

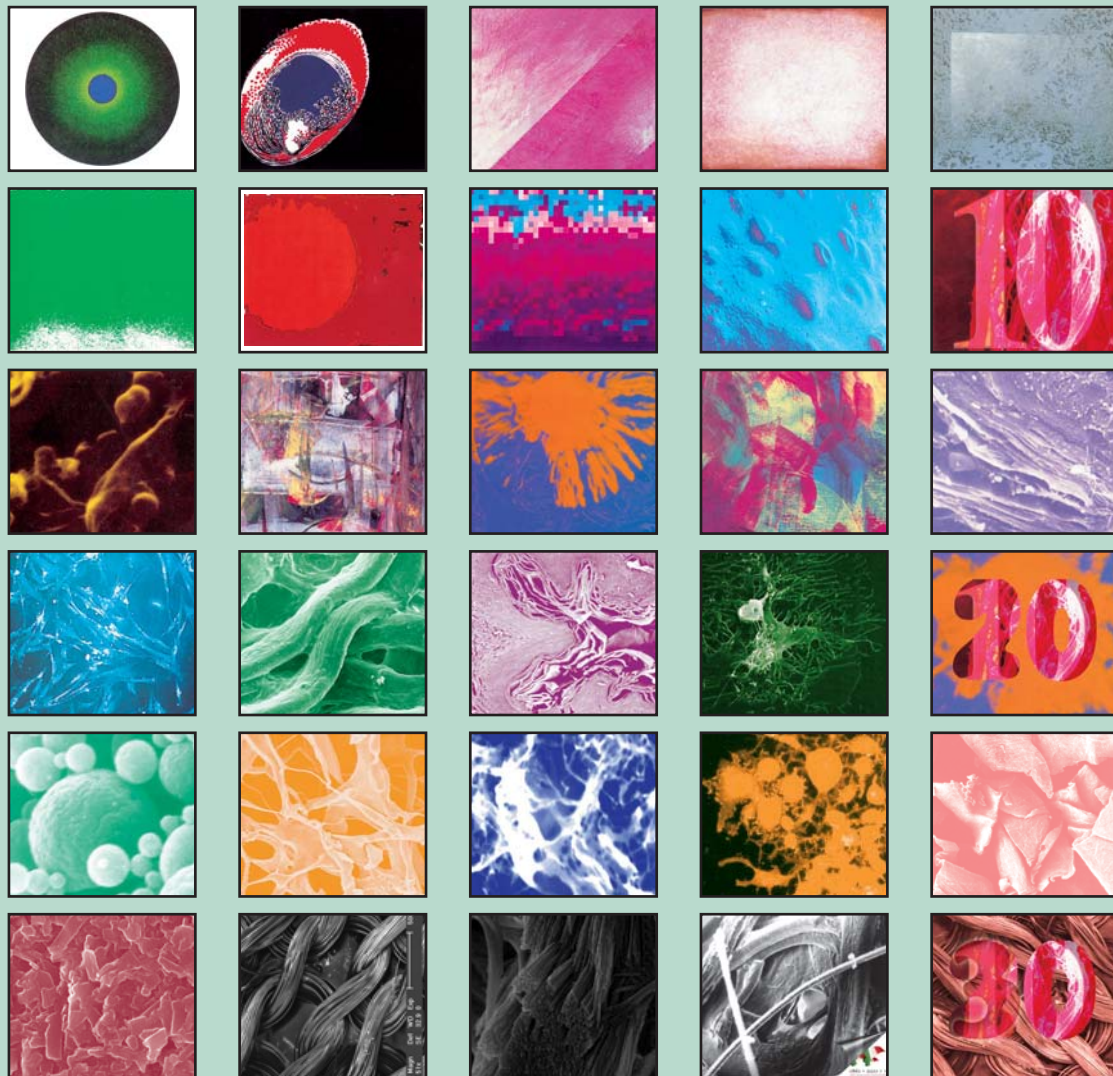
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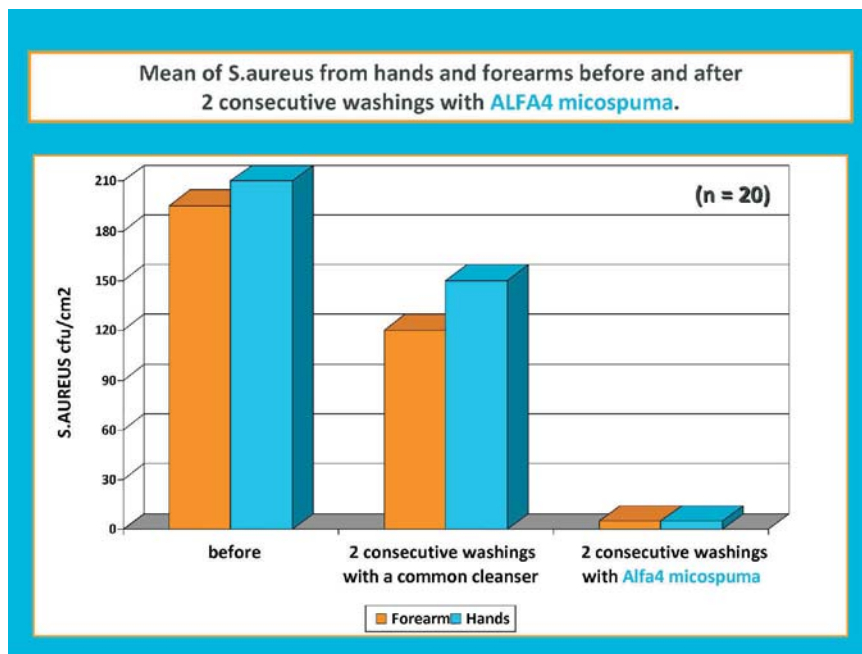
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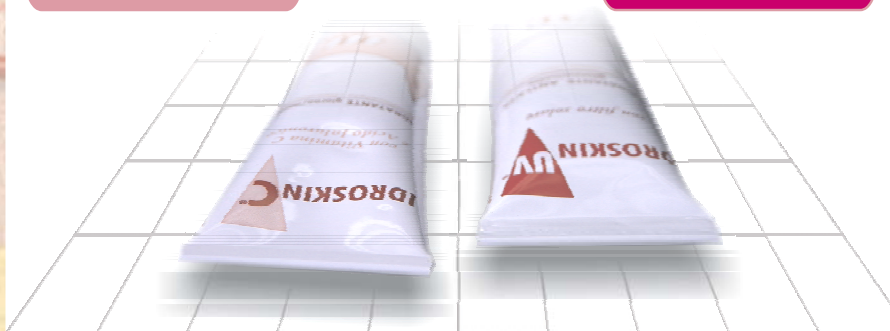
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XVII Announcements



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The Necessity to Protect any Invention/Trade Mark to Increase the Global Interchange of Goods

The first number of this journal which opens the 2012, is dedicated to the intellectual properties specifically regarding the Cosmetic Field, which arrived this year to a worldwide turnover of more then 300 billions of US dollars.

This market, recording at the first place of consumes the EU countries together with US and Japan, underlines the constant and relentless increase of the China market.

Any law is enacted with a view to standardizing accounting acts, ensuring the truthfulness and completeness of the accounting materials, strengthening economic management and financial control, raising economic results and maintaining the order of the worldwide market economy.

In the particular sector of intellectual properties, the law has the purpose of improving the administration of inventions and trademarks, to protect the exclusive rights that involve any inventive step susceptible to industrial and economical applications.

Thus the intellectual property law encourages producers and dealers to guarantee the quality of ideas, goods and services, preserving the credibility of inventions and trademarks.

As result, the consumers' interests are protected as well as the global economy is promoted.

I hope the reader of our Journal will appreciate this unusual topic, being totally different from the scientific papers we have been publishing during these 30 years of activity.

P. Morganti
Editor-in-Chief

European Versus Usa and China Trademark Law

Adriana Morganti LL.M.

Attorney, Lextray Tax & Legal, Milano, Italy.

Received: November 2011. Presented at The IX ISCD International Multidisciplinary Congress "Wellness and Beauty Outside In: East & West working together", Rome, 21-23, October 2009.

Key words: Trademarks in EU, USA, China;

Summary

Trademark role and his specific essence within the Countries: EU, USA, and People's Republic of China, will be reported in order to establish the more significant differences in interpreting this relevant subject. Trademark protection has, as a matter of fact, the purpose to encourage producers and dealers to guarantee the quality of their goods and services by preserving the credibility of trademarks and protecting the interests of consumers by promoting the worldwide economy.development.

Riassunto

Vengono descritti gli scopi ed il significato delle leggi che proteggono il marchio in Europa, negli Stati Uniti d'America e nella Repubblica Popolare Cinese, evidenziandone gli aspetti più salienti. La protezione del marchio o di un brevetto ha, infatti, lo scopo principale di salvaguardare i diritti e la riconoscibilità di un determinato prodotto o servizio, per garantire e proteggere gli interessi delle aziende, dei distributori e soprattutto salvaguardare i diritti dei consumatori che debbono essere tutelati sulla qualità del prodotto acquistato. Il riconoscimento giuridico sull'esclusivo uso di un determinato marchio o brevetto risulta utile anche per promuovere la corretta concorrenza, sempre più necessaria per la crescita di una Sana economia globalizzata.

INTRODUCTION

What qualifies as a trademark?

A trademark is any sign that can be graphically represented and is suitable to distinguish a particular product or service from others in the marketplace and/or identify the origin of a particular product or service. Shall not be capable of being protected as trade marks: (a) The shape resulting from the nature of the goods themselves; (b) the shape of the goods necessary to obtain a technical result; (c) the shape that gives a substantial value to the product. Trademarks may never be characterized by badges, emblems or scutcheons of particular public interest; signs or indications customary in the practices of the trade; signs or indications which may serve to designate the kind, quality, quantity, peculiar tended purpose, or other characteristics of the goods or service; will never be trade marks those which are devoid of any distinctive character, which are composed by; ordinary or generic names, geographic terms, and a descriptive terms and; trade marks which are able to of such a nature as to deceive the public.

What doesn't qualify as a trade mark?

However, in order to have the maximum legal protection, trademarks should be characterized by fanciful marks or imaginative words and unique logos as well as arbitrary marks unusual for their context suggesting but do not describing the same mark.

Moreover, weak trademarks may become strong trademarks if they gain wide public recognition and acquire what's called a "secondary meaning," in which case they become distinctive and gain legal protection. Examples include *Sears*, *Ben and Jerry's*, and *Park N Fly*. In any case,

distinctiveness can be lost in a number of ways. Nevertheless, whenever there is a tendency among the consumers to use a trade-mark as a generic noun for a specific product, and the owner fails to take adequate countermeasures to establish the message that the trademark has to be associated just to the owner's good and services, distinctiveness can be lost. Typical cases, for example, are: "Rimmel", "Nylon" and "Escalator" which were, once, trade-marks.

Protection of trademarks in EU is based on CTM (Community Trade Mark), IR (International Registration), NTM (National Trade Mark) and/or any combination of these.

Registered and Unregistered trademarks

Trademarks may be based on registration-bases and use-bases systems. Use-based rights may be an exception in registration-based systems. However, establishing priority is fundamental to ensure that one's own use does not infringe another's right and keep others from using one's exclusive rights.

Registration and Use of registered sign

Registration is not required in order to use a trademark, however, prevents others from infringing other's rights.

