

Lecture # 12

Paints

Paint:-

Paint is a liquid surface coating which form a thin layer on painted surface after drying.

• Objectives of painting:-

- Paints are used to give aesthetic look to surface to which it applied.
- It is also used to protect timber, metal, plastic from erosion and being rotten.
- It gives smooth & shining surface to wall & surface to which it applied.
- It makes surface durable and offer resistance to heat & weather effects.

Components of Paints:-

(1) Base or Body:-

It is main constituent of paint usually metallic oxide.

Properties (function).

It makes paint film thin and opaque to hide surface i.e. to be painted.

- It also has binding property which reduce cracks after drying paints.
- It makes film harder and more resistant to abrasion.

Examples:-

Examples of base are white lead, red lead, aluminum powder, iron oxide etc.

2. Vehicle:-

- It is oil to which base get mixed.
- Also known as binder.

Properties:-

- It hold constituents of paint in suspension and spread it over surface which is to be painted.
- It provide durability, water proofness to paint and also make it weather resistant.

Examples:-

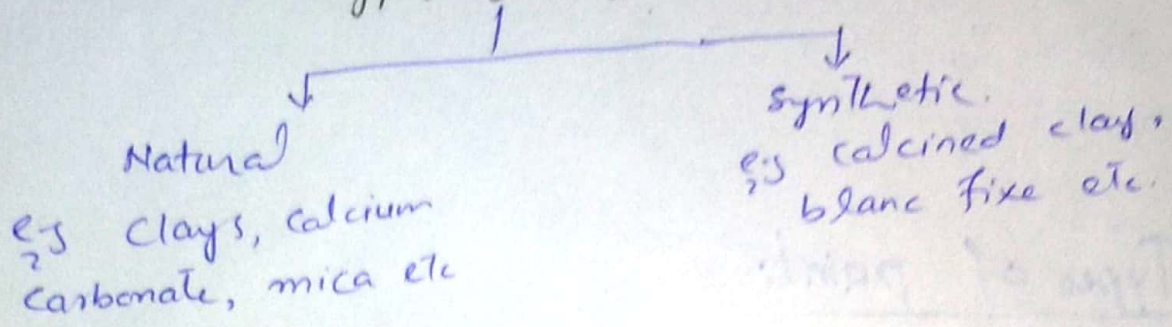
- Nut's oil.
- Linseed oil
- Soya bean oil.
- Fish oil.
- Dehydrated castor oil.

3) Pigment:- It is used in paint to give it desired colour also to hide the rough surface.

→ It protects the paint film from destructive ultraviolet ray and make paint durable.

→ It also improve impermeability of paint and make it more resistance to weather.

Types of Pigment.



(4) Solvent:-

It is also known as thinner.

(*) It is usually used in paint in order to make it thinner, spreadable.

• It reduces viscosity of paint.

Exp:- Petroleum, spirit, turpentine oil etc.

(5) Driers:-

These are those substances which are added to drying oil to accelerate the rate of drying.

→ Also known as plasticizer.

→ They act as catalyst for oxidation.

(*) Its quantity limited to 80% of increase adverse effect

Examples:- Lead acetate, red lead, manganese dioxide etc.

⑥ Adulterant:-

- We add adulterant to reduce the Cracking of dry paint & to keep pigment in suspension.
- It is also called Filler. Filler is a substance which can be added to paint to increase its bulk volume without affecting its properties.
- Usually inert toward other components of paints.
- (*) Commonly used adulterants are chalk, Gypsum, Silica etc.

Types of paint:-

① White Wash:-

- Usually low cost paint.
- Here we add water to slaked lime or powder chalk to form a mixture which can be then apply on different surfaces.
- Some pigments like fevicol (kind of adhesive) added to make colourful wall.

② Oil Paint:-

It is slow drying process paint that consist of particles of pigment suspended in drying oil, commonly linseed oil.

→ Can be apply on all surfaces. (high durable)

(*) Such paints cannot be washed by water.

⑥ Adulterant:-

- We add adulterant to reduce the cruckiness of dry paint & to keep pigment in suspension.
- It is also called Filler. Filler is a substance which can be added to paint to increase its bulk volume without affecting its properties.
- Usually inert toward other components of paints.
- (*) Commonly used adulterants are chalk, Gypsum, Silica etc.

Types of paint:-

① White Wash:-

- Usually low cost paint.
- Here we add water to slaked lime or powder chalk to form a mixture which can be then apply on different surfaces.
- Some pigments like fevicol (kind of adhesive) added to make colourful wall.

② Oil Paint:-

- It is slow drying process paint that consist of particles of pigment suspended in drying oil, commonly linseed oil.
- Can be apply on all surfaces (high durable)
- (*) Such paints cannot be washed by water.

(*) If you choose oil paint, solvent like turpentine oil is used to wash brushes.

(*) Attractive gloss.

(3) Emulsion Paint:-

Emulsion is defined as when two liquid mix & they don't mix well.

(*) Here solvent used is water.

→ It is usually water based paint.

→ Water act as medium where the binder, pigment and additives are dispersed in molecular form.

(*) Here binder can be epoxy, alkyd resins etc.

Uses:-

They dry quickly and flexible. Thus used for internal & external wall.

(4) Cement based Paint:-

→ Water based paint in which cement is used as base.

→ It doesn't required oil or other organic matter.

→ Can be apply on interior & exterior wall but mainly apply exterior wall for preventing water penetration & reduction of dirt collection.

