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(54) Title: DYE THAT IS SELF-SHINING AND HAS PEARL EFFECT IN UNLIGHTED ENVIRONMENTS AND THE PRODUCTION METHOD THEREOF

(57) Abstract: The present invention is related to dye composition with pearl effect, which consists of 96% dye composition with pearl effect, 0.26-0.28% flow additive, 0.045-0.067% synthetic solvent, 0.67-0.80% anti-precipitating agent, 0.95-0.98% hydrocarbon alkyd resin, 0.03-0.052% castor oil, 0.158-0.183% long oil soya oil based alkyd resin, 1.90-2.13% phosphorescent pigment, 0.0051-0.0069% of 6% cobalt octoate, 0.036-0.0418% of 4% calcium octoate, 0.11 -0.73% jojoba oil, and 0.065- 0.072% titanium dioxide by weight, is produced in dye chemicals industry, provides decorative appearance and noticeability thanks to the pearl effect in lighted environment (daytime), and provides pearl effect by shining by itself in the unlighted environments (night); and also the present invention is related to the production method of said composition.

## DESCRIPTION

# Dye That is Self-Shining and Has Pearl Effect in Unlighted Environments and the Production Method Thereof

## TECHNICAL FIELD

The present invention is related to dyes provided in dye chemicals industry, which both provide decorative appearance and noticeability thanks to pearl effect in lighted environments (daytime) and ensure pearl effect by shining by itself in unlighted environment (night), and the production method thereof.

## STATE OF ART

In the state of art, the dyes that provide pearl effect in the applications performed on wall surfaces are only applied to provide effect in lighted environments. Since, dyes with pearl effect can only be seen in lighted environment and fulfill their functions. However, the dyes with pearl effect cannot fulfill said function in dark, namely, unlighted environments.

As the present articulated lorries and closed trailers are dyed with standard dyes, the light reflectors are positioned in order to increase visibility thereof for traffic safety in both lighted and unlighted environments. The visibility of closed trailers in both lighted and unlighted environments are not enough in terms of traffic safety. Moreover, the light reflectors are not effective as much as the dye and they have limited usage area; therefore, additional costs arise for both producer and consumer.

In the state of art, the visible parts of the doors in outdoor and indoor areas such as houses, work places, offices, schools and apartments are dyed with standard dye (top coat).

People have to go towards the doors for leaving the indoor area where they are present in the case of fire, earthquake and similar dangerous moments as soon as possible. Therefore, the doors cannot be visible due to dark arising from sudden electric cut in the cases such as earthquake, fire and etc. in unlighted environments. In order to make them visible, additional reflectors and similar objects are positioned thereon in the state of art. In such conditions, several seconds that are lost lead people to be damaged severely and even, to deaths.

In the state of art, the problem called bubbling is experienced on the surfaces applied with similar dyes due to particles. Therefore, problems are experienced and the usage area is limited in the state of art.

The dyes with pearl effect in the state of are not resistant against especially UV lights. In addition, they are not effective against bacterial and mold growth.

As a result of the abovementioned drawbacks and the insufficiencies of the present solutions regarding the subject, the need for a novel production method and a novel product arises in the dye chemicals industry.

**BRIEF DESCRIPTION OF THE INVENTION**

The present invention is related to a novelty for dye chemicals industry, which meets the abovementioned requirements, eliminates all the advantages and offers some additional advantages.

In the state of art, the dyes that provide pearl effect in the applications performed on wall surfaces are only applied to provide effect in lighted environments. Since, dyes with pearl effect can only be seen in lighted environments.

An object of the present invention is to provide the wall surfaces in the state of art with pearl effect by shining by itself in daytime, namely, in the lighted environments, and at night, namely, in unlighted environments, and to achieve advantage for making the areas used by the consumer while making decorative choices, more characteristic, and to increase the satisfaction of the consumer thanks to usage thereof in both ways.

As the present articulated lorries and closed trailers are dyed with standard dyes, the light reflectors (reflectors and etc.) are positioned in order to increase visibility thereof for traffic safety only in unlighted environments.