In principle, trademarks are "eternal" although their registration is subject to periodical renewals each 10 years post filing, within a limitation use of -5 years (grace period).

CTM application proceeding requires filing application, application fee payment, classification examination, AG examination, translation, publication of application, payment of registration fee and registration. Publication of registration means the real beginning of the protection

and *CTM Unitary Right* can only exist for the entire EU or not at all (article 1(2) CTMR). Thus it may exist:

(a) All-Or-Nothing Rule (art. 7(2) ground for refusal that applies only in part of the Community prevents registration;

(b) Licensing for part of EU countries. However, owners of conflicting earlier rights can prevent use of CTM in specific regions or countries (such as: local rights, rights in new Member States).

Absolute Grounds for Refusal should be a (a) public Policy background, (b) minimal distinctiveness sufficient for registration, (c) acquired distinctiveness: (art. 7(3))

Distinctiveness (Art. 7(1)(b)): it has in fact, to be judged in relation to goods and services in question such as combination of non-distinctive elements or existing at the time of registration slogans, often found non-distinctive, i.e.: “Beauty isn’t about looking young but looking good” (Estée Lauder, 1998). *About descriptiveness (Art. 7(1)(c))* it has to be concrete, not abstract: apple for fruits, not for computers; vague/allusive terms are not descriptive need to keep free for others *generic terms (Art. 7(1)(d))*. Thus, terms that have become customary in the current language or in trade can be lost (as previously seen, reported for.: “Rimmel, Nylon, Escalator, etc.)

Public Policy or Morality public policy violation must be intrinsic in mark, such as: “screw you” etc. In anyway, distinctiveness should be acquired (Art. 7(3)). Thus, it may have (a) “Secondary Meaning”, when a significant part of the public sees the sign as a source identifier, or (b) must be acquired where ground for refusal is applied and evidenced by market surveys, sales numbers, market penetration, market share, advertising expenses, etc.

Conversion and Protection

As above mentioned, after trademark registrations, it has to be considered the *Conversion issue (Art. 108 et seq.)* which is the remedy whether CTM application fails, or registration is cancelled or is converted into national trademark application maintaining the original filing date. Conversion is possible only where ground for refusal or invalidity of CTM does not apply to *relative grounds for refusal / invalidity*. Moreover, *Relative grounds-earlier rights* are: registered trademarks (CTM,IR,NTM) ready to be registered (Art. 8(2), unregistered trademarks and earlier signs used in the course of trade (Art. 8(4)), well known trademarks (Art. 8(2)(c) CTMR), right to a name, personal portrayal, copyright, industrial property right (so called: “Fair Use”), double identity (typical case of Counterfeiting issue); same / identical junior sign with the senior sign for same / identical goods and services (art. 8(1)(a)) and for similar goods and services - global appreciation of likelihood of confusion (art. 8(1)(b), special protection of marks with a reputation (reputation + misappropriation/dilution/tarnishment) (art. 8(5) CTMR). However, the more distinctive a mark is, the greater is its scope of protection. Thus, distinctiveness can be inherent or acquired.

For non-registered TMs (art. 8(4)) there is no pan-European protection and in some jurisdictions (i.e.: Spain, France, and Benelux) there is not enough protection without an appropriate registration.

U.S. TRADEMARK LAW OVERVIEW

In U.S.A. a trademark is any word, name, symbol or device or any combination of those used by a person to indicate the source of their goods, and / or which a person has bona fide intention to use in commerce to identify and distinguish his/her goods from those manufactured or sold

by others.

The Spectrum of Marks may be:

(a) inherently Distinctive where no secondary meaning is required as arbitrary and fanciful / suggestive; (b) Non-Inherently Distinctive where a secondary meaning is required as descriptive, geographic, personal name (c) No Distinctiveness where there is no trademark significance as generic.

Inherently Distinctive TM is, for example a fanciful marks as KODAK for film products and services, or arbitrary marks as IVORY for soap or suggestive marks as TERMINIX for pest control services. *Non-inherently Distinctive* TM is a descriptive mark as SHAKE N'BAKE for food products; or a geographic mark as CALIFORNIA for clothing, or a personal name as McDonald's for restaurant services. *No Distinctiveness* is a generic terms as CELLOPHANE for transparent cellulose sheets;

Use versus Registrability of a Trademark: "First to use": trademarks rights in USA belong to the first party to use the trademark. It is fundamental to make sure that there are no prior users of a confusingly similar trademark for the same or similar products or services, and it should be a distinction between ability to use the TM and registrability of a TM.

Benefit of Federal Registration: (a) *Prima facie* is the evidence of the Registrant's ownership and exclusive right to use the mark; (b) *Nationwide constructive* use is the priority that dates back to the filing date of the application. In this case the registration eliminates the defence of subsequent good-faith adoption by the third party; while (c) *the Significant jurisdictional are the benefits* of providing automatic Federal jurisdiction in any infringement action.

The bases for Registration in USA are however, (a) Use in commerce, (b) Intent to use in commerce, (c) Home Country application, (d) Home

Country registration, (e) International Registration (Madrid Protocol).

CHINA TRADEMARK LAW OVERVIEW

General provisions

In China any visible sign may which serve to distinguish goods of natural person, legal person, and /or other organization including any work, design, letter of the alphabet, numeral and three-dimensional symbols, which may be filed for trademark applications and registration.

However, none of the following signs may be used as a trademark: (1) Those identical with or similar to the State name, national flag, national emblem, military flag or decorations of the People's Republic of China; (2) or identical to with international inter-governmental organizations (i.e the Red Cross or the Red Crescent), or those detrimental to socialist ethics or customs, or having other unwholesome influences. Moreover, the following factors shall be considered in determining whether or not a trademark is a well-known one: (a) the degree of public recognition in its trading area (b) the duration in which it has been in use; (c) the duration and extent of its advertising and the geographical areas the which have been covered by advertising has covered; (d) the records of protection which it has been gained as well-known trademark; and (e) other factors useful serving to make the trademark well known.

Whenever a foreigner or foreign enterprise applies for trademark registration in China, the matter shall be handled in accordance with any agreement concluded between Country to which the applicant belongs and People's Republic of China, and / or any other Treaty, based on the principle of reciprocity, to which both Countries are parties.

Application for Trademark Registration.

The applicant for trademark registration shall fill in the specified form of goods classification by on which the trademark has to be used in. Trademark registration which is used for the first time for goods displayed within an international exhibition organized or recognized by the Chinese Government may, within six months from the date the said goods are placed on exhibition, enjoy priority. Failure to make the statement in writing or submit the documents before the expiration of the time limit shall be regarded as not claiming priority. However, matter stated in the application provided shall be truthful, accurate and complete.

Protection of the Exclusive Right to use a Registered Trademark.

Any of the following acts shall constitute an infringement on the exclusive rights to the use of a registered trademark: (1) using a trademark that is identical or similar to the registered on the same or similar goods without permission of the owner of the registered trademark; (2) selling goods that infringe on the exclusive right to the use of the registered trademark; (3) counterfeiting, or making without authorization, representation of another person's registered trademark, or selling such representations; (4) altering a registered trademark without permission of its owner and selling goods bearing such an altered trademark on the market; and (5) impairing in other manners another person's exclusive right to the use of its registered trademark.

Whenever a person, without permission of the owner uses a trademark that is identical to the TM owner's on the same kind of goods, or counterfeit's or makes without permission, or knowingly sells goods bearing counterfeit registered trademarks, which constitutes a crime, he/she shall, in addition to compensating losses suffered by the infringed, be investigated for criminal

responsibility in accordance with law.

In conclusion, although different approaches, EU, USA and PRC trademark law have the same aim of protecting interests of both producers and consumers by promoting the development of the globalized economy.

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The Field of Cosmetics in figures

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Key words: *Cosmetic; Patent application; European Patent Office; CIPO;*

Summary

This brief report aims to define with the support of statistical data the boundary of sector of cosmetics, with reference to the overall European situation, but also with an eye to special markets such as China.

Riassunto

Scopo di questo breve rapporto è quello d'analizzare l'importanza odierna del settore dei prodotti cosmetici col semplice supporto di dati statistici relativi ai depositi di domande di brevetto.

Il lavoro fa specifico riferimento alla situazione europea, ma senza dimenticare mercati speciali quali la Cina.

INTRODUCTION

The cosmetic field represents a small yet very dynamic niche of the economy with a high propensity for innovation - a characteristic traditionally well reflected by data concerning patent applications filed for inventions directly or indirectly related to cosmetology.

However the filing trend highlights that even this niche is suffering from the financial crisis and reduced investments.

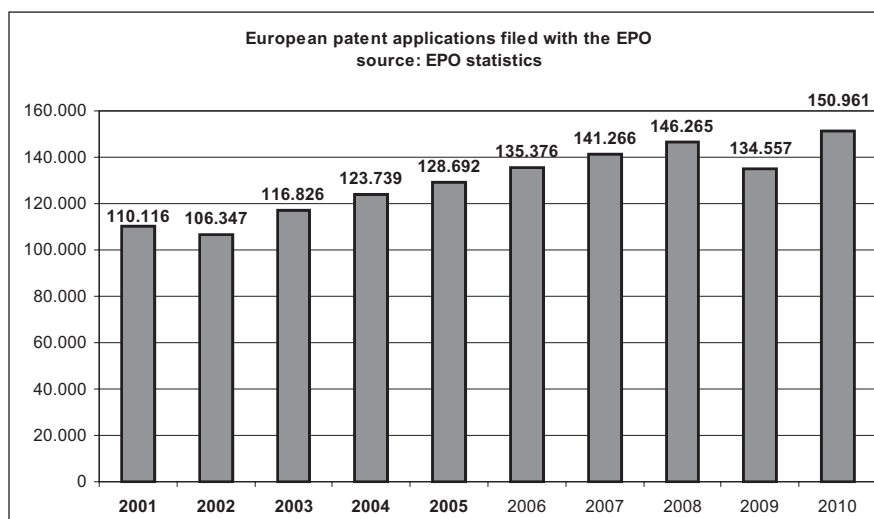
This brief report aims to define with the support of statistical data the boundary of this sector of

interest, with reference to the overall European situation, but also with an eye to special markets such as China.

Table I below shows the number of European and Euro/PCT patent applications filed yearly with the European Patent Office in all technical fields from 2001 through 2010.

The overall figures indicate a slow yet constant yearly increase in filings, except in 2009, from about 110.000 to 150.000.

TAB I



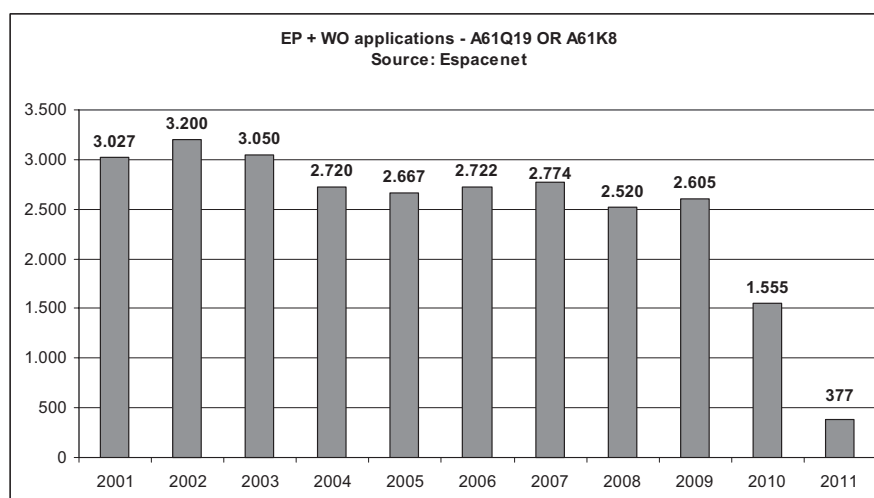
The field of cosmetics is responsible for a relatively small part of these figures.

