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⑤④ **Method for removing paint.**

⑤⑦ Method for removing paint from a surface preferably a paint layer comprising an organic binding agent and which has previously been applied on the surface whereby a paint solving agent is supplied on the paint layer and is allowed to act during a period. A rinsing agent is in one or several turns applied on the solved paint and is immediately after application together with the paint sucked away from the surface.

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Method for removing paint

This invention relates to a method for removing paint from a surface, for instance a layer of paint on a wall surface on a building, the paint preferably containing an organic binding agent which is chemically solvable by means of a paint solving agent which is supplied on the layer of paint and which is allowed to
5 act during a period needed for having it solved.

Removing paint has always been combined with great difficulties and in particular removing organic paints such as oil paints, plastic paints etc. The old linseed oil paint was removed only when the total paint layer was too thick. Scraper and blow lamp were effective means, but needed hard work and were not quite
10 riskless. Also lye was used on certain occasions in order to solve the paint layer which was then rinsed with water. Establishing the plastic paints on the market meant that the difficulties to a great degree increased. Different plastics were used as binding agents and plastic paints were used for painting surfaces which were not suited for that kind of paint. A well known example is "tight" plastic paints on
15 plaster.

The methods which up to now have been most common are blasting, high pressure cleaning of different kinds and use of paint removing agents which are rinsed together with the paint, often by means of a liquid under high pressure. For obvious reasons no one of these methods can be used indoors without taking very
20 extensive protective measure. When using all said methods outdoors, they have proved to cause larger or smaller damages on the surface. In particular, this is the case with plastic painted plaster.

The three known methods leave several things to be desired with respect to the environment. Both for the person working with the method and for the
25 environment in general terms. It is necessary to take extensive protective measure in order not to spread dust, drops of water or chemicals around the object in question.

Further at a great part of our public environment there is a particular need for a flexible and cheap method for removing paint. The public environment is exposed to an extensive scrawling activity where spray-paint, spirit-pencils etc. are the most common tools for scrawling. Today there is no flexible and cheap paint removing method.

In the patent literature removal of paint by a chemical - mechanical method has been described in US patent 932.738. According to the method a paint removal agent is applied on the painted surface after which a nozzle is used to remove the solved paint. The nozzle is via a hose connected to a vacuum source, which is an ejector, and a container in which the solved paint and the paint removal agent is collected. The method has however not been used in practice during the long time which has elapsed since the patent was sealed. Probably this depends on that the mixture of paint and liquid which is to be transported away from the surface is very difficult to handle and not without further measures follows the air stream.

The purpose of this invention is to achieve a method for removing paint which has not the drawbacks which the known methods have. The purpose has been achieved by means of a method in which a paint solving agent is supplied on a paint layer on a surface and is allowed to act a period until the layer has been solved. The method is characterized in that a rinsing agent in one or several turns is applied on the solved paint and immediately after application together with the paint is sucked away from the surface. It has proved to be advantageous to combine the chemical treatment with a mechanical treatment of the surface since that supports the fragmentation and loosening of the paint from the surface. The mechanical treatment can for instance be made by scraping means, brushes or the like which are applied on the nozzle which is used for sucking up the mixture. Supply of the rinsing agent should, when removing certain types of paint, preferably be directed to the place of the nozzle where the paint is collected before it is sucked away. The choice of rinsing agent depends on the type of paint. Plastic paint usually demands for chemical agents of different types and in some cases also warm air could be used whereas water can be used for alcalic paint such as oil paint. The temperature of the water should in that case be more than 40°C. An after treatment agent can be applied on the surface at the same time as the solved paint layer is sucked away. Such an after treatment agent is used to remove reminders of the paint solving agent and stabilize the surface after removing the paint so that a new paint layer can be applied on the surface without being damaged by any remaining paint solving agent.

The rinsing water is as a rule applied with a comparatively low pressure which is choosen with respect to the character of the surface i.e. so that damages do not arise on the surface and so that not to large water quantities are pressed

into any opening in the surface.

The solved paint is transported to a separation unit in which the paint solving agent together with the paint is separated from the water. Then the paint solving agent is separated and reactivated in an activator unit so that it can again be used
5 for solving paint layers.

