner storage cartridge. The wax can be molten down during the printing and release the odorous substances and/or convey the same to the wax surface. The wax can thus prevent the release of smell of the toner in the printer, especially in the toner storage cartridge, and promote the release of the odorous substances in the printout.

[0026] After the re-solidification of the wax, the wax can continue to occlude the odorous substances, so that the release of the odorous substances occurs preferably in a slow manner over a prolonged period. The time progress of the released concentration of odorous substances can be influenced depending on the volatility of the odorous substances, the size of the wax substances, especially the particle size of the wax substances, the occlusion constancy of the wax substances and the concentration of the odorous substances. It is possible to predetermine both the delivery of high concentrations of odorous substances directly during the printout as well as the duration up to the complete phase-out of the release of odorous substances. The odorous substances which often consist of volatile chemical substances can thus be fixed in a simple and cost-effective way in the toner and to the paper.

[0027] Since an especially slow release of the odorous substances is enabled, this toner can advantageously be used for greeting, birthday, congratulatory cards and/or aromatic messages which shall be designated below as aromatic cards. The aromatic cards are placed in additional packaging after the production. An especially slow release of odorous substances, e.g. at rate of approximately 10% per month of the time-changeable odorous substance contained in the printout, can cause a concentration of odorous substance within the additional packaging. Even in this case, the aromatic card will release to the ambient environment an intensive concentration of odorous substances which are predetermined in their smell and are usually perceived as having an appealing smell. The subsequent further release of odorous substances of the aromatic card per time interval can be low, so that the smell on the card itself can still be recognized by a person, but the ambient environment is influenced only to a very small extent, thus avoiding any permanent disturbance by unpleasant odor.

[0028] It can be provided in an advantageous further development of the invention that the odorous substances, after heating the carrier substance to the predeterminable temperature range, are arranged in the region of an enlarged surface area of the carrier substance. As a result, the concentrated release of the odorous substances during the printout itself can be ensured even in the case of low concentration of the odorous substances in the toner. This can be especially advantageous when the odorous substances are substantially provided for avoiding the unpleasant odors occurring during the printing. In this case, the concentration of odorous substances can decrease on the paper, especially on the printout, within a short period of time, advantageously within 5 to 30 minutes, especially within 10 to 15 minutes, to an amount that can no longer be perceived by persons with an average sense of smell. Both during the printout as well as on the printout itself, i.e. the printed paper, an odor which is usually perceived as unpleasant can be prevented and/or masked directly after the printing and an odor which is generally perceived as pleasant can be provided.

[0029] Predetermined odorous substances generally perceived as pleasant can emulate in respect of their odor perfume, flower, fruit, moss, wood and/or meadow smells. The odorous substances can contain artificial and/or natural aromas.

[0030] The employed odorous substances can have different volatilities, so that one of the odorous substances can be released directly during the printing and a further, different odorous substance can be released evenly over a prolonged period of time. The olfactory perception of the smell of the printout can both change or remain the same. The perceptive release of odorous substances can occur within a short period of time, advantageously

within 30 minutes, especially within 15 minutes, or extend over a long period of time, advantageously over 6 months, especially over three months.

[0031] The odorous substances are advantageously added to the wax which is usually comprised by the toner and/or the CP toner. Alternatively, the odorous substances can be arranged as a suspension with a carrier substance and/or as a floating distribution in a carrier substance. The carrier substance can advantageously comprise an organic substance and/or be arranged as an organic substance. The carrier substance can advantageously also be activated thermally, especially during printing.

[0032] Further embodiments in accordance with the invention merely comprise a part of the described features. It is possible to provide any combination of features, especially also of different described embodiments. The breakdown of the present application into several sections does not limit the generally validity of the invention concerning the statements made under each section.

Claims

1. A toner, preferably a CP toner, **characterized in that** it comprises predeterminable odorous substances.

2. A toner according to claim 1, **characterized in that** the predeterminable odorous substances are substantially enclosed at least in part in a carrier substance and can be activated in a predeterminable temperature range.

3. A toner according to claim 2, **characterized in that** the carrier substance is wax.

4. A toner according to one of the claims 1 to 3, **characterized in that** the predeterminable odorous substances are arranged in the region of an enlarged surface area of the carrier substance after the heating of the carrier substance to the predeterminable temperature range.

5. A printout with a toner according to one of the claims 1 to 4, **characterized in that** the printout comprises predeterminable odorous substances.

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EUROPEAN SEARCH REPORT

Application Number
EP 07 29 0756

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 52 113737 A (HITACHI METALS LTD) 24 September 1977 (1977-09-24) * abstract *	1-5	INV. G03G9/087 G03G9/09
X	WO 2005/019942 A (EASTMAN KODAK CO [US]; SCHULZE-HAGENEST DETLEF [DE]; MORGENWECK FRANK-) 3 March 2005 (2005-03-03) * page 2, line 15 - page 4, line 5 * * page 5, line 1 - line 22; claims 1-3,6,8,11 *	1,2,4,5	
X	WO 00/79346 A1 (LEVY BRADFORD JAY [US]; LEVY JUDY O [US]; DUGRENIER ROBERT [US]; WINNE) 28 December 2000 (2000-12-28) * page 1, line 1 - line 12 * * page 6, line 3 * * page 6, line 22 - page 7, line 18; claims 1,2,9,10 *	1,2,4,5	
X	JP 62 125365 A (RICOH KK) 6 June 1987 (1987-06-06) * abstract *	1,2,4,5	TECHNICAL FIELDS SEARCHED (IPC) G03G
X	JP 05 216272 A (SEKISUI CHEMICAL CO LTD) 27 August 1993 (1993-08-27) * abstract *	1,2,4,5	
X	JP 62 160464 A (RICOH KK) 16 July 1987 (1987-07-16) * abstract *	1,2,4,5	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 September 2007	Bolger, Walter

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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28-09-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 52113737 A	24-09-1977	NONE	
WO 2005019942 A	03-03-2005	DE 10337157 A1 US 2007039518 A1	10-03-2005 22-02-2007
WO 0079346 A1	28-12-2000	AU 5749800 A	09-01-2001
JP 62125365 A	06-06-1987	NONE	
JP 5216272 A	27-08-1993	NONE	
JP 62160464 A	16-07-1987	NONE	

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