Inventions relating to cosmetic products and preparations are mainly identified by the classes

A61K8/* and A61Q19/* of the International Patent Classification (IPC).

The number of European and Euro/PCT patent applications in these classes is reported in table II.

TAB II

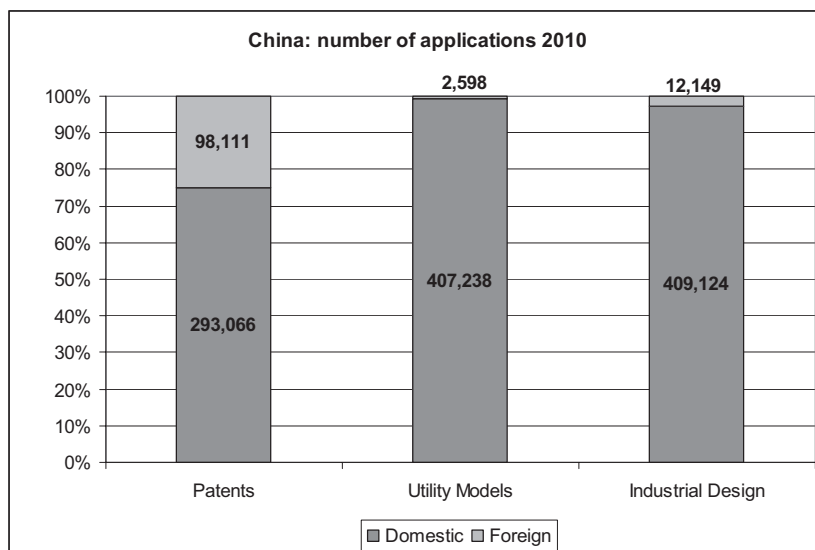


The figures clearly indicate that after a high of over 3000 filings per year in 2001, 2002 and 2003, there was a slow yet constant decrease in applications until 2009 with an apparent fall in 2010. This trend is indeed in countertendency with the almost regular increase of European and Euro/PCT patent applications in general.

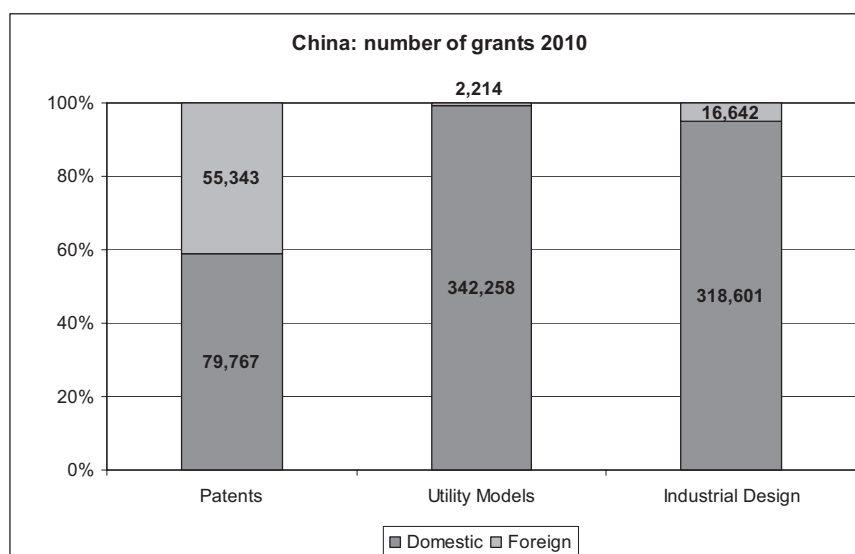
It may prove interesting and useful to compare the European and Chinese situations. Data kindly provided by GE CHENG & Co. www.gechengip.com and shown in the table III

below tell us that in 2010 the Chinese Intellectual Property Office (CIPO) (2) received more than 290,000 domestic and about 98,000 foreign patent applications, that is all together more than 2.5 times the applications filed with the EPO.

Moreover, the CIPO received in the same period some 400,000 applications each for Utility Models and Industrial Designs for a total of more than 1,200,000 applications.

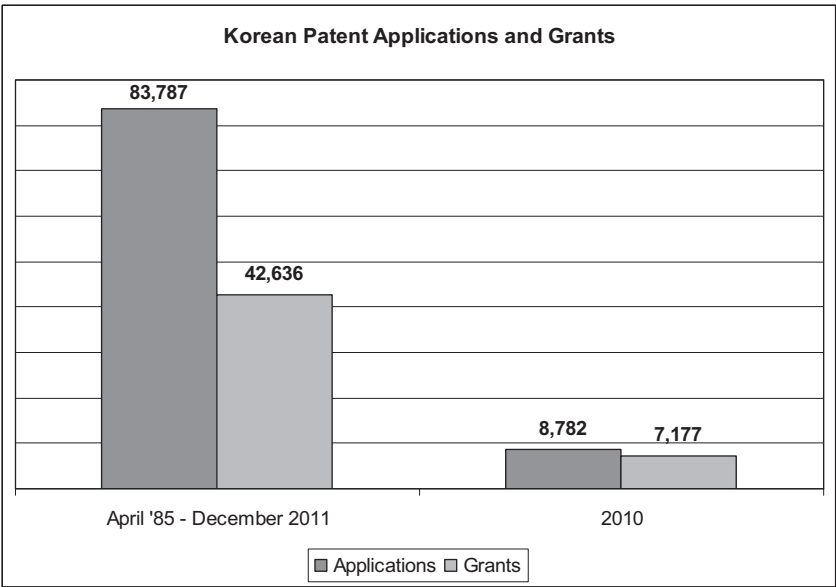
TAB III

Again in 2010, the CIPO granted about 135,000 patents and more than 650,000 Utility Models and Industrial Designs, as illustrated in table IV.

TAB IV

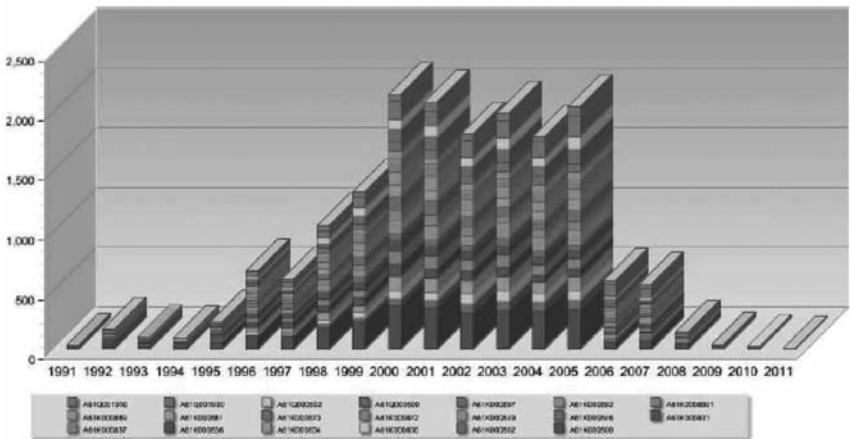
By way of comparison within the Asian context, Korea produced in 2010 about 8,700 patent applications, which is more than 2.5 times the average yearly filings in the last 25 years (Table V).

TAB V



Coming back to the field of cosmetics, the data reported in table VI below show that China also had a dynamic period between 2000 a 2005, with about 2000 applications filed per year, followed by a dramatic and unexpected decrease in filings in subsequent years.

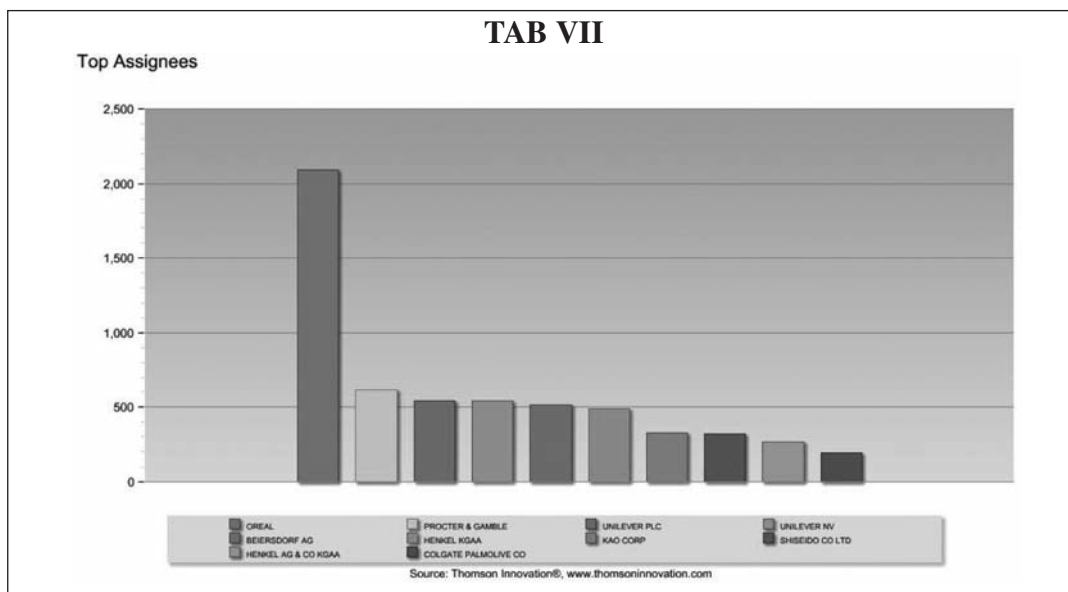
TAB VI



The Field of Cosmetics in figures

The reason for this fall deserves serious analysis since China does not appear to have experienced the same financial difficulties and cuts in research funds suffered by other countries. Finally, the main player in the field is confirmed

to be L'Oreal, with more than 2,000 published EP and PCT patent applications between 2005 and 2010. Procter & Gamble, Unilever PLC and Unilever NV, Beiersdorf AG are distant seconds with 500 applications or less (Table VII).



CONCLUSION

In conclusion, the cosmetic field remains a small yet highly dynamic area of technology, although in recent years it has been experiencing the same economic difficulties typical of many other sectors.

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Cosmetic and Medical Treatments: the Point of View of Patents

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Key words: Patent; Cosmetics; Therapeutical application;

Summary

In the first part the speech will show general figures concerning statistics on number and kind of patents in the cosmetic sector highlighting the most recent trends. Then a specific patent document will be analyzed with the idea of pointing out the differences with a scientific article on the same subject.

This point will be further expanded in the last part dealing with the different definitions of cosmetic and drug - from a patent point of view also if this issue is surely highly debated in the scientific world - with the aim of showing the effect of this definition in the patentability of products.

Riassunto

Nella prima parte della presentazione saranno mostrate alcune statistiche sul numero di depositi e tipologia di invenzioni protette nel settore cosmetico evidenziando le tendenze più recenti come pure le differenze tra un documento brevettuale e uno scientifico di analogo contenuto.