(5) Enamel Paint:-

These are oil based paints.

→ It is more durable and glossy finish.

(*) It provides excellent coverage & colour retention.

(*) It has hard, glossy & opaque finish.

(*) It dry slowly or quickly depend upon type of thinner used.

6. Distemper Paint:-

→ Cheaper than other paint.

→ Water based paint in which water, chalk, lime & colour pigment is added.

→ Available in powder as well in paste.

(*) Can be apply to both interior and exterior wall.

7. Bituminous Paint:-

• It is made from asphalt bitumen or coal tar which is dissolved in spirit or naphtha.

• It is usually black in colour but other colours can also be added.

• Bituminous paints are alkaline resistant so under water structure, weather protecting steelwork, water proofing etc.

It is also used for any type of exterior metal work and iron work.

→ When it is exposed to sun sunlight it deteriorates.

(8) Epoxy Paints:-

These paints are applied on floor covering.
→ It forms a hard & shining surface upon application.

→ Uses:-

These paints are used in commercial buildings, industrial floor such as garages, operation theatres due to its strength & resistance to damage.

(*) It is made from epoxy resin. Epoxy resins are thermosetting synthetic resins containing epoxide groups.

(9) Anti Condensation Paint:-

It is used to reduce the formation of condensation of moisture in dry and humid conditions.

→ Condensation of moisture causes mould which damages walls.

→ It also stops fungal & mould growth.

(10) Luminous Paint:-

It emits light in dark because

it emits light for a certain length of time when exposed to an energy source.

→ These paints are used for traffic purposes, to mark fire exits, runway etc.

Types:-

- ① Fluorescent Paint.
- ② Phosphorescent Paint.
- ③ Radioactive Paint.

(11) Latex Paint:-

Latex is milky liquid obtaining from rubber tree.

→ A paint based on pigment & synthetic resin produced by emulsion.

→ It can be apply on concrete, wood, wall etc.

(12) Lead Paint.

The paint that contain more than 5% (min) lead as lead oxide called lead paint.

→ Mostly used in home to paint wooden surface.

→ Small amount of lead paint cover large area.

→ While lead insoluble in water. so after drying these paint they are durable & washable.

→ They are hazardous to human health that is why banned in many countries.

13. Metallic Paint:-

These paint contain aluminum, copper & other metal which gives metallic appearance.
→ It is generally for painting metallic surface.

14. Rubber Paint:-

It is type of latex paint.
→ It contains emulsion rubber as binding as a binder.
→ They withstand water & tough condition.
(b) Used in swimming pools, boats etc.

15. Aluminum Paint:-

It is coating material which is made from mixing of vernish oil and aluminum in form of thin flakes.
→ It can reflect sun light and can keep heat in hot water pipe & tanks.
→ The resin makes it durable, flowable & give strength while aluminum make its surface shiny.
→ Usually applicable to wood, metal & masonry.

16. Textured Paint:-

It consist of coarse grains (such as Gypsum, sand etc) with water thinned binder to create rough pattern on wall.

- It is mostly commonly used paints nowadays as different styles can be done on wall.
- They stimulate in two different sense; sight & touch.

Uses:-

Used alternative to wallpaper and to hide rough surface of wall.

17 Silicone Paint:-

A special type of paint in which alkyd resin is modified by silicone.

- It has excellent toughness, durability & resistance to crack and abrasion.

- It repels water on masonry surface
- It is usually transparent so mostly used for cladding.

→ It is used for to paint steel & concrete etc. exterior decorative, coating on brass & aluminum

18 Zinc Rich Paint:-

It is prepared by mixing of Zinc dust or Zinc powder with organic or inorganic binder.

- It is usually apply on top of steel or other metal to prevent that from corrosion.

(19) Anti Corrosive Paint:-

This type of paint consist of anticorrosive pigment such as Zinc chromate or lead chromate.
→ It protect metal from degradation due to moisture, salty spray, oxidation.
→ Usually applied to steel or iron surface

(20) Fungicidal Paint:-

The paint which stop growth of fungi.
→ Although paint has such pigment i.e Zinc oxide which can act as fungicidal.

(21) Asbestos Paint:-

→ Also known as fire proof paint.

(i) The main constituent is asbestos fibre.

→ It can be applied to outer surface of basement to stop dampness, to stop leakage from metal roof, painting of spouts & gutter.

VERNISH:-

It is homogenous solution of resin in oil, alcohol or turpentine.

→ The type of solvent used depend upon the type of resin used.

(A) Oil dries with time while other solvent evaporates leaving transparent thin film of resin over surface called varnish.

→ For rapid drying, driers such as lead acetate is used.

Objectives of Varnish:-

- (A) To protect painted surface from atmospheric action.
- (B) To brighten appearance of grain in wood.

Application:-

- It is usually applied to wood finishing where natural look of wood is required.
- It is used to prevent water penetration into wood finishing & protect it against abrasion, staining & not change colour of wood.
- It gives shiny surface to wood so also used for aesthetic purpose.

Wood:-

Lecture #13

A hard substance that form branches of tree and its trunk that can be used as building material, for making thing & used as a fuel.

or

A natural polymeric material which practically not age.

Types:-

Wood as building material are of two-types

1. Natural
2. Man made

1. The woods that are naturally occur, produce and grow called natural wood.

Example:-

Timber, lumber etc.

2. Man made Wood:-

The wood that is by product of timber with resin.

Structure of tree:-

Tree can be divided into three portions.

