



PAINT APPLICATION

Paint is not a finished product until it has been applied and dried on an appropriate substrate at the desired performance film thickness. Proper application therefore is critical to the performance of the paint system. High performance paint systems are especially sensitive to misapplications and knowledge of the application characteristics and recommended film thicknesses are vital to obtain optimum results.

Weather Conditions:

Bad weather conditions are perennial hazard in painting operations. Paint should never be applied on wet surfaces and therefore painting should be avoided not only in rain and fog but also when high humidity's and low steel temperatures lead to condensation. Condensation is very difficult to detect on surfaces and will occur if the steel temperature is below atmospheric dew point. As a general guide, painting should be done only if the steel temperature is at least 3 – 5°C above the dew point. Dew point is the temperature of a surface, at a given ambient temperature and humidity, at which condensation of moisture will occur on the surface.

Extreme temperature too may present problems. At low temperatures (below 5°C), the curing of paints such as epoxies may slow dramatically and for some paints, film may not cure properly. Generally, painting below 15°C should not be encouraged, as the application and curing process should proceed properly. Also, temperature of the paint itself should be minimum at 15°C to ensure proper curing of the paint. At high temperatures, solvent loss from paint atomized during application is very rapid; paint droplets do not coalesce on the surface (leading to a porous coat) and clouds of dry spray may also be produced. The problem may be rectified by the addition of thinners but these should never be more than a few percent of the weight of the paint. Generally, painting should be avoided during extremely hot hours – where paint operations are carried out in hot climates, the paint should be applied in the morning and early evening.

Application Methods:

Four main methods are used in painting. The choice of method depends on the type of coating to be applied, the effect on adjacent areas and the degree of skill of the personnel.



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1.) Brush:

Brushes should be selected:

- For low viscosity paints to yield low applied film thickness
- For most primers, particularly where surfaces have tiny irregularities that may be missed by roller or spray or where penetration is especially important.
- For corners, edges and odd shapes.
- For small areas.

2.) Roller:

Rollers should be selected:

- For topcoats where stippled effect produced by roller is acceptable.
- For jobs where skilled brush painters are not available.
- For large flat areas where spraying would create a fire hazard.
- For textured coatings.

3.) Conventional Spray:

This technique mixes a jet of air with a stream of paint to propel a fan of paint droplets towards a surface. The mix of air with the paint particles gives high turbulence however and considerable "bounce back". Air atomization of paint can thus result in considerable over spray. Therefore not only must adjacent areas be protected but also paint losses may vary from 20% to 40% on steel and paint operatives must wear protection to avoid paint mist inhalation. The technique particularly suits low viscosity paints and is most commonly used for the application of conventional decorative paints and zinc silicate coatings.

4.) Airless Spray:

The technique relies on hydraulic pressure rather than air atomization to produce the spray. Paint under very high pressures (1000 to 6000 psi, approximately 100 to 400 kg/cm²) is delivered to the spray gun and then forced through a very small orifice to atomize it. There is thus more rapid coverage with much less over spray and much higher film thickness can be obtained.



PROTECTIVE COATINGS

TECHNICAL DATA SHEET

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Most of the products manufactured by National Paints can be applied by airless spray. Some products (e.g. anticorrosive) are designed to be applied at high film build, others (e.g. finishing paints) at low thicknesses. Follow the recommendations in the Product Data Sheets. If the recommendations are significantly exceeded and over application results, sags and runs may develop, and may have detrimental effects on the performance of the coating.

Finally, it must be remembered that airless spray ejects paint under very high pressure. Do not direct the spray at people nearby as injury can be easily caused and take due precautions when the equipment is being cleaned.