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ToolKit

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A Publication of the National Coil Coating Association

National Coil Coating Association

Frequently Asked Questions

Here are a number of questions customers often ask about coil coating technology:

Q: Why should I consider prepaint rather than convert to a powder system?

A: To fully answer this question, you must look at powder coating in two ways: 1) as an alternative to prepaint, 2) using powder in conjunction with prepaint.

As an alternative, powder looks like the most logical step from a wet paint application to solve environmental problems, but it is limited in its environmental friendliness. Powder solves one environmental problem—the elimination of volatile organic compounds (VOC's). However, powder leaves open the issue of cleaning, pretreatment and the disposal of sludge. Prepaint addresses environmental problems, including air, water, solvents, and waste disposal. Prepainted metal is cleaned and treated in the flat, effecting better cleaning and pretreatment, and correspondingly, a higher quality product.

Certain applications can benefit from the unique advantages of both prepaint and powder technologies. The coil coating process can be utilized to clean/pretreat and prime, providing a superior surface for subsequent powder coating. This combination meets both air and water compliance issues and provides a superior product for corrosion resistance and adhesion. This utilizes the technological advantages of both prepaint and powder.

Q: What are the costs of an in-house spray operation?

A: There are numerous primary, secondary, and hidden costs.

Primary costs are materials, people, energy, water, and the cost of compliance.

Secondary costs are the cost of rework, the time involved in manufacturing the product, the number of manufacturing steps appropriate to produce a product in a spray operation, and, of course, touch-ups.

Hidden costs include lack of flexibility, since you can only apply one coat at a time, growth limitations, and slower manufacturing cycle time due to a paint line bottleneck.

Q: How does the overall corrosion resistance of coil coating compare to my current method?

A: Unquestionably, the corrosion resistance is better using prepainted metal than metal from a typical post-painted product. Due to the superior cleaning and treating of the strip during the coil coating process, the priming of both sides, and the painting of both sides, prepainted metal has better cut edge corrosion resistance than post-painted metal. A fine line of corrosion may develop on the cut edge of prepainted metal, but the resistance to underfilm corrosion creepage will be much better than with post-painted metal. The corrosion resistance is also better where nicks and scratches occur. The on-line tutorial, *Cut-edge: Tougher Than You Think* provides helpful information on this matter and can be viewed on NCCA's web site www.coil-coating.org.

This Tool Kit is part of a series of educational aids developed by the members of the National Coil Coating Association. NCCA is a trade association of coil coaters and suppliers of raw materials and equipment used in the coil coating process. The association concentrates its efforts on providing educational resources and assisting its members in providing superior products and services to their customers. NCCA Tool Kits are informational tools and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific instructions regarding their products and equipment.

For further information regarding this toolkit, please contact the National Coil Coating Association, (216) 241-7333 or by e-mail at ncca@coilcoating.org

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Q: How does the process affect floor space and throughput?

A: When you eliminate a post-finishing operation, you free up floor space. Additionally, since work-in-process inventory is reduced, the demands for additional floor space are correspondingly reduced. Production capabilities can grow without adding exclusive manufacturing space.

Q: Can the process provide a consistent, uniform coating?

A: The distinct advantage of the coil coating process is its ability to provide a uniform, consistent coating. Painting metal in the flat allows for consistency in film application and color uniformity.

Q: Can you paint both sides at once?

A: Yes. Coil coaters paint both sides of the coil at once. The coating process on a coil coating line is very flexible, allowing the application of many different types of primers, solid color finishes and topcoats.

Q: Can you put twocoats of paint on in one operation?

A: Yes. Actually, you can put four different types of paint on in one operation: primer on both sides of the coil, a finish coat on the top side, and a wash coat on the back side. If desired, it is possible to apply two different types of paint in the primer station on the back and top side, cure the first coat, and then apply two completely different paints on the top and back sides.

Q: What colors are available?

A: There are a wide variety of paints available: polyesters, polyurethanes, zinc-rich coatings, epoxies, fluorocarbons, silicone polyesters, and more. A wide range of colors and glosses are available to meet customer needs.

Q: How do you control the color match from batch to batch?

A: The color control from coil to coil and run to run is one of the distinct advantages of the coil coating process. Metal is coated in the flat, and because of the roll coating process, it is possible to lay down a smooth and uniform film. Laboratories and paint companies that supply coatings have developed ways to maintain film control at a variety of thicknesses that are very reproducible. Line results are very consistent, and coaters have the ability to coordinate lab conditions with line conditions to control the incoming raw materials for consistency.

Q: Can you bend it?

A: Yes. Since the metal is painted in the flat and rewound into a coil, it is ready to be formed into the ultimate part. You can bend it, shape it, punch it, and more.

Q: What do you do with the bare edge?

A: This has been the most frequently asked question of coil coaters throughout the years. There are several approaches to answer the question. If it is an aesthetic issue, it can be hidden, folded, roll formed, or tucked away so that the bare edge can be kept out of sight. If there is concern about performance (such as fear of corrosion because of bare edge), it can be roll formed to take it out of a corrosive environment. It is important to note, however, that prepainted material, even with bare edges, has shown better corrosion resistance than post-finished product because of the cleaning and pretreatment the metal undergoes before painting. For additional information, refer to Tool Kit #5, *Cut Edge Protection Using Prepainted Sheet*.

Q: What fabrication equipment changes are necessary?

