

This report contains portions of the economic impact analysis report that are related to the industry profile.

SECTION 2

INDUSTRY PROFILE: METAL COIL COATINGS

Coil coating has become one of the primary processes for applying protective and decorative finishes on steel and aluminum sheets. Coil coated products are used in a variety of industries including building and construction, appliances, automotive parts, and other consumer products. The traditional coatings used during coating operations have a high concentration of solvents, which results in the emission of volatile organic compounds or VOCs. Currently, the U.S. Environmental Protection Agency (EPA) is developing national emissions standards for these hazardous air pollutants.

This report will give an overview of the metal coil coating industry. Section 2.1 provides an overview of the production processes and costs with emphasis on surface coatings. Section 2.2 summarizes the organization of the U.S. metal coil coating industry, including a description of the producer types, manufacturing companies, and industry trends. In addition, the Agency identifies small business potentially affected by the proposed rule. Finally, section 2.3 presents available market data and trends for the industry.

2.1 Production Overview

Coil coating is a continuous and highly automated process that applies coatings to coils of metal (see Figure 2-1). During a typical tandem line process, sheet metal (primarily steel and aluminum) is unwound from a coil and passes through a “wet section” where it is cleaned, and chemically treated. Once dry, the metal strip passes through a coating station for the application of protective or decorative coatings, adhesives, or printed ink patterns. After the first coating application, the metal passes through an oven for curing and is cooled by water or air spray. The top or finish coating is then applied by rollers and the metal enters a second oven for curing and drying. The finished metal strip is either rewound into coil or cut depending on customer specification. Existing coating lines process sheets of varying widths (few inches to 6 feet) and thicknesses (0.006 to 0.15 inches) (EPA, 1998).

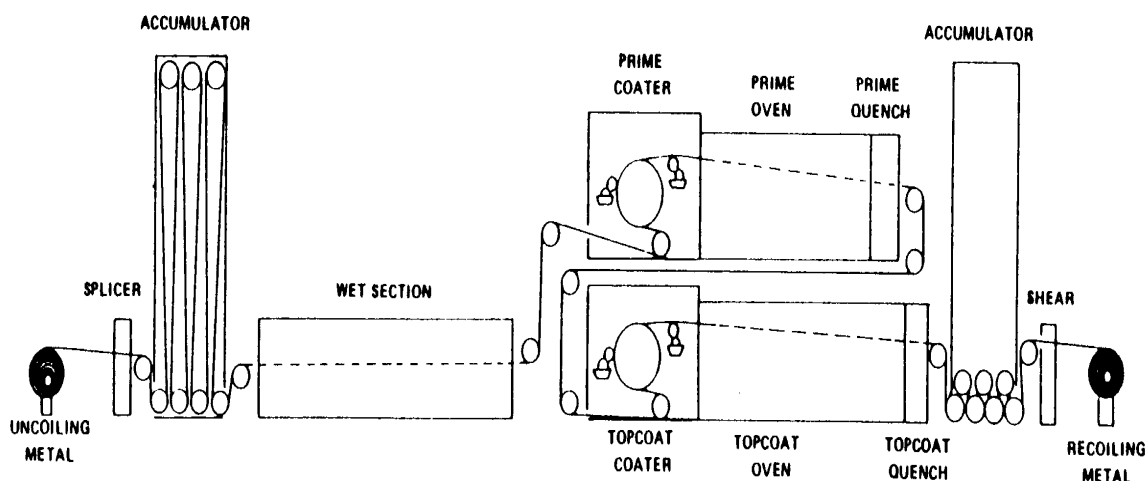


Figure 2-1. Typical Tandem Coil Coating Line

2.1.1 Coatings

There are a wide variety of coatings applied to metal coils. These include polyesters, acrylics, fluorocarbons, alkyds, vinyls, epoxies, pastisols, and organosols. The majority of the coatings (85 percent) are organic solvent based and the remaining 15 percent are waterborne type (EPA, 1998). High-solid coatings currently have limited use because of applicability and availability of suitable formulations. The six largest coatings suppliers are Akzo, Dexter, Lilly, Morton, PPG, and Valspar and provide 85 percent of coatings (Bourguignon, 1998).