Nella seconda parte verrà approfondita, sotto il profilo della protezione brevettuale, la differenza tra effetto cosmetico ed effetto medico.

INTRODUCTION

The difference between a cosmetic and a therapeutic effect is currently a highly debated issue among researchers. The purpose of this presentation is to provide some remarks on the effects of this difference in securing patent protection, or, put in another way, to see this difference from the perspective of patent protection.

The history of patents.....

From a historical point of view, it may be surprising to know that patents are not so young as it is often believed: the Republic of Venice already in 1474 enacted a legislation for the protection of inventions which contained in concise form all the basic principles of patent protection. These may be traced back to the statement that through patent protection the inventor obtains a temporarily limited reward in return for a technical contribution to technology.

...and today

While it is not possible to know the figures of the patent filings according to the Venice law, current data clearly shows the increasing importance of patent protection in the field of cosmetics. A confirmation comes from the data of the European Patent Office - which is the Office administering the procedure of European patents - showing that between 2000 and 2007 in the IPC class A61K08 referring to cosmetics (IPC stands for International Patent Classification) more than 11,000 European patent applications were filed. In terms of subject-matter of protection. Figure 1 shows that 12% of applications relate to cosmetic products extracted from microorganisms, animals or plants, 15% are cosmetic products based on inorganic compounds, 27% are based on macromolecular compounds and 47% on organic compounds.

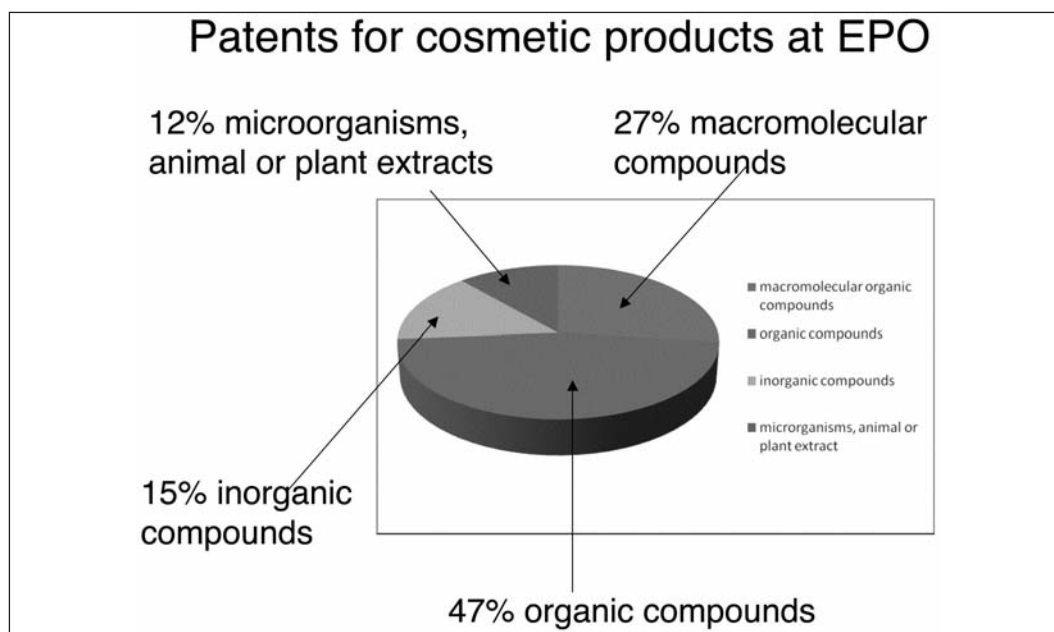


Fig. 1

In the same class and in the same years, the top 15 applicants for cosmetic inventions comprise the most widely known companies, such as L'

Oreal, the leader in terms of number of applications, Procter & Gamble, Shiseido, Unilever and Wella (Figure 2).

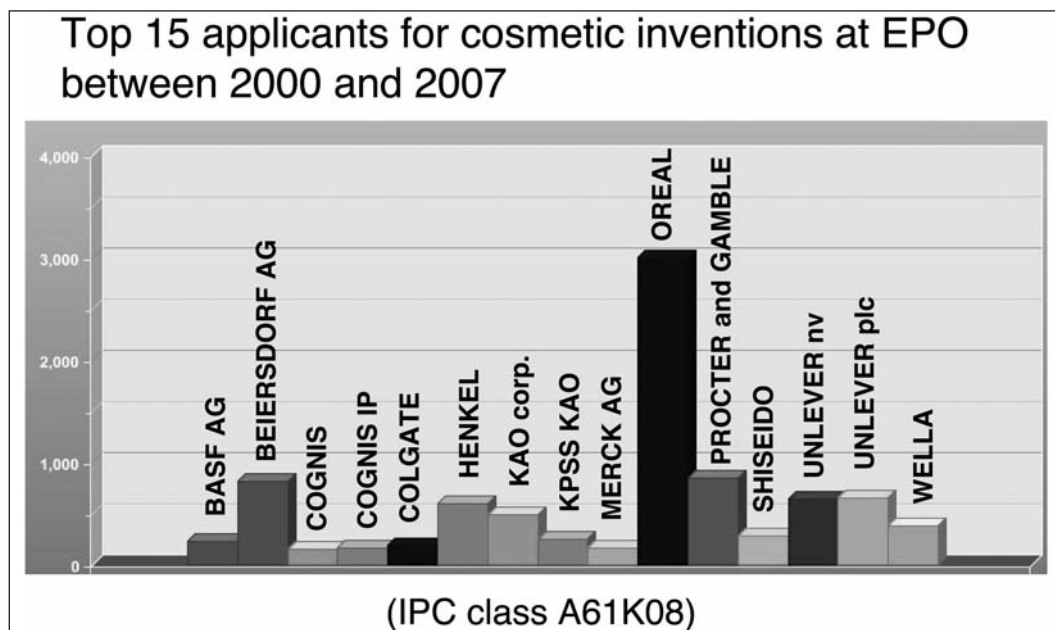


Fig. 2

The requirements for patentability

Inventions in the cosmetic field, like any other invention, are granted for inventions which are new (i.e. not made available to the public before the filing date), involve an inventive step (i.e. they are not obvious with respect to the prior art) and are susceptible to industrial applications. Examples of inventions relating to the cosmetic field are devices (for instance, hair-remover), products (for instance, anti-ageing creams) use or methods. In connection with the last mentioned kind of invention, examples of cosmetic methods are a method for losing weight but not for medical purposes, a method for skin moisturising or a method for reducing wrinkles. It is also important to mention that patent law provides for specific exclusions from patentability:

for the purpose of this presentation only that relating to methods for the treatment of human or animal body by therapy and/or by surgery will be dealt in some detail. This exclusion has a relevance and a direct bearing on the issue of the title, that is to say the difference between cosmetic and medical treatments since, as already mentioned, while the first mentioned are patentable the second are not.

Inventions in the cosmetic field

From a lexical standpoint, in patent wording, therapy encompasses not only the treatment of a disease in general and the alleviation of symptoms or pain, but also prophylaxis. The ideal situation would be that where cosmetic treatment and therapeutic treatment are distinct from

each other so that an invention which cannot be classified as therapeutic may be automatically classified as cosmetic. Such an ideal situation, unfortunately, does not belong to common experience where, on the contrary, facts show that therapeutic and cosmetic treatments often do overlap. The issue relates to the criteria to be applied to escape the bar represented by the prohibition of patenting purely medical/therapeutic methods if a cosmetic aspect is also present. These criteria have been discussed in various decisions of the Technical Board of the European Patent Office two of which will be briefly commented in the following, with the aim to provide practical guidance.

Protection of skin from sun: medical and cosmetic effect held not distinct

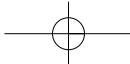
In the first decision, the invention related to the use of cupric complex of 3,5-diisopropyl salicylic acid (CUDIPS) for the protection of human epidermis. The purpose of the patented composition was to protect the epidermis from UV radiation and reduce the intensity of i) eritema and ii) related skin-level cellular changes generally referred to as “*sunburn cells*”. While considering the case, the Board argued that there was some overlapping between cosmetic skin protection on the one hand, and to the production of sunburn cells on the other hand. In particular, during the appeal the Board set forth that the patentability of the invention required a closer scrutiny of the mechanism of action of the active principle CUDIPS. In particular, it turned out that at least part of the protective effect did not derive from a simple filtering at the level of skin surface, but potentially involved some interactions with the cellular mechanism of the epidermis with the aim of preventing a pathological state. Consequently, since the presence of a therapeutic (medical) effect was inextricably connected

with the cosmetic effect the Board decided to revoke the patent.

Treatment of comedones: medical and cosmetic effect held distinct

In the second decision, the invention related to the use of tenoysl peroxide for treatment of comedones and pertained both to the anti-bacterial and to the hygienic action. Unlike the previous case, the applicant had explicitly claimed to pursue protection only for cosmetic treatment. The Board held that the use of term cosmetic in the claims was sufficiently precise to distinguish from therapeutic treatment, even though while carrying out the invention cosmetic treatment could incidentally involve medical treatment. In this case, the main point was that, given the specific circumstances of the case, it was possible to distinguish from therapeutic and cosmetic treatment basically distinguishing between a population with a disease, requiring medical treatment; and a healthy population requiring cosmetic treatment only.

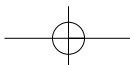
While concluding this presentation, it could be helpful to remind that the fact that the same activity may be classified as cosmetic or therapeutic, is influenced also by the kind of population, either healthy or not-healthy, making use of the invention and has a strong influence on the possibility of securing patent protection.



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Trademark License: for Enhancing your Position on the International Market

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Key words: *Transfer of Technology; Confidentiality Agreements; Non Disclosure; Licensing Agreements;*

Summary

This article describes the main steps to follow in order to commercially exploit an invention. Attention will be paid, in particular, to the non divulgation of the invention, to confidentiality agreements, and to the main clauses of a licensing contract.

Riassunto

Questo articolo descrive le fasi preliminari allo sfruttamento commerciale di una invenzione. Particolare attenzione è rivolta ai temi della non divulgazione, degli accordi di segretezza e alle clausole principali dei contratti di licenza.

INTRODUCTION

The ordinary goal of a trademark licensing agreement is to allow the licensor to expand its existing business or to create a new one. If the licensor is interested in maintaining the value of the licensed trademark, and not only in generating revenues, a number of precautions must be adopted when the license is negotiated with the licensee.

First, the licensor must carefully choose the licensee and make sure that the licensee is a company in good standing, with expertise in the field of the licensed products and good distribution channels in the licensed territories. If the licensee is a start-up company, the licensor will want to make sure that the licensee has a reliable business plan.

Second, in order to guarantee not only a profitable license but also the maintenance or expansion of the value of the trademark and its image, it is advisable for the licensor to provide for a scheme of payments based on an initial upfront fee plus an ongoing payment such as royalties on sales or a fixed payment per unit, so as to link the reward of the licensee proportionately to the success of its business.

Third, quality controls are of essence for the maintenance of the value of the licensed trademark and for the success of a licensing programme. Indeed, as one of the functions of the trademark is to guarantee the quality of a product, the licensor will want to protect its own reputation by making sure that its licensee(s) meet the same quality standard.

Quality control provisions should normally include the right of the licensor to inspect and approve in advance products and all material connected to it (from packaging to advertisements). Also, it is advisable for the licensor to provide for the obligation of the licensee to invest (possibly part of its revenues) into advertising campaigns for the licensed products,

which should be preapproved by the licensor.