Another object of the present invention is to increase the visibility thanks to the pearl effect in both lighted (daytime) environments and thanks to self-shining pearl effect in unlighted (night) environments by dyeing the articulated lorries and closed trailers with the dye according to the present invention without additional costs and limited usage area. Another object of the present invention is to provide maximum visibility in unlighted environments by reflecting the light arriving in several angles, like a light reflector no matter what the color of

the light is. Thanks to said feature, the traffic safety will be ensured and the accidents will be minimized with the facilities provided in several conditions and also, the financial and emotional damages that will caused by the accidents will be minimized.

In the state of art, the visible parts of the doors in outdoor and indoor areas such as houses, work places, offices, schools and apartments are dyed with standard dye (top coat). People have to go towards the doors for leaving the indoor area where they are present in the case of fire, earthquake and similar dangerous moments as soon as possible. Therefore, the doors cannot be visible due to dark arising from sudden electric cut in the cases such as earthquake, fire and etc. in unlighted environments.

Another object of the present invention is to provide the indoor and outdoor doors with decorative appearance and visibility in both lighted environments (daytime) thanks to pearl effect, and to increase the visibility of the doors in unlighted environments (night) in sudden electric cut in the conditions such as earthquake, fire and etc., and to direct the people towards a more secure way and to decrease the injuries and deaths in the situations when even a few seconds are vital thanks to more visible exit doors.

In the state of art, the dyes with pearl effect used in our daily lives will be provided with pearly effect in both lighted and unlighted environments. In addition, the dye with pearl effect has the characteristic of maintaining said effect for a longer time and will appeal to a wider usage area in the related sector.

The dye which is visible in unlighted environment, and provides pearl effect in unlighted environment by itself, transfers its light release in the unlighted environment when it is in lighted environments in direct proportion with the light exposure period and lumen intensity (lighting intensity).

The dye that is self-shining in unlighted environment and has pearl effect, makes the dyes with pearl effect, which are visible in lighted environment, more resistant against mold, bacteria and especially, UV lights.

The dye that is self-shining in unlighted environment and has pearl effect, creates a smoother layer on the application surfaces when compared to the dyes with pearl effect, which are visible in lighted environment.

Pigment volume concentration (PVC) is used in order to increase the pigment volume in the

formula of many standard dyes. The dye that is self-shining in unlighted environment and has pearl effect according to the present invention, provides said effect with pearl-effect acrylic copolymer emulsion based dye and the dye mixture according to the present invention is provided with the same feature with a larger volume. Therefore, the costs are minimized and the dye according to the present invention becomes more economical.

In order to achieve said objects, the composition required for preparing 2750 gr of the dye that is self-shining in lighted environments and has pearl effect according to the present invention, comprises the following by weight; 1.79 gr titanium dioxide, 2.95 gr jojoba oil, 1.0 gr of 4% calcium octoate, 0.14 gr of 6% cobalt octoate, 52.31 gr phosphorescent pigment, 4.35 gr long oil soya based alkyd resin, 0.84 gr castor oil (liquid), 26.15 gr hydrocarbon alkyd resin, 0.72 gr anti-precipitating agent, 18.52 gr synthetic solvent, 1.23 gr flow additive, and 2640 gr dye with pearl effect.

In order to achieve said objects, the production method of the dye that is self-shining in lighted environments and has pearl effect, comprises the following process steps;