2.1.2 Costs of Production

The types of metal processed by the coil coating industry include cold-rolled steel, galvanized steel, and aluminum (EPA, 1998). For 1998, Purchasing online reported spot prices for cold-rolled steel sheet at \$420 per ton, HD galvanized steel sheet \$590 per ton, and aluminum common alloy sheet at \$1.05 per pound (Purchasing Online, 1999). However, the price of steel has dropped significantly during the past year. For April 1999, Purchasing Online reported spot prices for cold-rolled steel sheet at \$360 per ton, HD galvanized steel sheet \$410 per ton (see Table 2-1).

Table 2-1. Spot Prices for Steel and Aluminum Sheet: 1999-1998

Year	1999	1998
Cold-rolled steel sheet (Midwest, \$/ton)	\$360	\$420
HD galvanized steel sheet (Midwest, \$/ton)	\$410	\$590
Aluminum (common alloy sheet 3003, \$/lb)	\$0.94	\$1.05

Source: Purchasing Online. 1999. "Hotlines."

During 1997, the coatings industry provided coil coating companies with 39.2 million gallons of coating at a value of \$611.7 million, or an average \$15.60 per gallon (see Table 2-2). However, some specialty coatings sell for more than \$50 per gallon (Bourguignon, 1998).

Table 2-2. Volume and Value of Coatings Applied to Coat Metal Coils: 1996-1997

Year	Volume (10⁶ gallons)	Value (\$10⁶)	\$/gallon
1997	39.2	\$611.70	\$15.60
1996	30.0	\$550.00	\$18.33
Total	69.2	\$1,161.70	\$16.79

Source: Bourguignon, E. 1999. "Growth Accelerating for Coil Coating."
Bourguignon, E. 1998. "Coil Coating Industry Promises Continuing Growth."

2.2 Uses, Consumers, Substitutes

One of the earliest applications for metal coil coatings was the in the production of Venetian blinds (NCCA, 1999). During the 1970's, clean air and water and work safety regulations led many companies to explore prepainting applications and this generated interest in coil coating applications in a variety of industries. Currently, coal coated products are used in building and construction, business and consumer, transportation, package, and other goods.

In 1997, building and construction products accounted for more than 60 percent of coil consumption (see Figure 2-2). Uses in this segment include residential siding, roofing, trim, gutters, metal doors, mobile homes, and modular housing. Business and consumer products (i.e., appliances and furniture) accounted for 17.4 percent, followed by transportation (8.8 percent), packaging (4.9 percent), and other (9.3 percent).

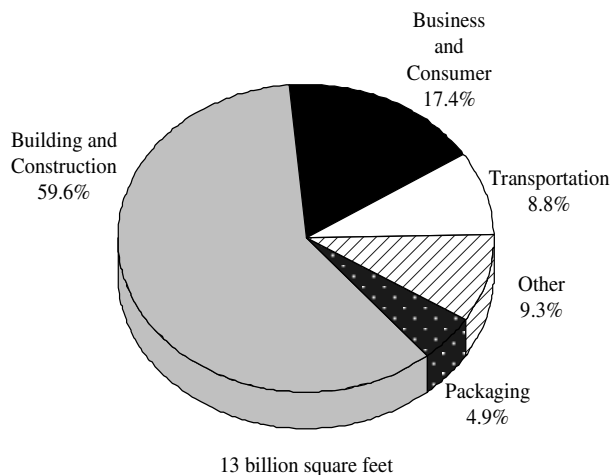


Figure 2-2. Distribution of Coated Metal Coil Shipments by Market: 1997

Coil coating competes with other methods of producing finished coated sheet metal (i.e., spraying, dipping, and brushing). Currently, one coil coating company estimates that roughly 10 percent of coated sheet metal is currently being coil coated (MSC, 1999). All coated steel competes directly with wood products in building and construction applications such as roofing. The relative price of lumber has risen over the past several years making steel coated products more attractive (Stundza, 1997).