For a license to be successful, attention has to be paid also to the clauses concerning exclusivity/non exclusivity of the license, licensed territories, duration, termination of the license and its effects on licensed IP rights (it is advisable to include an obligation of the licensee to return to the licensor any and all material bearing the trademark or in any way related to it), right to sublicense, use of the trademark, distribution channels, license of connected IP rights (know-how, design, copyright), non competition obligations, co-operation for the protection of the trademark (from proof of use to anticounterfeit activity), confidential information, choice of law and jurisdiction.

STEP 1: The culture of IP protection – Non divulgation

Statistics show that the majority of patentable inventions come from research centres that have a great patenting experience. It therefore appears that the higher the level of IP protection culture in a research centre is, the more investments are made for the protection of IP rights, and the more likely that research centre will develop patentable innovations. For this reason, it is very important that all researchers and managers involved in the research activity be informed of the main issues related to patenting an innovation.

The first important information that a researcher must have in order not to spoil his/her right (or the rights of his/her research centre) to obtaining a patent on the innovation is that the publication of the results of the research (divulgation), although very important from an academic point of view, prevents the innovation from being patented. The reason is that one of the requisites for patent protection is the novelty of the invention, which means that that invention must not belong to the prior art. Its publication, in contrast, makes the invention available to all intere-

sted third parties and, as a result, the innovation enters the prior art, thus excluding its own patentability.

According to some statistics, the reasons for IP protection are: to manage litigation or avoid it, improve bargaining strength, realize higher margins on proprietary products and make life difficult for competitors.

STEP 2: Confidentiality agreement

If the research centre is well organized and prepared to bear the costs of a patent's protection, it will start the procedure for the filing of the patent application, for which it might or might not carry out preliminary patent searches to check the novelty of the invention.

If, on the contrary, the research centre does not have an R&D office, or although it has an R&D office it cannot bear the economic burden of patent protection, it will seek a partner in the relevant industry (assuming that the research has not been commissioned by the industry itself). In this case, the results of the research will have to be disclosed to a third party that will need to evaluate whether or not the innovation is of interest. In order not to harm the possibility of patent protection and not to jeopardise its novelty, before disclosing the innovation and the results of the research to said third party, it will be necessary to enter into a confidentiality agreement, aimed at protecting the "confidential information" during the discussion or the negotiation of the partnership. The main clauses of a confidentiality agreement are the following:

- a) first of all it is necessary to define what must be considered "confidential". Usually, confidential information comprises the unpublished patent application or other information relating to an invention that has been developed but not filed as a patent application, and all the information that would not be patentable and that is, howe-

ver, crucial to the innovation (for example know-how, financial information, verbal representation, etc.).

- b) The "confidential information" can only be used for the purposes agreed upon in the agreement. The main purpose of the agreement will of course be to evaluate whether the recipient of the confidential information is interested in the invention and whether it is relevant to its technical experience.
- c) The confidential information which can be used only for the purposes listed above under point b) cannot be disclosed to any third parties other than those involved in the agreed purposes. The recipient must also use appropriate efforts to keep the information confidential.
- d) There are also exclusions from what must be confidential and this is usually what is already in the public domain - which is of course not patentable - and what was already known by the receipt of the confidential information. In practice, it is advisable to accurately identify the information that does not belong to the defined "confidential information".

STEP 3: Outcome of the negotiation

The most frequent outcomes of the negotiations concerning a patentable innovation are assignments and licenses. If the research centre or the inventor assigns the patent, a compensation will be agreed upon and the rights upon the patentable invention will be acquired by the assignee, who will also be responsible for the strategy for its protection. The assignor, besides the obligations concerning the disclosure of its know-how and of the other information referred to above, does not usually have any additional obligations, nor does the assignment agreement present difficulties that require particular attention on the part of the assignor.

Very often, the negotiations will result in a licensing agreement. Some surveys carried out in Canada and the United States show that the main reasons for which the industries decide to license in an invention or other protectable material is to try to compensate a general lack of research or try to get more options for future development. In turn, the reasons for which the laboratories and research centres decide to license out a patentable invention or other protectable material is to try to maximise license revenues, to access foreign markets and influence competitors.

STEP 4: Main clauses of the licensing contract

One of the most delicate issues of a licensing contract is the choice of the licensee. Depending on how the research centre that has developed the innovation is structured, the licensee could be a startup company set up to develop the innovation into a new product and commercialise the results of the research, or it could be an already established company. This will of course affect the entire structure of the license agreement. Indeed, if the licensee is a startup company it will be its structure will be decided by all the parties in cooperation, according to the needs of all. Conversely, if the licensee is an already established company, it is important to know how to choose a good licensee. Usually, it is advisable to create a list of potential manufacturers who might be interested in the innovation that has been developed or look at the companies that already produce and distribute products similar to those that have been invented. These can also be biotech companies or cosmetic companies, depending on the field of interest. It can also be advisable to look at the patent databases to see who the assignees of the patent applications or registrations that have been developed in the same field of the concerned innovation are. It is

also important to make sure that the licensee is an experienced manufacturer and ask for a business plan or set milestones to make sure that the license is productive.

Another important clause of a licensing agreement is the one concerning exclusivity. In this connection, the research centre that has developed the innovation must clearly define what he wants the scope of the license to be. In particular, it is necessary to decide whether the innovation needs to be licensed for any possible use, in all fields of technology, or just for a very specific aim, reserving the right to further develop or to license the same information to third parties for different purposes. For example, taking for example a microbiological molecule, it is possible that the research centre will want to license it to one licensee for cosmetic purposes and to another one for pharmaceutical purposes. In this case, it is important to stipulate a non-exclusive license.

Also, attention must be paid to the territories covered by the license. Depending on the strategy of the owner of the innovation, and also on the economic strength and distributional organization of the licensee, it could be advisable to license the innovation for some territories only or worldwide. This will greatly depend on the scope of the technology, the market addressed, and the business model of the licensee.

As far as royalties are concerned, it is important to remember that a license must be a win-win solution, meaning that both the licensee and the licensor must be satisfied with the results of the license. Normally, when the licensee is an already established company, the scheme of the royalties provides an upfront payment and subsequent royalties calculated upon the sale or production of products. In contrast, if the licensee is a startup company, usually no upfront payments are provided for, or very limited upfront payments are set.

Another delicate issue is how to set the royalty.

Some research shows that the average royalty varies according to the different sectors of the industry. Also, some research focused on the pharmaceutical industry shows that royalties go from 1 to 7 or 8 and even 9% depending on the specific field of technology. The average royalty can be considered to be about 5% of the gross or net income deriving from the license.

As far as the costs of the patent application are concerned, usually the license agreement provides some rules. Most commonly, the costs of the patent protection are borne by the industry and therefore by the licensee, because the research centre does not have enough funds to protect the patent. Who has the responsibility of the patent strategy and thus where to protect the innovation, should be dealt with as a separate issue. This is also a point which needs to be carefully examined and regulated by a licensing contract which will also have to stipulate the obligation of the inventors to cooperate as far as the signing of the necessary papers is concerned.

Finally, another very important issue is the regulation of the improvements of the innovation. Improvements might be developed by the licensor or by the licensee and in both cases it is important that the contract regulates who will be the owner and what uses the owner will be the allowed to make thereof.

Other important issues are the duration of the agreement, the choice of law, the establishment of a minimum level of production and sales, of milestones and the regulation of best efforts or due diligence obligations as well as the product liability.

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Are you sure you know what counterfeiting is?

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Summary

In a period when counterfeiting is a booming business everywhere in the world, it is of paramount importance for companies to adequately protect their IP assets. Although it is impossible to completely eradicate or prevent this phenomenon, there are some measures that, if put in place effectively, may discourage the counterfeiters from violating third parties' exclusive rights.

In fact, not investing in the protection of a company's IP assets or waiting too long before taking some actions may ultimately result in the loss of a company's creativity to the benefit of the counterfeiters, sometimes with irrevocable effects.

Riassunto

In un'epoca in cui la contraffazione è un fenomeno in crescita in ogni parte del mondo è estremamente importante proteggere adeguatamente il proprio patrimonio di proprietà intellettuale.

Sebbene sia impossibile prevenire o eliminare completamente questo problema, possono essere intraprese delle azioni che, se messe in atto in maniera efficace, scoraggiano i contraffattori dal violare le privative altrui. La mancanza di investimenti nella tutela del patrimonio IP o un ritardo nell'intraprendere azioni possono essere infatti responsabili della perdita degli sforzi creativi di un'impresa a beneficio dei contraffattori, spesso con effetti irreparabili.

Are you sure you know what counterfeiting is?

INTRODUCTION

The main menace to businesses' IP assets is the evergrowing phenomenon of counterfeiting and piracy. Despite international recognition of the gravity of the problem, the ongoing coordination among several international bodies and the successful efforts achieved with legal tools to strengthen national enforcement and anti-counterfeiting laws all over the world, counterfeiting remains a booming business everywhere.

Because counterfeiting and piracy are illicit activities – which makes data on them inherently difficult to obtain – the attempts to quantify their extent have produced varying figures. According to some reports, the magnitude of counterfeit and pirated goods in international trade accounts for up to \$250 billion a year, a figure corresponding to 5-7% of the world market (1). In Italy alone, the number of articles seized by the police authorities in 2010 is 110 million, while in the last three years the number of cosmetic articles seized is 11 million (2).

Although the main target of counterfeiting remains fake luxury goods bearing status symbol trademarks, counterfeiters have expanded to almost every conceivable kind of consumer products, such as children's toys, pharmaceuticals, car and airplane components, foodstuffs and drinks, and, of course, cosmetics and personal care goods. In these areas, in addition to sale losses, counterfeiting also poses some very serious risks to consumer's safety and health as, for example when it comes to cosmetics, the ingredients and substances used to manufacture counterfeit goods are usually of low quality and produced in an unregulated environment.

When trademark owners set out the lines of their trademark enforcement programs they should therefore keep into consideration that, at present, there is not any strategy that permits to successfully prevent or eradicate this phenomenon. Unfortunately, if a product or a company's trade-

marks are successful there always be someone who will try to copy them. Consequently, a good enforcement program is one which permits to keep this problem under control and which will induce a vast majority of the counterfeiters to shift to a different mark.

Generally, counterfeiters consider legal actions, seizures and jail sentences simply as a cost of doing business. With so many famous trademarks in the world, counterfeiters will therefore choose those trademarks which imply the lower costs of doing business, which is to say those trademarks owned by companies having inadequate enforcement programs.

In this scenario, it is possible to properly fight counterfeiting only with the right instruments. Although some of the following measures best apply to the luxury goods industry, the vast majority of them applies indistinctively to every field.

Enforcement Programs: the preventive measures

First and foremost, the trademarks should be registered. However, because trademark theft is still a flourishing business in many countries of the world, companies interested in doing business abroad should not seek to register their trademarks after expanding their businesses or after contacting new clients, but at the very moment the mere possibility of doing business outside of their home country arises. Achieving adequate protection can be expensive but companies should always think that while in most cases lengthy and costly litigation and settlements providing for significant payments to the thieves permit to regain a trademark back, in many cases not thinking ahead may result in the loss of an important market.