- Grinding and powdering the solid crystallized hydrocarbon alkyd resins in a dry manner,
- Mixing and slowly heating the powder hydrocarbon alkyd resin and synthetic solvent in a metal receptacle until a homogeneous liquid is achieved,
- Leaving the liquid hydrocarbon alkyd resin to cool,
- Adding anti-precipitating agent into the plastic receptacle in which hydrocarbon alkyd resin is put, and mixing the mixture by means of homogenizer mixer,
- Adding titanium dioxide, jojoba oil, long oil soya based alkyd resin, castor oil, hydrocarbon alkyd resin, synthetic solvent, flow additive, 4% calcium octoate, 6% cobalt octoate, and mixing thereof again by means of homogenizer mixer for approximately 30 minutes,
- Covering the top of the mixture obtained so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights,
- Adding phosphorescent into the rested mixture and slowly mixing thereof by means of wood or plastic-end mixer,
- Shaking the mixture by means of a shaking machine,
- Obtaining the first mixture by resting the mixture obtained in a dark environment without humidity and UV lights in a covered manner so as to prevent the air leakage,
- Placing the standard pearl white dye with pearl effect into a plastic receptacle, adding castor oil, jojoba oil and synthetic solvent and mixing thereof by means of a metal-

end mixer for mixing with the first mixture in order to prepare the dye, and obtaining a second mixture,

- Resting the second mixture obtained,
- Mixing and shaking the first and the second mixtures prepared,
- Joining said two mixtures and obtaining a third mixture,
- Covering the top of the third mixture so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights,
- Adding the third mixture into the dye with pearl effect and shaking thereof with a shaker in a tightly covered receptacle,
- Resting the final mixture obtained.

The dye that is developed for achieving said objects, is self-shining in lighted environments and has pearl effect is prepared.

**DETAILED DESCRIPTION OF THE INVENTION**

In this detailed description, the dye that is self-shining in unlighted environments and has pearl-effect according to the present invention is only described for the subject to be understood better without any limiting effect.

The present invention is related to dyes provided in dye chemicals industry, which both provide decorative appearance and noticeability thanks to pearl effect in lighted environments (daytime) and ensure pearl effect by shining by itself in unlighted environment (night).

The composition of the dye according to the present invention comprises dye with pearl effect, flow additive, synthetic solvent, anti-precipitating agent, hydrocarbon alkyd resin, castor oil, long oil soya based alkyd resin, phosphorescent pigment, 6% cobalt octoate, 4% calcium octoate, jojoba oil and titanium dioxide.

The content and rates of the dye that is self-shining in lighted environments and has pearl effect, are given in Table 1.

**Table-1: The content and rates of the dye that is self-shining in lighted environments and has pearl effect**

| CONTENT | PREFERRED AMOUNT (GR) | USABLE AMOUNT (gr) | PERCENTAGES BY WEIGHT |
|---|---|---|---|
| Titanium Dioxide TiO2 (Powder) | 1.79 | 1.79-1.97 | 0.065-0.072 |
| Jojoba Oil (Liquid) | 2.95 | 2.95-4.10 | 0.11-0.73 |
| 4% calcium octoate (liquid) | 1.0 | 1.0-1.15 | 0.036-0.0418 |
| 6% cobalt octoate (liquid) | 0.14 | 0.14-0.19 | 0.0051-0.0069 |
| Phosphorescent pigment | 52.31 | 52.31-58.65 | 1.90-2.13 |
| Long oil soya oil based alkyd resin (liquid) | 4.35 | 4.35-5.05 | 0.158-0.183 |
| Castor Oil (Liquid) | 0.84 | 0.84-1.44 | 0.03-0.052 |
| Hydrocarbon alkyd resin (liquid) | 26.15 | 26.15-27.04 | 0.95-0.98 |
| Anti-precipitating agent (powder) | 0.72 | 0.72-0.77 | 0.26-0.28 |
| Synthetic solvent (white sprit) (liquid) | 18.52 | 18.52-22.12 | 0.67-0.80 |
| Flow additive (liquid) | 1.23 | 1.23-1.86 | 0.045-0.067 |
| Dye-with pearl effect (liquid) | 2640 | 2640-2750 | 96-100 |

The content and rates of the dye that is self-shining in lighted environments and has pearl effect, are detailed below.

**Titanium Dioxide ($TiO_2$) :**

Titanium dioxide decreases the light release (loss of gloss) of the light absorbed by phosphorescent pigment in the unlighted environment and also increases the rate of light absorbance in lighted environment within the functioning of the present invention and

titanium dioxide contributes to the functioning of the invention by providing conciliating balance between two functions.