2.3 Affected Producers

Based on facility responses to the Section 114 letters, the Agency identified 49 companies that owned 83 potentially affected metal coil coating facilities. The following section describes types of manufacturing facilities, identifies the companies that own them, and presents recent trends in products and processes.

2.3.1 *Manufacturing Facilities*

Metal coil manufacturers can be classified as one of two types of producers: toll coaters and captive coaters. Toll coaters process coils provided by steel or aluminum mills or their customers, who in turn, fabricate the coated coil into end products. For example, Materials Sciences Corporation has a tolling agreement with AK Steel Corporation whereby it agrees to provide coil coating services to its steel plants in Ohio (MSC 10-K, 1997). These coaters are providing a service rather than fabricating an end product. Captive producers' coating operations are part of a vertical operation that both coat and fabricate end products. Some coil coaters perform both types of these functions.

Coil coating plants are typically located near steel and aluminum plants to reduce raw material shipping costs. High transportation costs influence the geographic market where coated coil products are exchanged. Over half of the potentially affected facilities are located in six states (see Table 2-3). Pennsylvania has the highest number of facilities (13), followed by Alabama (8), Ohio (7), Indiana and Texas (both with six facilities), and Illinois (5).

Table 2-3. Location of Potentially Affected Facilities by State

State	Number of Facilities
PA	13
AL	8
OH	7
IN, TX	6
IL	5
Other	37
Total	82

2.3.2 *Companies*

The Agency identified 49 ultimate parent companies for metal coil facilities and obtained their sales and employment data from either their survey response or one of the following secondary sources:

- Dun and Bradstreet Market Identifiers (Dun & Bradstreet, 1999)

- Hoover's Company Profiles (Hoover's Inc., 1999)
- Business and Company ProFile (Information Access Corporation, 1999)
- Company Websites.

Appendix A provides a listing of the 49 companies that own and operate the 82 potentially affected facilities within this source category. The average (median) annual sales across all companies reporting data were \$1.8 billion (\$650 million). This includes revenue from operations other than metal coil coating. The average (median) employment was 9,918 (2,512) employees. The top four companies in annual sales are:

- Alcoa—\$15.34 billion with 103,500 employees.
- Alusuisse-Lonza Group Ltd—\$6.98 billion with 28, 495 employees.
- Crown Cork and Seal Company, Inc.—\$8.3 billion with 38, 459 employees.
- Reynolds Metals Company—\$5.86 billion with 20,000 employees.

Metal coil coating companies can also be grouped into small and large categories using Small Business Administration (SBA) general size standard definitions for SIC Codes. Responses by metal coil coating facilities to the industry survey indicated more than 30 different SIC codes with a small business definition range from 100 to 1,000 employees. Using these guidelines and available data, the Agency has identified 19 small businesses, or 38.8 percent of metal coil companies. The annual average (median) sales for these companies are \$51.7 (\$41.0) million. The average (median) employment for these companies is 245 (175) employees. Many of these small coil coating companies compete in smaller niche markets (Stundza, 1997).

2.3.3 Industry Trends

Industry has focused on the development of new or improved applications and processes. For example, NKK Corporation announced the development of a new precoated steel sheet in fall of 1998. The company plans to market is for use in audiovisual equipment and home appliances, and is targeting production levels to 1,000 tons per month by fiscal 1999 (Drukenbrod, 1998). On the process side, Material Sciences Corporation (MSC) has developed a high-speed powder coating technology and by the end of 1999, plans on operating a 54 inch line running at 400 fpm. Current powder coating lines typically run at 200 fpm (Graves, 1999).

2.4 Market Data

The coil coatings industry has experienced rapid growth since the early 1990's with an annual growth rate of 6 percent per year. For 1997, 4.9 million tons of coated coil were shipped. Of this total, steel coil shipments were 4.2 million tons, or 85 percent, and aluminum coil shipments were 0.7 million, or 15 percent (see Table 2-4).