Once the trademarks are registered, an application for action should be lodged with the Customs. In fact, although only a very small per-

centage of the goods imported are generally inspected, it is essential to retain the possibility of having the goods suspected of being counterfeit inspected by the Customs authorities. To this end, trademark owners should not simply fill out the papers necessary for the Customs recordal but should provide the Customs with manuals containing as much information as possible on the brand at issue (i.e. the products most likely to be counterfeited; tips for recognizing counterfeit versus original goods; a description of the channels of distribution; the identity of the authorized licensees, manufactures and distributors) along with pictures and, if possible, samples of the products. Even though these materials will not turn the Customs officials into experts on the branded products, it will help raising their awareness on the brand at issue much more than just papers would do. Companies' awareness of the importance of this tool can be seen in the evolution of the number of applications submitted to the Customs which has increased from almost 1,000 in 2000 to 15,000 in 2010 (3).

The last preventive measure to be taken by a company directly is to ensure security at all the factories authorized to manufacture its products. Nowadays, all the major players in the luxury goods field, as well as a large number of other fields, farm out entire stages of the production to independent contractors who, on their turn, subcontract part of their work to other independent factories. Because in these cases companies have to authorize hundreds of independent contractors to use their trademarks, designs and copyrights, it is very important to make sure that a company has a faithful and dedicated team. Initially, in fact, the counterfeiters seeking to produce high quality fakes will approach the company's own factories to recruit those that have the know-how to manufacture the original goods.

Consequently, companies seeking to minimize the risk of unfaithful independent contractors should enter into strong manufacturing agree-

ments which provide for high liquidated damages for the IP owner in case of breach of a fundamental provision of the agreement. Although, from a practical stand-point, in many countries it will not be easy to enforce this kind of provisions, they constitute a strong deterrent for most manufactures, especially for those who entered the agreement in good faith. Also, in order to avoid that none of the independent contractors will ever have the capability of manufacturing counterfeits perfectly identical to the original goods, trademark owners should avoid that the manufacturers of the single components are in contact with one another. Ideally, they should have all the raw materials and components sent to the company which, after inspecting them, should send them ahead in strictly numbered quantities to the manufacturer of the final product.

Similarly, the IP owners should make sure that the independent factories ship their final products directly to them so they can exercise tight quality controls before the products are shipped to their distributors and outlets. Indeed, in many jurisdictions, the only difference between original goods and overruns – which are technically counterfeits – is the absence of quality controls. Thus, if the company performs tight quality controls and can prove it, it will have an easier time in pursuing overruns, especially criminally. Finally, to ensure that all the independent contractors behave correctly and comply with the rules set by the trademark owner, this latter should have people from the company – preferably those responsible for the production – run periodical inspections of all the independent factories.

The Further Actions: what to do when facing a counterfeit

It comes as a consequence that the costs of trademark enforcement programs are high and

Are you sure you know what counterfeiting is?

taking action against all the counterfeits is practically impossible. Therefore, the trademark owners need to effectively allocate the resources and to prioritize the targets.

While how to prioritize the targets usually depends on the policy a company decides to adopt, there are some aspects that should be taken into account when choosing how to act.

Over the years, counterfeiters have become ever more professional and this has reflected in the quality of counterfeits which are often produced with the same level of expertise and by the same factories as the original products. With consumers not being able to distinguish original goods from counterfeits, the presence of these latter goods in the marketplace may affect the companies' sales and, in the long run, spoil consumers' faith in its brand. Every time a trademark owner comes across high-end fakes, the enforcement should be implacable everywhere in the world. Unfortunately, in many parts of the world, manufacturing look-alikes and infringing well-known trade dresses is viewed as necessary to following fashion. The result is that, when a product is successful, a company will have to face more look-alikes than its counsels will ever be able to fight. In order to preserve the exclusivity of a company's image and its sale, also this type of infringement should be aggressively pursued. The first priority should be look-alikes that are manufactured by the company's competitors or that have a good craftsmanship or that are sold by the same distributors. Also, a company should concentrate its efforts more in the markets where the brand of interest is more popular or where the company is located.

When dealing with low-quality counterfeits, trademark owners should be aware of the fact that while these goods seem less dangerous at a first analysis, they may in the long run affect the company's sales and consumers' faith in its goods. In fact, even if it is difficult that someone buying cheap imitations would ever buy the

expensive originals, it is more likely that those customers faithful to the brand may get tired of paying a lot of money for something that virtually everyone in the street has. In this case also it is therefore very important to take action and trademarks owners should preferably concentrate their anti-counterfeiting efforts mainly in those areas where their customers shop on a regular basis and, if the budget permits, organize routine actions in the company's main markets.

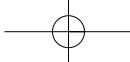
Once the priorities have been set, a company may consider two possible courses of action: civil actions or criminal enforcement. With low quality counterfeits, the only practical course of action is criminal enforcement with a view to hurt the counterfeiters by causing them significant financial losses. Thus, the IP owner's efforts should concentrate on obtaining major seizures of counterfeit goods and, if possible, on climbing the distribution ladder all the way to the factory level of the equipment and machinery used to manufacture the fakes.

On the contrary, with look-alikes and, in many cases, with high quality counterfeits, criminal enforcement is not the best option and civil actions should be preferred. This type of action is a good option when the identity of the infringer is known and especially in those countries – and they are the majority – which provide for the possibility of obtaining restraining orders and seizures on a fairly quick basis. In addition to being effective, these measures put the trademark owner in a strong position and increase the chances of settling the case on good terms without having to engage in lengthy and costly litigation.

CONCLUSIONS

To conclude, when the IP owners set out the lines of their trademark enforcement programs, they should keep in mind that intellectual property is just as valuable as physical property,

with the only difference that, unlike this latter, in most cases stolen ideas cannot be replaced. Not adequately investing on the protection of IP assets may result in the loss of a company's investments, efforts and creativity to the advantage of the counterfeiters who, if not rapidly stopped, may irreparably damage a company's image in the market.



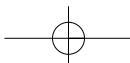
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The 10th International Congress of International Society of Cosmetic Dermatology

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In the splendid setting of Shenyang last year (May 30 – June 1) was organized the 10th International Congress of I.S.C.D: *Life, Science Meet Cosmetology*, together with University Division of Medical and Health of Chinese Academy of Engineering, and China Medical Association.

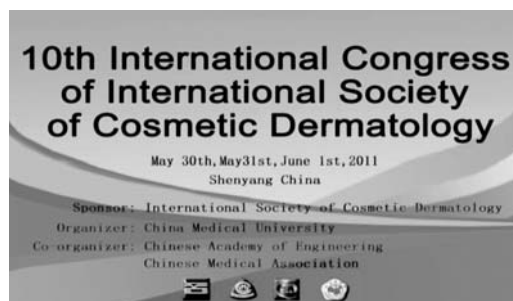


Fig. 1 The Conference sign.

This meeting based on the specific general theme of *Beauty and Wellness* has covered 14 hot topics in the field of Cosmetic Dermatology by a 1 plenary session, 12 concurrent and 8 satellite sessions. Under the Presidency of Xing-Hua Gao professor and Chair of the department of Dermatology in the China Medical University of Shenyang and the co-Presidency of Salvatore Mancuso Professor emeritus in Gynaecology and President of the Ethical Committee in Policlinico Agostino Gemelli, School of Medicine in Rome, Italy the meeting had a great

success of participants with about 600 dermatologists coming worldwide.

It is interesting to underline that the same day of the meeting opening (May 30), the Chinese Premier Wen Jiabao, addressing in Beijing the plenary session of the National Congress of the China Association for Science and Technology, declaring that “China must develop its abilities in science and technology building up a large pool of talented individuals, to take the initiative in international competitions”. The Premier said “the nation should work hard on creating an environment bold and innovative one that will also encourage freedom and democracy in academic issues”.

Thus, he stressed “China cannot develop without developing science and technology, which represent the future of the progress”.

And the ISCD meeting, perfectly organized from the friend Prof. Gao and well supported from Prof. Li and all the scientific Chinese and estranger supporters has gone in this direction. Many of the numerous and interesting scientific papers presented explored in fact, the possibility to do something that no one has ever succeeded in doing before in the interesting field regarding the human wellness.

Exploration is to be considered at the base of any scientific research capable to produce new scientific achievements, also if many explored research method may be important and worth while always containing the risk of failure.

An important summit on Wellness in Beijing



Fig. 2 The Introductory Conference Day.

What is interesting to underline is the great participation of many Chinese scientists coming from the larger and import cities of the Main China, as Beijing, Shangai, Dailan, Hangzhou, Xi'an but also from Taiwan and naturally from USA,UK, France, Germany, Italy, Japan, Korea and Singapore. The presence of the numerous Chinese scientists explains the latest report from the Royal Society, (the UK's national Science Academy), underlying that China has replaced the UK in second place, behind the Unites States of America, in terms of its share of the world's scientific research papers written in English.

Although outsiders expect Chinese to be conservative, the internal and official debate and speech in this meeting not only scientifically-oriented but also socially oriented, were without taboos and completely unbounded. This is actually a place of mind emancipation and free speech in Main China "to ensure a harmonious and stable society full of vitality", according with the words reported from the China President Hu Jintao during the opening ceremony of a seminar for provincial and ministerial officials at the central Party School in Beijing (June 1, 2011).

The President underlined that in China these new method of social management is "still in a stage where many conflicts are likely to arise", despite remarkable social and economic development.



Fig. 3 The Enquire of an attendant in the conference room.

In this speech he highlighted the necessities to "improve the structure of social and scientific management" which must be achieved through the Party Committees' leadership, government's responsibilities, but also supported from non governmental organisation and public participation. And in this direction has gone also the ISCD meeting based on Wellness at 360°.



Fig. 4 Prof. Morganti speaking.

The increasing number of links that researchers are discovering between the skin and the immune, nervous and endocrine systems is leading them to investigate whether excess stress or too little stress can abnormally alter the immune

defences. Thus, many studies have determined that hormones of the endocrine system help the immune and nervous systems defend the body, as, for example, for people affected by acne or atopic dermatitis, having both a disrupted skin barrier.

Repair its function is, therefore, an important must for successful treatment of many dermatological pathologies. The skin forms, in fact, an effective chemical/biochemical (antimicrobial, innate immunity) barrier between the human body and the environment, preventing invasion of microbes and fending of chemical and physical assaults. Production of antimicrobial peptides (AMPs) by the skin is a primary system for protection and expression of some AMPs, further increased in response to microbial invasion. AMPs act, in fact, not only as endogenous antibiotics with the function to kill microbes, but form also a chemical shield on the skin 'surface, triggering and coordinating multiple components of the innate and adaptive system. Thus, for example, the excess of Radical Oxygen Species (ROS) coming from the environment and pathologic conditions, or from skin ageing may attack cellular macromolecules leading to cell damage and/or to its death. This is the reason why skin and human body produce antioxidant compounds necessary to neutralize and reduce the excessive presence of these ROS. Thus, resveratrol, green tea or L-ascorbic acid acting as drug or cosmetic products, are, used topically or by oral route, to prevent oxidative damage to cells. It is interesting to underline as oceans contain a vast biological diversity of species producing many natural bioactive secondary metabolites which offer interesting challenges to chemists working with natural products as well as to biologists and pharmacologists alike. At this purpose by collaboration between Italian and Chinese scientists different classes of new ingredients were selected from marine invertebrates and plants, showing significant biological

activities, including anti-inflammatory, anti-tumour and anti-bacterial properties. But other active ingredients, obtainable from fishery wastes, as chitin nanofibrils and chitosan, are now used to produce more effective and skin-friendly cosmetic products as well as bio-textiles and innovative wound dressings.



