

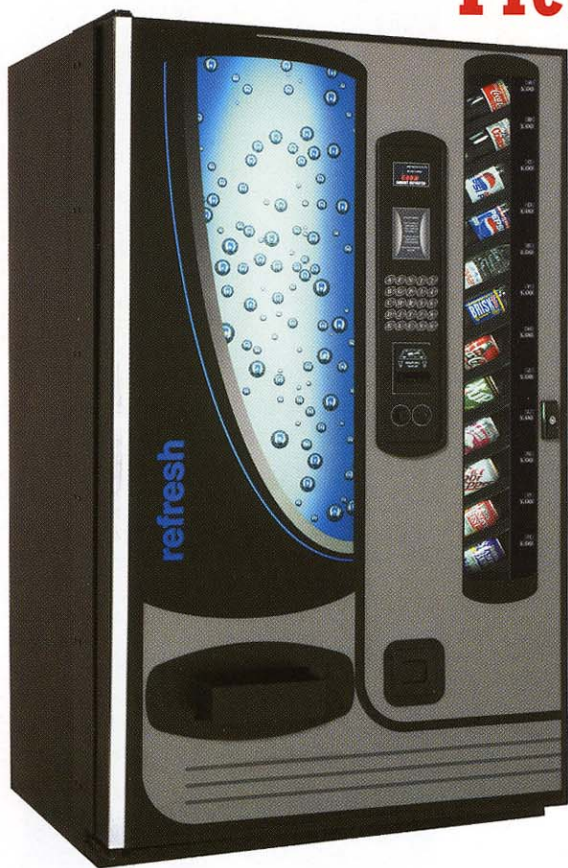
**PRODUCTS**



**FINISHING**

MAY 2001

# Pretreatment Makes Vending Machine One Tough Customer



# Pretreatment Makes Vending Machine One Tough Customer

Fawn Manufacturing's vending machines needed a finish that could withstand harsh climates, rugged weather and tough customers. It found a pretreatment package it liked and made it better, which made for a high-quality, durable powder coating finish that stood up to the most demanding environments . . .

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**E**very day, people the world over slide coins into vending machines in anticipation of a soda, sandwich, coffee or bag of chips. Most vending machines in the United States are staged in protected venues like cafeterias, schools, sports arenas and similar places. However, in places such as Western Europe, Asia and South America, most of the vending machines are outdoors. Also, vending machines are more prevalent on those continents. Even so, according to industry studies, consumers everywhere spend more on vended merchandise than they spend on movies, videos, CDs or professional sports.

Learning this, Fawn Manufacturing (Des Moines, IA) realized it needed to find a tougher finish than the solvent-borne liquid paint it was using to coat its vending machines. The finish had to endure not only temperature and weather extremes, but also climatic conditions such as salt air, high winds and varying altitudes. In areas such as South America, where environmental regulations are not as strict or as strictly enforced as in Europe or the U.S., Fawn also had to consider the effects of air pollution combined with the extreme climatic conditions.

For two years Fawn researched various coatings but focused primarily on powder coatings. It surveyed liquid and powder coating systems at its competitors' businesses as well as lines at companies manufacturing consumer durable appliances. It also purchased a small powder coating booth so its employees could learn the ins and outs of powder coating.

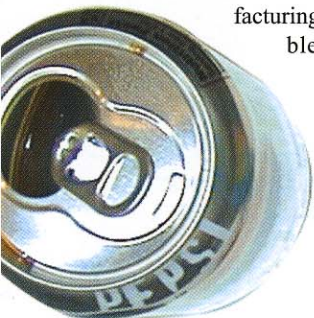


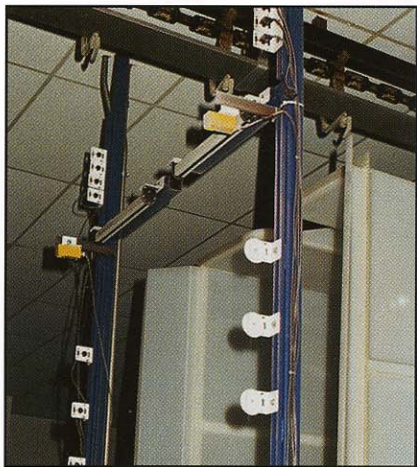
Once the final decision was made to go with powder coating, Fawn put its full energy into developing a world class finishing line. Milbank Systems headed the project, working with Fawn to design the entire layout of the automated system from racking stations to curing oven. Fawn had seen what was out there and had many ideas on how to make its finishing system better.

Fawn added stages to the "traditional" iron-phosphate pretreatment line in order to achieve the higher quality paint finish it needed on its vending machines. "We personalized the entire system," noted Mr. Bruntz, president and CEO, "however, we felt that optimizing the cleaning line was one of the most important things we could do to ensure superior adhesion and a premium paint finish."

One of the major requirements Fawn insisted upon was a top-rate pretreatment system. Mr. Bruntz, along with the engineers on the project, believed that to achieve a quality powder coated finish, the best pretreatment was imperative. Dubois Chemical Co., which had been the pretreatment supplier for the old finishing system, was assigned the task of developing the new pretreatment for the powder coating line.