**Jojoba Oil:**

In the present invention, jojoba oil is created with an alcohol group of long-chain branches and may be said to be the oil that is most resistant against temperature and beam of lights thanks to fatty acid property thereof.

Thanks to said property, jojoba oil is still used in the most developed motor oils of the world and even as lubricant in the rocket motors of NASA. Thanks to said property of jojoba oil, the paint makes the present invention more resistant against UV lights and time.

Especially, it minimizes the harmful effects of UV lights, to which phosphcrescent pigment is exposed, and enables the pigment to fulfill its function for longer years effectively.

In the present invention, jojoba oil homogenizes the paint mixtures better and thereby, contributes to the functionality of the present invention to a great extent.

Thanks to scientific studies conducted, it is thought that the service life jojoba oil longs for centuries without losing its property. In addition, it is stored under several temperatures without losing said property.

Jojoba oil provides the mixture it is included with the property of resistance against bacterial and mold growth.

**4% Calcium Octoate (liquid):**

Within the invention, it serves as auxiliary drying agent and heating agent.

**6% Cobalt Octoate**

It provides rapid protection on the surfaces, on which it is applied, and minimizes the effect of oxygen inhibitor in the air.

**Phosphorescent Pigment (Powder):**

It absorbs the light pieces in the lighted environments within its own structure and releases the light pieces absorbed within its own structure into the unlighted environments slowly.

**Long Oil Soya Oil Based Alkyd Resin (liquid):**

This element contributes within the invention thanks to its properties such as binding with other elements, accepting pigments at a higher level and high resistance against yellowing. In addition, it also contributes to pre-drying and final drying.

**Castor Oil:**

This element contributes to the functioning of the present invention with its ricinoleic acid property and enables the invention to create a better film on the surface to which it is applied by ensuring binding between pigments during mixing the mixture.

**Hydrocarbon Alkyd Resin:**

This element strengthens the sticking of the mixture on the surface, to which it is applied, and increases the physical resistance thereof and it contributes to the functioning of the present invention by preventing the contact of elements of the invention with air during and after the mixture and preventing the oxygen inhibitors.

Hydrocarbon alkyd resins are the leading ones among the alkyd resins with highest resistance.

**Anti-precipitating agent:**

This element contributes to the functioning of the present invention by eliminating the flowing problems while the dye is applied on the surfaces, especially when it is applied vertically, thanks to strong thixotropic effect thereof, preventing the precipitation of pigments in the dye mixture and enabling the dye mixture to spread better on the surface it is applied.

**Synthetic solvent:**

This element contributes to the functioning of the present invention by enabling the other element additives in the dye mixture to be mixed better.

**Flow Additive Liquid:**

Within the present invention, said element enables to achieve applicable surface liquidity property on the surface areas, to which the dye mixture will be applied. In addition, it also contributes within the present invention by controlling the liquidity on the surface areas to be applied.

**Dye-with pearl effect (liquid):**

Within the present invention, the dye with pearl effect is the dye that has synthetic dye properties and comprises pearl pigment.

The production method of the dye that is self-shining in lighted environments and has pearl effect, comprises the following process steps;

- Powdering the solid crystallized hydrocarbon alkyd resins by grinding in a dry manner by means of a grinding machine,

- Slowly heating the powder hydrocarbon alkyd resin with synthetic solvent (for 100 gr; 60 gr hydrocarbon alkyd resin and 40 gr synthetic solvent) in a metal receptacle at a very low temperature (at max. 35°C and in an electric-resistance and electronically temperature-controlled heater and the like), and mixing thereof by means of a metal-end mixer until homogeneous liquid is achieved,

- Leaving hydrocarbon alkyd resin for cooling after liquid is achieved (the temperature of the mixture should not be below 22°C),

- Putting 13.40 gr of hydrocarbon alkyd resin into a plastic receptacle and adding 0.72 gr anti-precipitating agent into the same receptacle, Mixing the mixture obtained at 2500 rpm for the first 4 minutes and at 5000 rpm for the next 10 minutes, totally for 14 minutes, by means of a homogenizer mixer,