Fig. 5 Prof. Gao speaking.

These innovative electrospun dressings are characterized, in fact, by a wide range of pore size distribution, high porosity, and high surface area-to-volume ratio, considered favourable parameters for cell attachment growth and proliferation. The porous structure obtainable by the use of chitosan and chitin nanofibrils is particularly important for fluid exudation from the wound, avoiding wound desiccation, and impairing exogenous microorganism infection. These, among the many topics reported from scientists coming from Beijing, and Sichuan Universities, as well as from Fudan University of Shanghai and Naples University, in Italy.

But skin aging and, therefore, skin barrier is greatly influenced by the environment where we are living as well as the food we are eating. This was another topic reported in this meeting. At this purpose the impact of air pollution on skin ageing was analyzed by linear regression using a geographic information system. Exposure to air bone particles was determined by measurements of ambient PM10 (particulate matter with <10µm in diameter) concentrations, at fixed

An important summit on Wellness in Beijing

monitoring sites and traffic exposure by distance of residency to a major road (<10,000 cars/day). Signs of aging were evaluated, including pigment spots, coarse wrinkles, solar elastosis, and telangiectasias, to determine the effects of exposure to PM on extrinsic aging. In conclusion, it has been shown that, as it happens for sun exposure or tobacco smoke also, these environment nanoparticles accelerate all the signs of ageing reported. However, skin ageing as progressive process is not only a problem of appearance but also an economical problem. Its ultimate appearance is determined, in fact, by the sum of damaging effects caused by environmental factors and intrinsic (chronological) skin ageing. Of the damaging environmental factors, ultra violet (UV) radiation is by far the major contributor.



Fig. 6 Prof. Hong Duo Chen.

The importance of repeated sun-exposure and/or sun-bed exposure in premature skin aging is well recognized and is referred to as photoaging. Clinically the scene is dominated by fine lines and wrinkles for deficiency of collagen and elastin abnormalities, with variable amount of dyspigmentation. Thus, the preeminent use of cosmetic products and drugs based for example, on the use of retinoic acid, is capable to neutralize the excessive presence of ROS, restoring the collagen deficiency also.

Speaking about the problem of aging it is interesting to remember that Chinese National Bureau

of Statistics by the sixth national census has underlined that China remains the most populous country in the world with more than 1.3 billion people having actually the population growth at a moderate pace of about 0.5 percent a year. China's fertility rate is, however, so low that populations aging are imminent. The 2010 census shows that the Country now has only about 222 million children (0-14 years old), while about 35 years ago they reached the historic number of 360 million, according to United Nations (UN) estimates. Thus, the number of children has declined by about 138 million, and over the next 35 years the UN projects a further drop of more than 80 million. As a consequence, because of this rapid growing of aging population, if the fertility rate will continue to decline, the financial support for the elderly will represent an enormous future challenge for Chinese Government. This was another theme of discussion among the many scientists. However, Chinese are more optimistic about their prospects after retirement than people from Western countries.



Fig. 7 Prof. Gao speaking during the Gala Dinner.

Therefore, on one hand, Western scientists reported that changes in the pension system offered in their home countries will make it harder for younger generations to enjoy pension benefits, as generous as those that were given to their parents. On the other hand, Chinese scien-

tists believe they would be better off than their parents after retirement. This is because China is reforming all its systems of management, decision-making, appraisal and personnel in all the fields, especially increasing and supporting Science and Technology, considered to represent the base of the Progress in the actual and future Economy.

Research and Development require more raw materials and energy. Therefore, due to the continuous advancement of the Country's new energy technologies, the rising costs of fossil fuels and the emissions, new energy will play a growing role in China's energy consumption structure. Thus, the country is now the world leader in solar and thermal power technologies and in their development scale, with the relative intellectual property rights.

These and many others were the scientific topics reported and discussed during this 3 days International Meeting. As for the last ISCD congress, the main scope of the meeting was to design the way for obtaining Beauty and Wellness at 360°, ameliorating our way of living. The high scientific and cultural level of all the participants, the perfect organization, the wonderful and warm welcome and hospitality of the Chinese organizers, completed by the beautiful locations as well as the nicely-organized coffee-breaks and lunches, has shown that the leal Comparison and Scientific collaboration of the East and West cultures at 360°, appear crucial to improve the future quality of life worldwide.

Cosmetically Active Ingredients Recent Advantages

by Angela C. Kozlowski

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In a global cosmetic market of about 300 billion USD per year, supporting innovation to drive the development of new products is to be considered a must. At this purpose it is necessary a vast network of resources to provide and select the most interesting new ingredients and raw materials necessary to formulate new cosmetic products, which has to be effective, healthier, and capable to preserve the environment.

This new book composed of **VI sections and 43 chapters**, certainly represents a source of precious ideas to design innovative cosmetic products for the global beauty-care market.

To formulate *intelligent* cosmetics it is necessary to know in a deeper way the skin's function and behaviour, considering that all cells of the skin layers are different from each other because of their different functions. Thus, the Stratum Corneum (SC) as part of the epidermis, being the outermost upper layer of the skin, provides the rate-limiting barrier for penetration into and through the skin.

The dermis lies beneath the epidermis giving nutrients to and under it, the subcutaneous tissue as protective layer. The skin also includes sebaceous glands and hair follicles.

Cosmetically speaking, when applied on the skin, a compound may distribute into the SC, diffuse and possibly penetrate. The first barrier for the applied cosmetic is, however, represented by the SC, composed of vertically stacked cells, called corneocytes and surrounded by a matrix of lipid membranes.

While corneocytes are thin squamous cells filled with keratin proteins, the matrix is composed of lipids arranged in numerous lamellar sheets along with intercellular adhesion complexes called *corneodesmosomes*. These intercellular lipids are composed mainly of fatty acids, (10%) cholesterol (25%), and ceramides (50%) together with smaller amount of glucosylceramides and cholesterol esters. Ceramides activate also different cellular responses such as their proliferation, providing also a link between extracellular signals and the induction of an apoptotic program, necessary to eliminate the damaged cells.

It is important to remember that every skin layer is comprised of different kind of cells, and each cell can be viewed as a tiny chemical factory, performing many millions of reactions every second. In some of these reactions, small organic molecule's aminoacids, sugars, nucleotides, and lipids are being taken apart or modified to supply the many other small molecules necessary to the cell for living. The control of these reactions is exerted through some specialized proteins called *enzymes*, each of which accelerate, or catalyzes, just one of the many possible kinds of reaction. For all these

reasons the knowledge of the life of all these cells governing the skin is fundamental, as well as the chemical-physical characteristics of the ingredients used to formulate the cosmetic products.

Therefore all the active compounds and the carriers, necessary to design and realize any kind of cosmetic, have to maintain the skin homeostasis helping the survival of the cells. It means that all the formulation's ingredients applied on the skin by the final cosmetic products, must have the possibility to be used from the cells not only as aliments and energy, but also as signalling compounds for the other body cells. In this way the new and innovative cosmetic formulations have to play non only the role in the creation of a health, youthful appearance, but have to possess also the capacity to give a general wellness to all the human body.

This important activity has been underlined by the use of cosmetic products designed, for example, by the NICE approach, involving the nervous, immune, cutaneous and endocrine systems, in connections with the Traditional Chinese Medicine (TCM) also.

Thus, the necessity to repair skin damages expressed as coarse and fine wrinkling in aged people, by the use of specialized cosmetics and diet supplements formulated, for example, by the use of echium oil rich in stearidonic acid (SDA), precursor of eicosapentaenoic acid (EPA) and decosahexaenoic acid (DHA), required for the normal daily functions.

When topically applied, echium oil increases dermal structural proteins, resulting in a reduction in fine lines and wrinkles. Due to its unique blend of fatty acids, this oil is also able to perform its activity as an anti-inflammatory agent blocking, for example, the prostaglandin PGE2 formation appearing after UVB exposure. Therefore, by this oil it is possible to formulate both topical and systemic *nutricosmetics* targeting beauty and wellness from outside and inside, and this could be an example of an innovative skin care regime.

Today's consumer demands, is, in fact, more sophisticated skin care focused to *visible effectiveness*. Thus the use of exfoliating products (peelings), acting directly on external skin problems such as dull skin colour, coarse skin texture, large pores and acne. At this purpose, alpha-hydroxyacids or specialized enzymes are used in order to disrupt desmosomes, considered to bind the keratinized corneocytes. Unneeded, old keratinized cells (excess of corneocytes) thickening the SC, contribute in fact to dull skin texture.

The peeling-formulations are therefore necessary in promoting exfoliations of unneeded keratinized cells accumulating at level of outermost SC, in condition of dehydrated and aged skin.

The aging process slowdown, in fact, the physiological daily turnover of the SC cells, which is supported by the proteases enzymes, necessary to eliminate the excessive accumulation in layers of keratinized cells. But the peeling activity may also reduce the intercellular lipids together with the superficial skin protective lipidic mantle.

In addition the aging process declines the activity of enzymes necessary to synthesize ceramides, cholesterol and fatty acids. Thus, the necessity of moisturizing agents capable to rehydrate the epidermis, such as sodium hyaluronate and glycerol. Consequently, moisturizing remains one of the main objectives of skin care *nutricosmetics*, coupled with secondary functions, such as anti-wrinkle, firming or brightening benefits. Added to an emulsion polyols and especially glycerol ensure a good state of hydration acting at level of aquaporin-3 (AQP3) when used at level of at least 10%. AQP3, which expression declines with aging, seems to act as co-transport of glycerol. By other mechanisms, hyaluronan is capable to link water at level of corneocytes for a long period of time.

All these topics are reported in the **Section I: Barrier & Skin Moisturization** by 6 chapters.

Apart from the protein family of aquaporins, other important proteins and peptides are produced at level of the skin functioning as hydrogen bond donor and acceptor groups. Due to their large molecular size, they have, however, low diffusivity in skin. Furthermore, at a physiological pH, these molecules are intrinsically hydrophilic and hence, the lipophilic SC represents a significant barrier to their penetration.

However, many other peptides and proteins have the function of pre-alarm ingredients for the immune cells, as well as of signalling agents for the daily life or apoptosis of the other cells. At this purpose it has been shown in other studies that some peptides seem to have notable effects on chronologically aged and/or photodamaged skin. It exists, in fact, a strong correlation between the specific aminoacid sequence in the peptide chain and the resulting bioactivity, which mechanism of action has, however, to be experimentally demonstrated.

Most of the peptides act at precise cell receptors and trigger physiological responses in various cells and organs. Moreover, change in the aminoacids composing the peptide almost always lead to changes in the potency, type or duration of the activity. Thus, the synthesized peptides has to be attentively designed for their request activities, as well as for their stability and efficacy when used entrapped, for example, in micro/nanoparticles and/or as part of any kind of suspension/emulsion.

According to the NICE approach, the relationships between mind and skin are currently seen in a new light for the last discoveries reached in skin physiology, embriogenesis, and neuro-immunology. Besides the anatomical links, there are functional links between brain and skin, which generates stimuli transmitted to the nervous system for its role of environmental changes' surveillance (interior and exterior stimuli).

Thus, *feeling good* and *looking good* cannot be dissociated and, for trying to obtain a general and contemporary amelioration of both Beauty and Wellness, the so called *neurocosmetics* have been formulated.