This invention has the advantage that the bed, that is the surface on which the paint is supplied, is spared. Also sensitive beds as for instance bad plaster can simply be cleaned without damages. Further the method is very rapid and gives a bed which is dry, stabilized and which can immediately be used for repainting. By
10 the invention also maximum cleanness and stability is achieved. It should be pointed out that also the outer porous structure of the surface by this method can be effectively cleaned.

The method is very suitable for removing paint indoors. Scrawling is easily removed and also fireclassified paint when repainting corridors, stair-wells and
15 other evacuation rooms. (The fire classification presupposes a certain maximum paint layer). The method makes a completely controlled and environment friendly use possible. It is further possible to reuse a reactivated paintremoving agent which makes the method economically competitive.

The invention will be described by means of an example with reference to the accompanying figure which schematically shows a complete plan for sucking away paint, applying an after treatment agent and transportation and separation of the paint solved.
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In the figure 10 is a surface on which a paint layer 11 is applied. A paint solving agent is sprayed on the print layer 11 and is allowed to act for some time.
25 Then a nozzle 12 is moved on the surface the nozzle being provided with a fixed or movable brush for mechanical treatment of the surface. The nozzle 12 is by means of a hose 13 connected to a container 14 which in turn is connected to a vacuum source 15. The nozzle is also by means of a hose 16 connected to a rinsing agent container 17 from which a rinsing agent is transported to the nozzle in the hose 16.
30 The rinsing agent container can be provided with means, not shown, for heating the rinsing agent. If the rinsing agent is water it should have a temperature which is more than 40°C and preferably is 70-90°C. The rinsing agent is mixed with the solved paint reminder and the paint removal agent and is sucked away in the hose 13 to the container 14 in which it is collected. By choosing the quantity of
35 rinsing agent supplied with respect to the capacity of the suction nozzle it is possible to remove the paint and liquid with a minimum of spill.

The mixture of the paint solving agent and rinsing agent in the container 14 can then be transported to a cleaning plant 18 from which the rinsing agent is

separated and leaves via an outlet 19 and as an alternative is brought back to the rinsing agent container 17. The paint solving agent and the solved paint might also be transported to a separation unit 20 in which the paint removing agent is separated from the paint remainders these remainders leaving through an outlet 21
5 and later being taken care of in a separate plant for destruction of waste which is dangerous for the environment. The paint removing agent is transported to an activator unit 22 in which the removal agent is reactivated and leaves through an outlet 23 so that it can again be used for removing paint.

The rinsing container 17 is via a hose connected to a container 24 for an after
10 treatment agent. This agent is supplied to the rinsing water during the last treatment of the wall in order to give the surface a pH-value which is about 7.

C l a i m s

1. Method for removing paint from a surface preferably a paint layer comprising an organic binding agent and which has previously been applied on the surface whereby a paint solving agent is supplied on the paint layer and is allowed to act a period, c h a r a c t e r i z e d in that a rinsing agent in one or several turns is
5 applied on the solved paint and immediately after application together with the paint is sucked away from the surface.
2. Method according to claim 1, c h a r a c t e r i z e d in that the rinsing agent is water.
3. Method according to claim 1 or 2, c h a r a c t e r i z e d in that the
10 chemical removal of paint is combined with a mechanical treatment.
4. Method according to any of claims 1-3, c h a r a c t e r i z e d in that the temperature of the rinsing agent is more than 40⁰C when it is supplied.
5. Method according to any of the preceeding claims, c h a r a c t e r i z e d in that an after treatment agent is supplied together with the rinsing agent in order
15 to remove reminders of the paint solving agent and/or give the surface a pH-value of about 7.
6. Method according to any of the preceeding claims, c h a r a c t e r i z e d in that the solved paint is then transported to a cleaning plant in which the paint solving agent and the paint is separated from the rinsing agent.
- 20 7. Method according to claim 6, c h a r a c t e r i z e d in that the paint solving agent is separated and reactivated in an activator unit for reuse.
8. Method according to claim 3, c h a r a c t e r i z e d in that the solving agent is supplied near the parts where the solved paint is collected on the mechanical device which is used for the treatment.

