

1.5 Preservation of Stones:

The decay of building stones of inferior quality is to some extent prevented, if they are properly preserved. For this purpose, the preservatives are applied on the stone surfaces.

An ideal preservative has the following properties:

- (i) It does not allow moisture to penetrate the stone surface.
- (ii) It does not develop objectionable colour.
- (iii) It hardens sufficiently so as to resist effects due to various atmospheric agents.
- (iv) It is easily penetrated in stone surface.
- (v) It is economical.
- (vi) It is non-corrosive and harmless.
- (vii) It remains effective for a long time after drying.
- (viii) Its application on stone surface is easy.

It should however be remembered that there is not a single preservative which is suitable for all types of stones. The choice of a preservative therefore requires careful consideration. Depending upon the chemical composition of stones and their location in structure, a particular preservative should be recommended. Each case should be properly studied before a final choice is made.

Following are the preservatives which are commonly adopted to preserve the stones:

1. Coal tar
2. Linseed oil
 - Raw linseed oil
 - Boiled linseed oil
3. Paint
4. Paraffin
5. Solution of alum and soap
6. Solution of baryta

(1) Coal Tar:

If coal tar is applied on stone surface, it preserves stone. But the colour of coal tar produces objectionable appearance and surface coated with coal tar absorbs heat of the sun. Hence this preservative is not generally adopted because it spoils the beauty of stones.

(2) Linseed Oil:

This preservative may be used either as raw linseed oil or boiled linseed oil. The raw linseed oil does not disturb the original shade of stone. But it requires frequent renewal, usually once in a year. The boiled linseed oil lasts for a long period, but it makes the stone surface dark.

- Raw linseed oil - it does not disturb the original shade of stone but it requires frequent renewal once in a year.
- Boiled linseed oil - lasts for a long period but it makes stone surface dark.

(3) Paint:

An application of paint on stone surface serves as a preservative. The paint changes the original colour of stone. It is applied under pressure, if deep penetration is required.

(4) Paraffin:

This preservative may be used alone or it may be dissolved in naphtha and then applied on stone surface. It changes the original colour of stone.

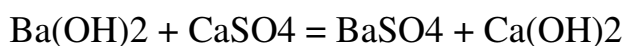
(5) Solution of Alum and Soap:

The alum and soft soap are taken in proportion of about 0.75 N and 0.50 N respectively and they are dissolved in a litre of water. This solution, when applied on stone surface, acts as preservative.

(6) Solution of Baryta:

A solution of barium hydroxide Ba(OH)_2 , when applied on stone surface, acts as a preservative. This preservative is used when the decay of stone is mainly due to calcium sulphate, CaSO_4 .

Following chemical reaction takes place –



The barium sulphate is insoluble and it is least affected by atmospheric agencies. The calcium hydroxide absorbs carbon dioxide from atmosphere and forms calcium carbonate CaCO_3 which adds to the strength of stone.

