



# **SNS COLLEGE OF TECHNOLOGY**



**AN AUTONOMOUS INSTITUTION**

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**COIMBATORE**

## **DEPARTMENT OF CIVIL ENGINEERING**

**19CEB201 – CONSTRUCTION MATERIALS**

**II YEAR / III SEMESTER**

**Unit 4 : Timber and Other Materials**

**Topic 3 : Paints**



# Paints and its Composition



Paint is composed of base, pigment, organic binder and additives.

- **Pigment** – Solid ingredient of paint and is used in the form of fine powder. Pigments provide color for the finished product. Provides film adhesion and protects the substrate from corrosion, weather, and abrasion. Its characteristics are Opacity, Color and Gloss.
- **Organic Binder** – Liquid part of paint and it is called vehicle.
- **Additives** – Modify the properties of the vehicle or pigment or both.



# Qualities of Good Paints



1. Durable and long-lasting
2. Ease of workability
3. Surface coverage to be high with less usage of paint
4. Uniform color and texture of paint on the applied surface
5. Economical
6. Withstand weathering action making it waterproof



# Application and Uses of Paints



1. It can be applied on timber, brick or on any other materials.
2. The main function of paint is to provide protection or decoration or both.
3. Protect from weather, Sun, rain and makes it waterproof.
4. Corrosion of Metals
5. Mechanical stresses
6. Paints conceal imperfections on the surface and gives surface protection.
7. It increases life of the surface or product.
8. It prevents wooden structures against warping, checking, or decay from termites, fungal growth, etc.
9. Metals corrode if not painted at suitable intervals.
10. Painting enables the masonry and concrete work to resist checking and disintegration, thereby extending life.
11. It acts as a decoration and provides aesthetic value to the building.
12. Paint modifies the reflection and transmission of light on a surface.
13. Paints are also used as identifying any special equipment such as fire fighting lines are painted red to identify easily.



# Types of Paint



## Oil Paint

- Oil paints use white lead as a base, and are applied in three coats: primer, undercoat and finish coat. Oil paints can achieve mat and glossy finishes, while being durable and affordable.
- They are characterized by their ease of application, and painted surfaces are easy to clean. Oil paint is commonly used in walls, doors, windows and metal structures.
- Note that oil paint is not suitable for humid conditions, and it takes time to dry completely. Also, before applying oil paints, linseed oil and pigments must be added.



# Types of Paint



## Enamel Paint

This type of paint is produced by adding lead or zinc to varnish. Pigments are added to achieve a wide variety of colors. Enamel paints form hard and glossy coatings, which are easily cleaned. They are characterized by being waterproof and chemically resistant, offering good coverage and color retention.

### **The following are some common uses of enamel paint:**

- Interior and exterior walls
- Wood trims, doors, and flooring
- Windows
- Stairs
- Surfaces like wicker, masonry, concrete, plaster, glass, and metals.
- The main limitations of enamel paint are slow drying, and requiring a titanium coating before application.



# Types of Paint



## Emulsion Paint

- Emulsion paints use polyvinyl acetate and polystyrene as binding materials, and they contain driers like cobalt and manganese.
- They can be water or oil based, and pigments are used to achieve the desired color. Emulsion paints are characterized by their fast drying and hardening, and surfaces can be cleaned easily with water.
- Once applied, enamel paints offer durability, good color retention, and alkali resistance.
- Emulsion paints are commonly used for interior walls, ceilings and masonry work. Some specialized types of emulsion paints can be used for woodwork.



# Types of Paint



## Cement Paint

- Cement paint is available in powder form, which is mixed with water to achieve paint consistency.
- The base material is white or colored cement, and it may also contain pigments, accelerators and other additives.
- Cement paint is durable and waterproof, and it is commonly used in rough internal and external surfaces.
- Consider that cement paint has a long drying time, typically 24 hours. It must also be applied in two coats to prevent dampness issues.





# Types of Paint



## Bituminous Paint

- This type of paint is made from dissolved asphalt or tar, which gives it a characteristic black color.
- It is waterproof and alkali-resistant, but not suitable for applications where it will be exposed to the sun, since it deteriorates.
- Bituminous paint is commonly used in underwater ironworks, concrete foundations, wooden surfaces and iron pipes. It also helps provide rust resistance when applied in metals.



# Types of Paint



## Aluminium Paint

- This type of paint is produced by mixing aluminium particles with oil varnish. It is resistant to corrosion, electricity and weather exposure.
- Aluminum paint is commonly used for metals and wood, and some specific applications are gas tanks, oil tanks, water pipes and radiators.

## Anti-Corrosive Paint

- Anticorrosive paint is characterized by its chemical resistance, as implied by its name.
- It is made from linseed oil, zinc chrome and fine sand.
- Anticorrosive paint has a black color, and it is durable and affordable.
- It is normally used for metallic surfaces and pipes.



# Types of Paint



## Synthetic Rubber Paint

- This paint is made from dissolved synthetic resins, and can include pigments.
- It has a moderate cost and its main benefits are chemical resistance, fast drying and weather resistance.
- Synthetic rubber paint is used for concrete surfaces in general, and this includes fresh concrete.



# Types of Paint



## Cellulose Paint

- Cellulose paint is produced from celluloid sheets, amyl acetate and photographic films.
- Adhesion can be improved by adding castor oil, and surfaces can be easily cleaned and washed once the paint has dried.
- This type of paint is characterized by its quick drying, smooth finish and hardness, while offering resistance to water, smoke and acids.
- Thanks to its properties, cellulose paint is commonly used in cars and airplanes.
- The main disadvantage of cellulose paint is its high price.



# Types of Paint



## Plastic Paint

This paint uses water as a thinner, and it is available in a wide range of colors. It dries very quickly and offers high coverage. The following are some common applications:

- Walls and ceilings of auditoriums, showrooms, display rooms, etc
- Slabs
- Decks

## Silicate Paint

Silicate paint is made from a mixture of silica and resinous substances. Its performance benefits include good adhesion, hardness, heat resistance, and being chemically unreactive with metals. Therefore, this type of paint is commonly used in metal structures.



# Types of Paint



## Casein Paint

This paint is made from casein mixed with white pigments. It is available in powder and paste form, and pigments can be added. Casein paint is commonly used to paint walls, ceilings and wood.



***Thank You!!***