PAINT PRODUCTION

The process of making interior and exterior paint

PRODUCTION

The production of paint has rapidly changed during the 20th century in both composition and manufacturing. Sand mills and high-speed dispersion mixers are used today to grind pigments faster and easier than the previous stone mills. Stone mills were replaced by the steel balls, then steel balls were replaced by sand mills and dispersion mixers. Pigments were usually made for industrial use until the 1870's when manufacturers starting producing and mixing them for consumers to use.

The industrial paint process consists of four ingredients which include the pigment, resins, solvents and additives. Combining those four ingredients forms a paste, which is then put through a sand mill. The sand mill breaks down the tiny particles of sand, also known as silica, making them smaller and by scattering and blending them evenly throughout the mixer. The consumer process involves a dispersion tank, a circular tank with a blade, which stirs and blends the pigment into a solvent.

The pigment is the color. It starts out as a dry substance and when blended with water it becomes paint. Titanium dioxide makes basic white and black is most commonly made from carbon black. Iron oxide and cadmium sulfide are used to make red, yellow and orange are made by using metallic salts, while iron blue and chrome yellow are used to make blues and greens. There are hundreds of different pigments made from natural and synthetic materials.

Resins are solid and semi-sold substances that mostly consist of carboxylic acids, which are obtained from plants. Resins help the paint dry after being applied to an object or surface. The most commonly used resins are lin-seed, coconut, soybean oil, white alkyds, acrylics, epoxies and polyurethanes.

A solvent is a substance that dissolves another substance to form a solution. They allow for easy application and are a low viscosity, volatile liquid. It usually includes petroleum mineral spirits and aromatic solvents like benzol, alcohols, and acetone.

Additives serve many functions which usually gives the paint its body. Mostly commonly used additives that does not change the property of the paint are calcium carbonate and aluminum silicate. Other additives include thixotropic agents that give the paint a smooth texture, driers, anti-setting agents, anti-skinning agents, defoamers, and others that allow the paint to cover well and long lasting.

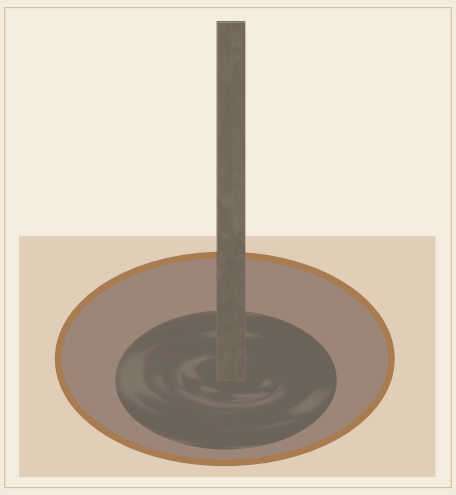
TYPES OF INTERIOR AND EXTERIOR PAINT

Types of paint include water based and mineral spirit based; all paints, interior or exterior, fall under either of those categories. Mineral spirit based is mostly commonly referred to as paint thinner. Oil based paint is made of alkyd resin and thinned with mineral spirits, while latex based paint is watered thinned. Neither of the two actually have oil or latex in them. Latex is the most commonly used paint in homes because of easy clean up, environmentally responsible, its performance, flexible, prevents mildew and moisture, many color selections and paint sheens, and it dries fast. Alkyd paint is a hazardous material and is not very common when painting homes. It is usually used for high wear and impact areas of the home like trim, floors, and cabinets. Alkyd paint has a much longer drying period then latex paint, but advantage is that the brush strokes are less visible. The disadvantages are that is more expensive than latex and requires mineral spirit clean up.

Paint sheen refers to how it looks after the paint has already dried. The three basic sheens are flat, also known as eggshell, semi-gloss or satin, and gloss. Flat or Eggshell has the least amount of sheen, which is best for hiding imperfections. It is mostly commonly used on ceilings and wall of homes. Semi-gloss is mostly used in kitchens and restrooms, because it starts with some sheen unlike eggshell that does not have it and can develop sheen after clean up. Gloss is rarely ever used except for woodwork, trim, or special areas where it is desired for reflective sheen and it does not hide imprefections.

PASTE

DISPERSION MIXER



SAND MILL