- After taking the mixture that is mixed in homogeneous mixer, adding 1.79 gr titanium dioxide, 0.07 gr jojoba oil, 4.35 gr long oil soya based alkyd resin, 0.12 gr castor oil, 12.75 gr hydrocarbon alkyd resin, 12.12 gr synthetic solvent, 1.23 gr flow additive, 1.0 gr of 4% calcium octoate and 0.14 gr of 6% cobalt octoate, and mixing again by means of homogenizer mixer, mixing said mixture at 1500 rpm for the first one minute, at 3000 rpm for the next 4 minutes, at 5000 rpm for the following 20 minutes, and finally, at 6000 rpm for 5 minutes, totally for 30 minutes (the temperature of the mixture should not be above 35°C during said mixture),

- After the mixing is completed, covering the top of the mixture obtained so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights until the temperature of the mixture reaches 22°C,

- Adding 52.31 gr phosphorescent powder pigment into the rested mixture and slowly mixing thereof by means of wood or plastic-end mixer at 500 rpm for 20 seconds,

- Shaking the mixture by means of a shaking machine for 10 minutes,

- After the shaking is completed, covering the top of the mixture so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights for at least one hour in such a manner that the temperature of the mixture is not below 22°C for at least one hour,

- In order to be mixed with 100 gr mixture that is in the stage of resting, placing 132 gr (5% of the weight) of the standard pearl white dye with pearl effect and with a density of 1.1 gr/ml into a plastic receptacle, and adding 0.72 gr castor oil, 2.88 gr jojoba oil, 6.40 synthetic solvent (totally 142 gr) by means of a metal-end mixer in order to prepare 142 gr dye, and obtaining the second mixture, mixing the second mixture at 2000 rpm for approximately 7 minutes and stopping the machine,

- Resting the second mixture for 6 hours (the temperature should not be below 22°C),

- Adding the first mixture into the second mixture and shaking for 30 minutes by means of a mixer,

- After the shaking is completed, covering the top of the mixture so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights for at least 6 hours in such a manner that the temperature of the mixture is not below 22°C,

- Adding 242 gr of dye mixture obtained into 2508 gr of dye mixture with pearl effect, covering the receptacle tightly and mixing thereof again by means of a shaker for 30 minutes (during said mixing, the temperature of the mixture should not be above 35°C),

- Finally, resting the whole mixture for at least 12 hours.

The dye that is self-shining in lighted environments and has pearl effect according to the present invention is a top coat that can be wiped. The surfaces that will be applied are required to be humidity-free, smooth, durable and resistant. If the surfaces are not smooth, they are required to be smoothened by means of acrylic copolymer emulsion based paste (preferably white). Whether the surfaces are pasted or not, acrylic copolymer emulsion based paste undercoat is required to be used in order to decrease the absorbance of the surfaces and increase the adherence surfaces by creating adherence bridge. Application of said paste and paste undercoat can be performed under the directions of the product producer. In order to smoothen the surfaces, the materials such as satin plaster, which lead to dusting, should not be used.

The diluent is not used while applying the dye that is self-shining in lighted environments and has pearl effect according to the present invention; it is ready for use. If it is desired to be thinned, synthetic thinner can be added so as not to exceed 10% of the total weight.

The dye that is self-shining in lighted environments and has pearl effect according to the present invention should be applied in at least two layers. The increase in the layers is in direct proportion with lumen (lighting rate) of the dye according to the present invention.

The dye that is self-shining in lighted environments and has pearl effect is required to be applied with max. 10% synthetic solvent by thinning, if air-free dye spray gun is desired to be used. The pressure of air-free spray gun is required to be 140 bars. The size of nozzle of air-free spray gun is required to be 0.013".

The usage area of the dye that is self-shining in lighted environments and has pearl effect

may be broadened and varied by adding glitter powder and quartz sand into the dye.

