

Solver Paints

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PRODUCT INFORMATION

SS-108

SURFACE PREPARATION ON MASONRY/PLASTER SURFACES AND TREATMENT OF VARIOUS PROBLEMS INCLUDING POWDERY AND LOOSE SURFACES, SOFT PLASTER, EFFLORESCENCE, ETC.

It is an old axiom of the building trade that a building is only as good as its foundations and this applies equally to painting practice. Cracking and flaking caused by lack of intercoat adhesion or breakdown between earlier coats of paint and the substrate can largely be avoided by correct assessment and preparation of the surface to be painted.

On closer examination the surface may be powdery or showing signs of weak adhesion. A simple way of testing this is to stick approximately 150 mm of 25 mm clear cellulose tape firmly to the surface. Remove by tearing off very quickly and ascertain the extent to which either nothing, loose powder or flakes of paint (or substrate material) are removed. In the case of the latter two, extreme caution and adequate preparation must be used. Particularly in old buildings there may be many coats of paint, each with deteriorating adhesion over the years. Stresses of a new coat of paint can pull the whole system away, therefore, proper preparation is essential.

If the surface is chalking, even slightly, but not flaking, all the loose powder must be completely removed. Where that is impossible, and at any rate after the worst or as much as possible has been removed by scraping, washing, etc., and the property owner warned of the potential problem, SOLVER Line 4104 Surface Conditioner should be applied vigorously by brush onto the dry surface. This is a penetrant material that is capable of binding and sealing back loose surface material (not excess layers of chalk). In other words it is most useful in assisting to overcome a problem, but is not necessarily a "cure all" and is certainly not an excuse for poor cleaning down. At the best it provides the maximum adhesion possible under adverse conditions.

In some cases the tape test may indicate a failure beyond a Master Painter's responsibility to remedy, (e.g. removal of plaster layers or render coat on bagged walls, etc). In this case painting should not proceed without advice from the owner, builder, architect, etc. However, once again there are some remedies which we can recommend where the problem does not extend to stripping the wall and replastering or rendering.

In the case of soft plaster, detected by being able to easily scratch the surface with a finger nail, the wall should be treated with a 14% solution of phosphoric acid. The acid reacts with the surface, dissolving the loose surface layer and the subsequent solution is absorbed back into the wall leaving a firm surface ready for painting when dry.

Before painting new plaster walls sufficient time must be allowed for them to thoroughly dry. Not only is there water in the plaster, but also in the masonry wall to which the plaster has been applied. Drying can take up to 6 months. However, if the backing is dry when the plaster is applied painting can usually safely be undertaken 6 weeks later. We can assist in determining when the wall is sufficiently dry and unless the wall shows less than a 16% moisture content reading on a moisture meter test, painting should be delayed. If paint is applied over a "damp" surface or substrate, blistering or peeling may result. Similarly free lime and soluble salts may be taken into solution by the moisture present causing Saponification, Efflorescence, etc., resulting in poor adhesion and failure of the system, or at the best an objectionable white deposit on the surface of the paint.

Efflorescence is identified as a loose, white, fluffy surface powder and is more frequently found on Gypsum plaster walls than on fibrous plaster and usually consists of Sodium Sulphate which may have been present in the material used in the construction of the wall. All new masonry walls contain moisture and soluble alkaline salts (both in the rendering and/or the plaster coat) and Efflorescence can be formed by chemical reaction between them and the plaster. As the wall dries, Sodium Sulphate in solution is transported to the surface, where it is deposited as a bulky white precipitate when the water evaporates. Efflorescence may also result from the use of certain cleaning compounds containing Trisodium Phosphate, recommended for removing old films of paints, such as Kalsomine. Trisodium Phosphate yields Sodium Sulphate if it comes in contact with plaster, and cleaning preparations containing this compound should be avoided. If there is doubt as to whether or not it is present the manufacturer of the preparation should be consulted. If walls are painted before they are quite dry, the efflorescent salts may crystallise on top of the paint film or form beneath and lift it.

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The treatment of Efflorescence depends upon the nature of the deposit and chemical analysis is necessary to establish its composition. It is therefore advisable to seek expert advice if failures of this kind occur. However, as a general practical guide, most cases of Efflorescence are remedied by the following treatments:-

If the surface has been painted and the film is adhering well a sufficient treatment is to wipe off the Efflorescence with a dry cloth and remove the last traces with a damp cloth. If the wall is thoroughly dry no further Efflorescence will occur. If the paint is peeling, all the loose film should be removed by scraping, if necessary, and the surface should be treated with a 15% solution of Calcium Chloride before repainting. 2 coats of this solution are necessary with an interval of about 2 hours between them and the surface can be painted about 24 hours after the application of the second coat. Calcium Chloride inhibits Efflorescence by reacting with the Sodium Sulphate and converting it into Sodium Chloride, which is less undesirable from this point of view.

Painting is usually deferred until the walls are considered to be dry, but there is no completely reliable method by which the Painter may determine when the amount of free water in the plaster is low enough for painting to be safely undertaken. The best way of assessing this is by conducting a moisture meter test and until the moisture content of the wall is below 16%, painting should not commence.

To reduce the probability of trouble from Efflorescence on unpainted walls that have not been allowed sufficient time to dry thoroughly (or doubt on their condition exists) a 15% solution of Calcium Chloride should be applied, as described above, before painting.

It has been shown that the risk of Efflorescence occurring on plaster walls that have been painted before they were properly dry can be greatly reduced by adding 1-2% of Calcium Chloride to the plaster setting coat.

A test for the presence of excess alkali should also be made on new plaster and masonry walls, particularly where lime has been used. This can be simply done by moistening red litmus paper and laying on surface. If the paper changes colour (towards a pinky blue shade) then excess alkali is present and Saponification, which seriously impairs paint adhesion, will result if not treated. It is usually sufficient to allow the walls to dry thoroughly, clean down and apply one coat of SOLVER Line 4129 Wall-Sealer before proceeding with normal painting procedure.

SUMMARY:

1. Test all masonry/plaster surfaces with the clear tape test to check adhesion and condition of the substrate. It only takes half a minute. If condition is suspect, identified by a varying degree of powder or strips of substrate material on the tape, then remedial treatment and proper preparation must be undertaken. This may include use of SOLVER Line 4104 Surface Conditioner.
2. Test hardness of plaster surface and if soft treat as outlined with a 14% solution of Phosphoric Acid.
3. Ensure surface is dry. Test moisture content with moisture meter if in doubt.
4. If Efflorescence is present treat as outlined with a 15% solution of Calcium Chloride solution, etc.
5. Test for presence of Alkali with Litmus paper and, if necessary, allow surface to dry thoroughly before cleaning down and applying 1 coat of SOLVER Line 4129 Wall-Sealer.

A coat of paint is only as good as the surface to which it is applied. The above is an explanation of some possible problems and ways to avoid or overcome them. Remember that it doesn't take long to assess the situation and it is always better to be safe than sorry. If in any doubt contact our Technical Department for professional, expert assistance. We are always pleased to help.

CHANGES SINCE LAST ISSUE:

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