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How Electrostatic Painting Works

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Hazards of Electrostatic Painting Operations



What Kind of Paint Is Used in Electrostatic Painting?

Electrostatic Field

An electrostatic field is a phenomenon that is very similar to a magnetic field. When an object is electrically charged, it creates an electrostatic field. If an object has an excess of electrons, then it's considered to have a negative charge. If an object has fewer electrons than its surrounding environment, though, it's considered to be positively charged. Just like with magnetic fields, two objects that are oppositely charged will attract each other. This scientific truth is the core of electrostatic painting, which uses electrostatic fields to paint metal objects quickly, efficiently and with practically no cleanup.

Setup

Electrostatic painting uses some very specific tools in order to paint a metal object using the attraction of oppositely charged electrostatic fields. First of all, specially formulated paint is mixed with a chemical catalyst and is then given a positive charge. The metal object that's going to be painted (and it must be a metal object for this process to actually work) is then grounded by having a wire attached to it. Since the paint and the metal object are now oppositely charged, with the paint being positive and the object being negative, the paint will be attracted to the metal object as if it were a magnet.

Painting


Once the setup and all of the charging is completed, it's time for the actual painting process to begin. The positively charged paint is sprayed toward the metal object, which draws the paint toward its surface. This attraction is so strong that if an object (say a metal rail) is only sprayed from one side, the charge will actually pull the paint around so that it covers the entire metal surface. This method requires very little in the way of protection, since drop cloths won't be necessary most of the time. The process can produce some bad odors, though, so it's recommended that electrostatic painting be done outdoors or while there are few people around if it must be done indoors.


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