A: Minor changes may be required in order to get the most value out of a conversion to prepaint. The most common changes are die clearances, depending on the product being made. If it is a brake press product, dies might need to be adjusted to allow for the additional film that exists with paint on both sides of the product. It's also a good time to evaluate potential manufacturing process changes, such as steps that can be eliminated and where time and

money can be saved moving a product through the manufacturing cycle faster when utilizing prepaint.

Q: Do I have to change my current tooling?

A: In most cases, you don't have to change tooling, but you may have to make a few adjustments. Dies should be polished and die clearances adjusted to fit prepainted metal. Prepaint serves as a lubricant, and when you use prepaint, you actually get extended tool life. It is recommended that tooling be devoted only to prepainted material versus moving back and forth between bare material and prepainted materials. If the customer processes bare metal, the raw material has not been cleaned and carries roll oils and metal fines. Therefore, it is not wise to move bare material and prepaint on the same equipment.

Q: How do you fasten prepainted metal?

A: There are a variety of ways to fasten prepainted metal. The NCCA developed the booklet, *How to on Assembly and Joining*, which provides ways to fasten prepaint, including mechanical fasteners such as screws, bolts, rivets, adhesive bonding, welding, crimping, lock forming, self forming, piercing rivets, "Tog-L-Lok" systems, and more. The on-line tutorial, *How to Join Prepainted Metal* also provides helpful information on fastening and can be viewed on NCCA's web site www.coilcoating.org.

Q: How do I transport, store and handle prepainted metal?

A: Sound manufacturing techniques make prepaint no more difficult to transport, store and handle than other material. The NCCA specifically addressed this issue in a report, "Receiving Prepainted Metal Into Your Plant." Contact NCCA to secure a copy.

Q: How can I handle prepainted metal without damaging the finish?

A: There is no need to be fearful of handling prepainted metal. Sound traditional manufacturing techniques should prevent damage to the product in normal production. It is important to remember that prepaint is a finished product and should be handled as any finished product would be handled. The on-line tutorial, *How to Handle Coil Coated Metals* also provides helpful information on handling and can be viewed on NCCA's web site www.coilcoating.org.

Q: Will prepaint scratch during forming?

A: Sound manufacturing practices, including proper handling, make prepainted metal no more susceptible to damage than finished products. It is recommended, however, that tooling be dedicated to prepaint. The use of bare and prepainted material on the same tools can cause scratching of the prepainted metal. There are many proven, simple techniques that can be employed to prevent damage, should it occur. Again, refer to NCCA's "Receiving Prepainted Metal Into Your Plant" document. The on-line tutorial, *How to Form Prepainted Metal* also provides helpful information on forming and can be viewed on NCCA's web site www.coilcoating.org.

Q: What about touch-ups?

A: Touch-ups are significantly reduced or eliminated. If touch-ups are needed, something is wrong in the manufacturing process. Should transit or installation damage occur, there are repair paints available from the original coating manufacturer, as there are with post-painted products.

Q: Are there cost savings associated with making the change?

A: There are not necessarily cost savings associated with the change, but cost savings enabled by the change that need to be reviewed. In other words, some of the greatest benefits will be derived in other areas of manufacturing. The use of prepaint solves manufacturing issues by increasing productivity, reducing manufacturing cycle time, providing faster throughput, producing better yields, and reducing environmental problems.

The NCCA encourages industry professionals to work with its Cost Justification Brochure to analyze all of their processes and associated costs to understand the value of using prepainted metal.

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Q: But it must be more expensive?

A: To truly understand costs involved, the customer must look at the big picture and look at the total cost versus just the cost of eliminating in-house painting. Often, the mistake is made to evaluate costs where the paint line begins and ends, instead of the entire manufacturing operation. The paint line is often the bottleneck in the manufacturing process, so you have to look at all the ancillary and supporting costs for the paint line, including time and effort to create materials to be painted at the paint line in order to do a complete cost analysis. The NCCA Cost Justification Brochure is a good starting point to assist the customer in analyzing costs.

Q: What is the minimum quantity I have to order?

A: Your order depends on your supply source. Typically, truckload orders or truckload quantities would best fit the bill. However, prepainted metal can be produced to any size order. The larger the order, the lower the cost per pound.

Q: Who supplies the metal?

A: In most cases, your current suppliers can supply the prepainted metal package. Prepaint is generally sold as a single invoice package. In other words, your current suppliers will contract with a coater who will specify the paint systems and be responsible for the uniform application of the customers' paint requirements. Beyond your current supplier, there are a variety of sources available from which you can buy prepainted metal, such as the major mills and metal service centers. Contact the NCCA for a list of its members to start locating suppliers.

Q: Can I depend on supply?

A: Yes. The coil coating industry has the capacity to meet ever-growing demand for prepainted metal.

Q: How do I make this change?

A: You can create a team with the customer organization and work with an NCCA member.

Q: How long does it take to convert to a prepaint system?

A: The majority of time is spent developing and understanding the requirements of the painted product. Once the requirements are fully understood and agreed to by all members of the team (which should include the metal supplier, coater, paint supplier, and key customer representatives), a small trial run is done to confirm that the system, which includes the metal, paint and treatment, meets customer requirements. Once the qualification process is complete, the conversion to prepaint can take place, and the current paint system can be eliminated. Depending on requirements, this transition can last anywhere from 60 days to one year.

Q: Is technical assistance available?

A: Yes. The NCCA is the first choice for technical assistance and manuals to assist the customer in a conversion to prepaint. NCCA, through its members, supports conversions to prepaint. Assistance is available from steel companies, metal treatment professionals, and an extended family of support companies who process prepainted steel.

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