The protection scope of this application is determined in the section of claims and can never be limited with the descriptions given as examples above. It is clear that an expert in the related technical field can disclose the novelty provided in the present invention by using similar embodiments and/or can apply said embodiment in the other fields that are used in the technical field for the same objects. Therefore, it is clear that said kind of embodiments will lack of the criteria of novelty and exceeding the state of art.

## CLAIMS

**1.** A composition relating the production method of the dye that is self-shining in lighted environments and has pearl effect, characterized in comprising;

- dye with pearl effect used for providing pearl effect,
- flow additive liquid for achieving surface liquidity property,
- anti-precipitating agent used for preventing the flowing problems experienced on the surfaces,
- castor oil ensuring binding between pigments and enabling the dye according to the present invention to create a better film on the surface to which it is applied,
- hydrocarbon alkyd resin increasing physical resistance of dye to a great extent and preventing the air contact thereof to a great extent,
- long oil soya based alkyd resin achieving high level of yellowing resistance and effective pigment receiving,
- phosphorescent pigment that absorbs light pieces in lighted environments within its own structure and slowly releases back said light pieces in the unlighted environments,
- 6% cobalt octoate ensuring rapid drying,
- 4% calcium octoate providing auxiliary drying agent and heating agent properties,
- jojoba oil that decreases the harmful effects of UV lights, to which phosphorescent pigment is exposed, enables thereof to function for longer years effectively, increases resistance against heat/light, prevents bacterial growth, and homogenizes mixture in a better manner,
- titanium dioxide ($TiO_2$) which increases light absorbance rate in the lighted environment, prevents light loss in the unlighted environment, and has a conciliating property,
- synthetic solvent providing the other element additives in dye mixture to be mixed better.

2. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said dye with pearl effect is 96% by weight of the dye composition.

3. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said flow additive is 0.26-0.28% by weight of the dye composition with pearl effect.

4. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said synthetic solvent is 0.045-0.067% by weight of the dye composition with pearl effect.

5. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said anti-precipitating agent is 0.67-0.80% by weight of the dye composition with pearl effect.

6. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said hydrocarbon alkyd resin is 0.95-0.98% by weight of the dye composition with pearl effect.

7. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said castor oil is 0.03-0.052% by weight of the dye composition with pearl effect.

8. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said long oil soya oil based alkyd resin is 0.158-0.183% by weight of the dye composition with pearl effect.

9. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said phosphorescent pigment is 1.90-2.13% by weight of the dye composition with pearl effect.

10. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said 6% cobalt octoate is 0.0051-0.0069% by weight of the dye composition with pearl effect.

11. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said 4% calcium octoate

is 0.036-0.0418% by weight of the dye composition with pearl effect.

12. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said jojoba oil is 0.11-0.73% by weight of the dye composition with pearl effect.

13. The composition of the dye that is self-shining in lighted environments and has pearl effect according to Claim 1, characterized in that the amount of said titanium dioxide is 0.065-0.072% by weight of the dye composition with pearl effect.

14. The production method of the composition of the dye that is self-shining in lighted environments and has pearl effect, characterized in that it comprises the following process steps;

- Powdering the solid crystallized hydrocarbon alkyd resins by grinding in a dry manner,
- Slowly heating the powder hydrocarbon alkyd resin and synthetic solvent by mixing in a metal receptacle until a homogeneous liquid is achieved,
- Leaving the liquid hydrocarbon alkyd resin to cool,
- Adding anti-precipitating agent into the plastic receptacle in which hydrocarbon alkyd resin is put, and mixing the mixture by means of homogenizer mixer,
- Adding titanium dioxide, jojoba oil, long oil soya based alkyd resin, castor oil, hydrocarbon alkyd resin, synthetic solvent, flow additive, 4% calcium octoate, 6% cobalt octoate, and mixing thereof again by means of homogenizer mixer for approximately 30 minutes,
- Covering the top of the mixture obtained so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights,
- Adding phosphorescent into the rested mixture and slowly mixing thereof by means of wood or plastic-end mixer,
- Shaking the mixture by means of a shaking machine,
- Obtaining the first mixture by resting the mixture obtained in a dark environment without humidity and UV lights in a covered manner so as to prevent the air leakage,
- Placing the standard pearl white dye with pearl effect into a plastic receptacle, adding castor oil, jojoba oil and synthetic solvent and mixing thereof by means of a metal-end mixer for mixing with the first mixture in order to prepare the dye, and obtaining a second mixture,
- Resting the second mixture obtained,
- Mixing and shaking the first and the second mixtures prepared,