In the first stage of the iron-phosphate spray pretreatment, parts spend 60 sec in





Electronic eye at the entrance to the powder coating booth determines what size and shape of part is entering the booth and triggers the proper spray guns to turn on and off at the appropriate interval.

the 140F Ferroterj<sup>®</sup>. The first stage removes shop oils and metalworking fluids. This is followed by a second 60-sec stage of the same solution at the same temperature and concentration. The second stage simply continues the cleaning process. The third and fourth stages are 42-sec counterflowing tap-water rinses.

The fifth stage is Secure<sup>®</sup> iron phosphate for 90 sec at 130-140F. In addition to phosphating, the process also provides some cleaning action. The coating is heavier than ordinary phosphate coatings, enhancing paint adhesion and corrosion protection.

The sixth stage is another 42-sec tap-water rinse followed by the sealer, ICA 503. This sealant stage lasts 30 sec and is maintained at a pH of 4.5-5.5. The seventh and final stage is a 30-sec DI rinse at a pH of 5.5. As parts exit the washer, they travel through a DI halo rinse and then dry off.

The premium paint finish is achieved in



Automated spray guns are set up in all three booths; however, manual touchup is used after each automated pass to ensure that all Faraday cage areas are coated.

one of three Nordson Excel 2003 powder coating booths, which can be rolled on and off line as needed. These booths are set up in the environmentally controlled powder coating room, which is maintained at 60F and less than 70% humidity.

The first booth is dedicated to Fawn's signature color, black. The second booth in line is dedicated to a black textured coating, another Fawn trademark. Sherwin-Williams collaborated with Fawn in developing this coating, which is unique to Fawn's vending machines. In these two booths, powder is reclaimed and mixed with virgin powder for reuse. In the third booth, a variety of



Overview of the powder coating environmental room with its three roll-on/roll-off powder coating spray booths. Only one booth is in operation at a time, spraying either black smooth, black textured or a color powder coating.

colors is applied. All paints applied in this third booth are sprayed to waste. Very little powder is actually sprayed in this booth, so reclamation is not economical.

The spray booths feature a 99.9% efficient, centrally located side-draft cartridge collector reclaim system that allows for highly uniform airflow inside the booth and through all the openings. This provides for a clean operating environment and maximum transfer efficiency. This is important to Fawn, considering the design of its parts, which have many recessed areas that harness Faraday cage areas.

The booths employ Versa Screen 10c control system which provides gun triggering, gun movement and booth control. Each booth has a 10-inch touch screen that allows operators to enter control parameters at the booth. The system also controls other

parameters in the booth such as dew point; cartridge filter pressure; final filter pressure; powder level; motor status; fire detection; line speed; sieve and transfer control and cartridge blow-down sequence.

Each booth features one Sure Coat manual spray gun for touchup and eight Versa Spray II automated guns. The spray gun system provides precise control for optimal powder charging. Sensors at the entrance to each booth identify parts and trigger on and off only the guns necessary to coat the particular part entering the booth. This system helps Fawn reduce energy costs and paint waste. It also improves the finish quality on its vending machines by minimizing edge buildup. The system has a user-adjustable automatic feedback current control. This provides Fawn with more operating flexibility and higher transfer efficiency, since it delays back ionization and automatically maintains gun current and voltage at an optimum level regardless of the gun-to-part distance. "It allows us to effectively powder coat the deep recesses in our parts," noted Joe Ayers,

## The Many Facets of The Wittern Group

In 1931, F.A. Wittern, an inventor and holder of numerous patents for vending equipment, assembled a group of companies to meet the needs of a changing and growing marketplace. Today, The Wittern Group is involved in every aspect of the automatic merchandising industry, from manufacturing to financing, from food services to international sales.

Although manufacturing technologies have changed since the company's first coin-operated baseball game machine, the principle on which the equipment was built remains the same. Skilled workers assemble a full range of machines to exacting standards for many nationally recognized food and beverage companies.

According to studies, consumers spend more on vended merchandise than on movies, videotapes, compact discs or professional sports. Because of this, The Wittern Group helps businesses throughout the world make the most of these sales opportunities through its Independent Sales Companies, such as Serv-O-Matic, Fawn Vendors and USI Corp. Another Wittern Group helping businesses is its financial services group. This group helps its customers with equipment and payment plans. The company also has groups that provide customer education and support.

vice president of manufacturing. "And the manual guns ensure that we cover all areas of the vending machines."

Complete coverage and the ability to control coverage were the reasons Fawn implemented this new system. The system had to be able to supply a finish that could withstand the outdoor elements that most of its vending machines faced. This new system allowed the company to apply a pretreatment that would give the powder coating better adhesion. And the powder coating system provided the means to apply powder coating in all areas of the parts, even Faraday cage areas.

"We believe we set the standard in everything we do," stated Mr. Bruntz. "Our pretreatment and powder coating line are no exception. We did a little more when it came to pretreatment to make sure we would achieve the highest quality paint finish possible. I believe we have set the standard with our system."



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