In any way, proteins and peptides play an important role in skin health, not only as cutaneous structural components such as collagen, elastin, keratin, fibronectin, integrins and laminin, but also as inhibitors, stimulating agents or regulators of all the skin biochemical processes.

The better understanding of the interesting activities these natural active compounds have led to the development of the so-called *biomimetic peptides*. Depending on their specific structures these innovative compounds are capable to reduce or prevent wrinkle formation, stimulate the keratinocyte growth balancing its daily turnover, increase the collagen synthesis to improve cohesion between epidermis and dermis, or promote the synthesis of extracellular matrix to improve cell adhesion and skin regeneration, always in order to prevent or slow-down the skin ageing process. All these results may be obtained by the use of the innovative cosmetic products of the last generation.

Other new active compounds are in use to formulate the so-called *cosmeceuticals* and *nutricosmetics*, representing the promise of the future of skin care, as well as the *magic dream* every consumer hopes to realize. This, the continuing intellectual challenge for Dermatologists and Cosmetic Chemists. As example, a special phytocomplex rich in darutoside and oridonin has shown an interesting anti-inflammatory activity, reducing both the presence of UVB-induced pro-inflammatory mediators, such as PGE2, (ProstaglandinE2) and interleukin 6 and 8 (IL6 and IL8), and the synthesis of melanin, but increasing also the synthesis of collagen I from fibroblasts.

By the use of this active complex the visible effects of aging seems to be reduced, appearing a lighting of brown spots, an evident reduction of skin redness, as a consequence of a neutralizing effect

on Radical Oxygen Species (ROS).

But what about fibroblast activity?

The attachment of fibroblasts to collagen fibers, or their initial adhesion is ensured by alpha-2-beta-1 integrins, dimeric transmembrane proteins produced by the same fibroblasts and involved in activating the cell-signalling pathway.

Faced with a mechanical stress perceived as a signal by the cell, initial adhesion is reinforced to form a mecano-receptor composed of a set of signalling proteins, among which are *talin*, *vinculin* and *paxillin*. As humans age or photoage, their fibroblasts produce reduced quantities of alpha-2-beta-1 integrins. This reduction leads to a loss of their attachment to the ECM, a contact that is indispensable for maintaining the mechanical properties of the skin. The *rye extract* seems capable to increase the activity of these integrins.

These and other topics are reported and discussed in **Section I** and **Section II** on *Antiaging* by 13 chapters: 7 to 19.

Section III is entirely dedicated to the problems of sensitive skin, often characterized by neurosensory symptoms and inflammation. This two important topics are discussed by 8 chapters: 20 to 27. 10% of women and 65% of men describe themselves as having very sensitive skin. As a result, there had been an increase throughout the last years in the demand for cosmetic and personal care products, formulated for individuals with sensitive skin. Therefore a plethora of products are on the market sustaining this claim.

However also if there is an unclear understanding of the effects that age, race and lifestyle play in the prevalence of sensitive skin, this heightened intolerance to topically applied substances is referred to as sensory skin irritation, chemosensory irritability, cosmetic intolerance syndrome, or *status cosmeticus*.

In any way, clarification of the exact mechanisms of action in sensitive skin and establishment of a universal, objective, reproducible and quantifiable testing method, are essential for the further advancement of research in this area.

It is, in fact, to underline that *sensitive skin* is not just a symptom that accompanies other skin disorders, but it is a true condition and therefore should be investigated as such. Thus, it seems necessary to understand its connection, for example, with the inflammatory processes provoked by environmental stressors such as UV light, smog, toxins, cigarettes smoke, and pollution, which all lead to signs of aging. Once, in particular keratinocytes and fibroblasts are damaged, skin loses firmness and vigour, becoming weaker and more vulnerable to diseases. On the other way these diseases also often become with an inflammatory process.

However, sensitivity skin is more prone to inflammation than normal skin, although inflammation is to be considered as the first line of defence against microorganisms and external assault. In anyway, in the case of prolonged and persistent environmental stress this protective process fails, leading to chronic inflammation characterized by the continuous production of free radicals, DNA damages, wrinkles, skin chronological aging and photoaging.

Photoaging is a classic example of UV-induced wrinkle formation and thinning of the skin, which become more sensitive to the environmental aggressions. This phenotype change reflects a deeper impact at the molecular level, in particular on the DNA double helix present in each cell nucleus.

The cumulative effect of repeated damages strongly contributes to the development of DNA mutations and down-regulates protein, essential to maintain normal skin turnover.

Because of the many scientific papers suggesting a strong association between DNA damages and erythema formation, the industry tries to produce ingredients capable to inhibit or reduce both the erythema and the skin damages. Thus the use of anthramides from *oat meal extract* to relieve itch and irritation, or the use of the bio-functional compound tocopheryl phosphate which, as an active signalling molecule with an antioxidant power, seems capable to modulate the cellular inflammation, pathways.

This ingredient for its capacity to provide protection against the signs of skin irritation and inflammation as well as the ability to readily be delivered from topical applications, has lead to the development of its use as an effective technology for functional skin care applications, particularly for *sensitive* and *irritated* skin, the *magnolia* extract is indicated to sooth irritated skin, or to improve skin disease, as acne and atopic dermatitis. In the same way possessing an interesting and inflammatory activity accompanied by a strong antimicrobial efficacy Many other interesting ingredients are reported and discussed for their anti-inflammatory activities, that should be carefully evaluated from the readers of this interesting book.

Section IV, dedicated to *Skin toning* by 6 chapters (28 to 33), focuses on the skin irregular pigmentation.

Pigmentation is due to an uneven production of melanin, a brown pigment produced by melanocytes in the skin. Cumulative sun exposure may cause formation of small localized brown spots, medically known as lentigo, and/or diffuse darkening of the skin in the form of *melasma*. This hormone dependent dysfunction, is present as a diffuse darkening of the skin over the sides of the forehead, lateral jawline and upper lip. The increased facial pigmentation, present as an overall darkening in people after 50 years, is produced from a combination of melanin pigment and fragmented elastin fibers. While male testosterone may cause some skin issues, female *estrogen* is the cause of many skin pigmentation problems. Other skin pigmentation problems are based on race. Moreover, because UVA damage is the primary cause of pigmentary abnormalities and male facial skin is more resistant to this rays wavelength, pigment *lightening products* are more commonly used by females. In any way, since pigmentation is the physiological defence against sun-induced damages such as sunburn, photoaging, and photo carcinogenesis, human skin colour varies around the world, ranging from a very dark brown in some Africans, Australians, and Indian skin to a near pinkish-yellow among some Asian, and North-western Europeans. However complexion coloration in humans, is regulated primarily by the amount and type of melanin synthesized by the epidermal melanocytes. Into these cells are present specialized organelles, termed *melanosomes* containing several enzymes, such as tyrosinase, tyrosinase-related protein-1 and tyrosinase-related protein-2, which catalyze the production of melanin. While tyrosinase is the first and a rate-limiting step in melanogenesis, protection against UV rays is guaranteed by the tanning response in which radiation triggers the production of melanin in the melanocyte.

Localized in the basal layer of the epidermis there are specialized cells which synthesize melanin in organelles called melanosomes. Melanosomes are transferred, via dendrites, to the neighbouring keratinocytes where they generate a protective screen around the cell nucleus. The key upstream components of the melanin cascade process are the alpha-melanocyte-stimulating hormone (α -MSH) and its receptors, the G-protein coupled melanocortin-1 receptor (MC1R) binding of alpha-MSH to MC1R increases the intracellular level of cAMP, which finally loads to an increased expression of the tyrosinase gene that encodes the rate-limiting enzyme in the synthesis of melanin, the

black brown eumelanin and the reddish-yellow pheomelanin.

Given this complex process governing the synthesis of melanin, many are the active ingredients synthesized from the industry to whitening or darkening the skin by the use of cosmetic products. An up-to-day of the more innovative compounds is reported and discussed in this section by many scientists.

Health hair should be manageable and beautifully, silk and soft, just like skin. Therefore products claiming a multitude of benefits for healthy hair bombard the consumers.

Among the cosmetically used ingredients, many compounds are produced as active agents for hair. Thus, **Section V**, by 7 chapters (34 to 40), is completely dedicated to *Hair Care*.

Like skin, hair can deteriorate their texture. The main problem being dryness or oiliness, caused not only by internal physiological factors or ageing but also by external problems such as dry atmosphere, wind, sun, or pollution. Many cosmetic products, formulated to ameliorate the hair fiber characteristic, are therefore claimed for their activity as: anti-frizz, build up, colour fastness, cure retention, flyaway reduction, holding ability, protective from the sun rays etc.

Like skin, hair, in fact, is susceptible to damage from exposure to the sun. This damage affects its aesthetics, and mechanical and physical properties, resulting in dull, flat hair.

The effects of UVB radiation resulting in the breakdown of disulfide bonds inside the hair fiber and on the surface of the cuticle, as well as UVA rays provoking a significant and perceivable change in the dyed red hair colour. Thus, a new broad-spectrum UV filter (Quaternium -95) to protect hair from colour fading and integrity damage has been developed for rinse-off formulations.

Moreover, the understanding of the hair chemistry and interaction between aminoacids and its structure has provided a base for the development of hair care formulations containing hydrolyzed proteins, and aminoacids. As previously reported, UV radiation photo-oxides the hair proteins. This photo-oxidation leads to cleavage of disulfide bonds, cross-linking of proteins, and breaking of the thioester bonds, resulting in the release of bound surface lipids. These reactions lead to a deterioration of the hair properties, noticeable to consumers in the form of poor manageability, dryness and brittleness, loss of shine, and in extreme cases, decreased strength, and fiber breakages.

The actives, as some keratin biopolymers that can address these negative issues and prevent them from occurring, clearly have an antiaging efficacy with the potential to maintain youthful hair. Other cosmetic ingredients, as *sodium shale oil sulfonate*, have an antidandruff activity, as well as some botanical extracts, targeting the hair follicle basement membrane, seem capable to improve the hair growth conditions. The basement membrane plays, in fact, an essential role in maintaining the health and cohesion of the hair follicle. *In vivo* tests indicate that boosting the expression of proteins implicated in cell adhesion and cell-matrix interactions results in positive effect on hair growth.

However, being the hair follicle a complex and complete structure, further studies are required to better characterize the delivery of actives through the hair follicle. These and other topics are reported and discussed on this section, where men and female pattern baldness are both considered.

The book ends with other three chapters dedicated to the *Antiaging benefits of a blend of fragrances*, and botanicals exhibiting not only a contemporary pleasure of scent and an antiaging activity, have also the cleaning and antidandruff efficacy of a zinc alkyl ether sulphate or an anticellulite activity affecting the skin appearance by mechanisms such as lipolysis, lipogenesis and water drainage. This is the case of a botanical blend from *bupheurum falcatum* root extract when added with caffeine. However, the psychological effect of using a slimming cream or a gel, aided by massages, may also

helping in focusing individuals on changes in life style, such as diet and physical activity, which could add to the benefits of the topical treatment.

This interesting book, reporting all the more advanced ingredients used today in the cosmetic field, may be of interest and help not only for Cosmetic Chemists working to formulate more innovative cosmetic products, but also for Dermatologists and Pharmacologists to understand in a better way the progress the Cosmetic Dermatology reached during the last years.

This book should be in the library of all Scientists and Students who wish to be updated on the fascinating field of Beauty and Wellness.

P. Morganti
Editor-in-Chief

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