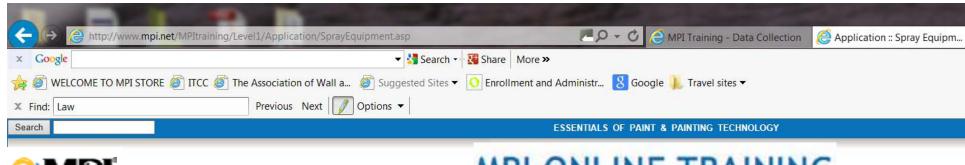
Level 1

Essentials of Paint and Painting Technology







Introduction Coating Tech Paint Types & Manufacture Color Application Safety Specs Standards Environment Final Exam



Notes

- Because of environmental concerns, application devices with a transfer efficiency lower than 50% are being discouraged.
- Paint flows from a central supply through a high pressure pump (1000 psi to 3000 psi)
- The production rate of Airless is quite high as well as the Transfer Efficiency can be as high as 75%
- High flow rates coupled with large Airless tips dramatically allow the worker to make less passes to apply the required mit thickness
- Because of safety concerns, the guns on an Airless Spray must be manufactured with trigger guards



There are many types of spray finishing application equipment. A wide range of manufacturers provide and endless supply of pumps, guns, hoses and accessories. We classify spray equipment by atomizes the paint, and there are 4 basic types

- 1. airless spray;
- 2. conventional air spray;
- 3. HVLP: and
- 4. air-assist airless.

Airless

Paint flows from a central supply through a high pressure pump (1000 psi to 3000 psi). This high pressure fluid goes through a fluid line to a spray gun. The high pressure fluid is expelled out the front of the gun through a small orifice or tip. As the fluid escapes into the atmosphere it expands and forms a spray pattern of small droplets (atomization). The production rate of airless is quite high as well as the transfer efficiency can be as high as 75%. This method of spray is good for large flat surfaces.

The Advantages of Airless Spray

Reduced Overspray and Fog: This is the number one advantage of airless spray. As stated, more than 75% of the paint gets to and remains on the surface. This high transfer efficiency saves on paint costs and brings a significant reduction in emissions.

Increased Production: Uniform thickness and greater penetration increases the speed of application. High flow rates coupled with large airless tips dramatically allow the worker to make fewer passes to apply the required mil thickness.

Handles Viscous Materials: Paints and coatings that have a naturally high viscosity can be sprayed with no thinning or very little thinning. Solvent use is lowered, so emissions are too.

Disadvantages of Airless Spray

Coarse Atomization: Compared to air spray, airless atomization is somewhat coarser. Coating should be able to flow out well to even out the atomized droplets once they hit the surface. Fine finishing tips and heated systems help to improve atomization.

Safety: Because of the extremely high pressure created (1000 psi to 3000 psi) with airless atomization, there is a danger of injection injuries. The pumps, lines, and guns must be manufactured to withstand these pressures. The guns themselves must be manufactured with trigger guards, trigger locks, and tip guards. The painter must also have complete safety training before using the equipment.

Expensive: The pumps, lines, guns and accessories are designed to handle and produce extremely high fluid pressures. For this reason the equipment has to be well made and strong. Typical airless systems are more expensive than air spray systems, and the maintenance costs are higher, too.



Typical Airless System

Gun Controls: An airless gun is full on/full off. When the trigger is pulled, the gun is wide open and the full amount of paint is being expelled. This characteristic can be a disadvantage when spraying intricate parts or shapes. "Feathering" of the trigger (see note below) is not possible. Speed of motion will dictate how much paint