Table 2-4. Shipments of Coated Metal Coils by Metal Type (10⁶ lbs)

Type	1997	1996
Steel	4.2	3.7
Aluminum	0.7	0.6
Total	4.9	4.3

Source: Bourguignon, E. 1999. "Growth Accelerating for Coil Coating."

Industry also reported data on square footage of coated coil for 1997 (13 billion square feet) because it is a better measure of coil coating requirements. Using this measure, 9.0 billion square feet of steel coils and 4.0 billion square feet of aluminum coils were coated and shipped during 1997. The Agency has also provided estimates of 1996 shipments based on reported annual growth rates (see Table 2-5).

To our knowledge, no publicly available price data exists for coated metal coil products. One coil company does report coating line sales and estimates its share of market production for 1996 (MSC, 1997). Based on this data, the Agency computed an estimated price of \$350 per ton. However, it is unclear whether this figure accurately reflects the price of coated steel coils because it includes revenue from toll coating service operations provided to steel production facilities as well as sales from coated coil products.

Table 2-5. Coil Coating Requirements by Metal Type (10⁹ square feet)

Type	1997	1996
Steel	9.0	7.6
Aluminum	4.0	3.4
Total	13.0	11.0

Source: Bourguigon, E. 1999. "Growth Accelerating for Coil Coating."

2.4.1 Market Trends

Industry representatives anticipate a growth rate of 8 to 10 percent for 1998 and 1999 (Pinkham, 1999). Growth in the building and construction market is expected to contribute to strong demand. Representatives see future growth in the appliance market, particularly the refrigeration segment. They also see new opportunities in full-body applications in the automotive industry as well as office furniture segment. Recently, coil coaters have expressed a desire in forming partnerships with steel service centers in identifying new end-user demands (Pinkham, 1999).

2.5 References

- Bourguignon, Edward W. 1999. "Growth Accelerating for Coil Coating." *Paint & Coatings Industry*. 15 (3): 44-45.
- Bourguignon, Edward W. 1998. "Coil Coating Industry Promises Continuing Growth." *Paint & Coatings Industry*. 14 (6): 33.
- Drukenbrod, Mark. 1998. "NKK Develops Tougher Coil Coating." *Paint & Coatings Online*. November 30, 1998. Obtained August, 1999.
- Dun & Bradstreet. 1999. *Dun's Market Identifiers* [computer file]. New York, NY: Dialog Corporation.
- Graves, Beverly. 1999. "Coil Powder Coating." *Pfonline*. <<http://www.pfonline.com/articles/099701.html>>. Obtained August 31, 1999.
- Hoover's Incorporated. 1999. *Hoover's Company Profiles*. Austin, TX: Hoover's Incorporated. <<http://http://www.hoovers.com/>>.
- Information Access Corporation. 1999. *Business & Company ProFile* [computer file]. Foster City, CA: Information Access Corporation.
- National Coil Coaters Association. 1999. "Why Coil Coating." <<http://www.coilcoaters.org/about/whycc.html>>. Obtained August 30, 1999.
- Material Sciences Corporation. 1997. 10-K Report filed May 28, 1997. <<http://www.sec.gov/Archives/edgar/data/755003/0000950131-97-003669.txt>>. Obtained September 1, 1999.
- Pinkham, Myra. 1999. "Demand Growing for Prepainted Coil." *Metal/Center News*. February, 1999.
- Purchasing Online. 1997. "A Conversation with Some Coil Coaters." *Purchasing Online*. April 3, 1997. <<http://206.128.186.135/magazine/pu...hives/1997/pru0403.97/041steel.htm>>. Obtained August 31, 1999.

Stundza, Tom. 1998. "Demand Keeps Pace with Supply." Purchasing Online. April, 9 1998.

<<http://www.manufacturing.net/magazine..achives/1998/pur0409.94/041steel.html>>

Obtained August 31, 1999.

U.S. Environmental Protection Agency. 1998. Preliminary Industry Characterization Metal Coil Surface Coating Industry.

<<http://www.epa.gov/ttn/uatw/coat/mcoil/met_coil.html>>.