- Joining said two mixtures and obtaining a third mixture,
- Covering the top of the third mixture so as to prevent the air leakage, and resting thereof in a dark environment without humidity and UV lights,
- Adding the third mixture into the dye with pearl effect and shaking thereof with a shaker in a tightly covered receptacle,
- Resting the final mixture obtained.

**15.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that solid crystallized hydrocarbon alkyd resins are ground and powdered in a dry manner.

**16.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that the powder hydrocarbon alkyd resins and synthetic solvent, in a way to be 60% hydrocarbon alkyd resin and 40% synthetic solvent, are mixed in a metal receptacle until a homogeneous liquid is achieved.

**17.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that said liquid hydrocarbon alkyd resin is left for cooling in such a manner that the temperature thereof will not be below 22°C.

**18.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that anti-precipitating agent is added into the plastic receptacle in which hydrocarbon alkyd resin is put, and the mixture is mixed by means of homogenizer mixer.

**19.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that titanium dioxide, jojoba oil, long oil soya based alkyd resin, castor oil, hydrocarbon alkyd resin, synthetic solvent, flow additive, 4% calcium octoate, and 6% cobalt octoate are added into said mixture and they are mixed again by means of homogenizer mixer in such a manner that the temperature of the mixture will not be above 35°C.

**20.** The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 19, characterized in that the top of said mixture is covered so as to prevent the air leakage, and it is rested in a dark environment without

humidity and UV lights until the temperature reaches 22°C.

21. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 20, characterized in that phosphorescent is added into said rested mixture and it is slowly mixed by means of wood or plastic-end mixer at 250-1000 rpm.

22. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 21, characterized in that said mixture is shaken by means of a shaking machine.

23. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 22, characterized in that the top of said mixture is covered so as to prevent the air leakage, and it is rested in a dark environment without humidity and UV lights, and the first mixture is obtained.

24. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claim 14, characterized in that the standard pearl white dye with pearl effect is placed into a plastic receptacle, castor oil, jojoba oil and synthetic solvent are added and mixed by means of a metal-end mixer for mixing with the first mixture in order to prepare the dye, and a second mixture is obtained.

25. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 24, characterized in that said second mixture is rested after being prepared.

26. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14, 23 and 25, characterized in that said first mixture and second mixture are shaken by mixing.

27. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 26, characterized in that the top of said third mixture is covered so as to prevent the air leakage and it is rested in a dark environment without humidity and UV lights.

28. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 27, characterized in that said third mixture is

added into the dye with pearl effect and it is shaken with any shaker in a tightly covered receptacle.

29. The production method of the dye that is self-shining in lighted environments and has pearl effect according to Claims 14 and 28, characterized in that said third mixture is left for resting in such a manner that the temperature thereof will not be below 22°C.

# INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2014/000122

A. CLASSIFICATION OF SUBJECT MATTER
INV. C09D5/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C09D C08K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

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| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 22 October 2014 | 29/10/2014 |

| Name and mailing address of the ISA/ | Authorized officer |
|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Kositza, Matthias |

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International application No
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| A | WO 00/15351 A1 (INNOVATIVE CONCEPTS UNLIMITED [US]) 23 March 2000 (2000-03-23)<br>claims 1-26 and examples 1-4 | 1-29 |
| A | WO 2010/040444 A1 (MERCK PATENT GMBH [DE]; SMOLKA RUEDIGER [DE]; ALMEIDA GUIMARAES ANTONI) 15 April 2010 (2010-04-15)<br>claims 1, 7, 9, 10,11 and examples 1-4 | 1-29 |

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