

INTRODUCTION

Objective

The objective of this market study was to characterize **Galvanizing Line** operations in North America, assess their current requirements, and target the best opportunities for various **Galvanizing Line** technologies, equipment, and services.

This report is intended to provide useful information enabling suppliers that offer products and services for **Galvanizing Lines** to formulate a marketing and business strategy aimed at **Galvanizing Line** operations. This report and the detailed data and information provide potential suppliers the opportunity to assess the market for new technologies, equipment upgrades or replacements, new **Galvanizing Lines** facilities and various outsourced services.

Background

AIM Market Research has conducted hundreds of market studies aimed at the steel industry over the last 15 years. Of the more than 450 projects completed, many have focused on Rolling Mill operations and specifically Galvanizing Lines. As a result of these projects, AIM has many contacts in these operations in North America.

AIM Market Research has the qualified personnel, industry experience and essential contacts to have performed and completed this unique assignment.

Scope

This study included interviews with key personnel in 51 Galvanizing Line operations in the U.S. and Canada.¹ The 10 section 91 pages final report includes 75 figures and 13 tables. In addition to analyzing the outcome overall, these results are also analyzed by four “Type of Plant” segments. The criterion for including certain operations in each segment is further discussed under “Methodology”. There were a total of 17 other operating or scheduled (to start-up in 2010-2012) galvanizing lines that were considered for the survey, but were not included. A listing of these plants is provided in Appendix 79. Several other plants were contacted and disqualified because their galvanizing line operations were closed.

¹ This analysis includes only the first 50 surveys. The 51st survey(AK Middletown, OH) was completed after the analysis was completed.

Information Provided in this Report:

A questionnaire was developed to be used as the basis for obtaining the information in the survey of 51 **Galvanizing Line** operations in the U.S., Canada & Mexico. This questionnaire solicited the following information:

The types of Galvanizing lines operated in the plants surveyed. and regarding the galvanizing line surveyed:

1. Galvanizing production of lines surveyed, including: capacity, 2010 projected.
2. The production, and projected 2010 share of capacity, and 2010 projected by type of substrate, by major companies, and end-use markets; the year of start-up or last major upgrade; the types of galvanizing metallic coating; and the processing of advanced high strength steels.
3. Line speeds of galvanizing line surveyed for producing various types of galvanized metallic coatings for various end- use markets and what limits line speed.
4. Substrate strip widths processed by galvanizing line surveyed by segment.
5. Whether they weld coil to coil on this galvanizing line, the type of seam welder is employed, whether they have an “independent” weld control system, how well the welder is performing, whether the welder is reliable and as fast as needed, the most common problem with the welder, and whether they are considering replacing your welder with a faster more reliable welder.
6. The type of weld inspection, whether they planish the weld, and is there a process control system that is integrated with weld inspection.
7. The number weld breaks over the last 2 years and the reasons for the weld breaks, whether there are concerns that the mix of grades/gauges to be made in the future will impose greater demands on the reliability of the weld, whether their method of weld inspection inspect volumetrically to detect defects, and the opinions about the effectiveness of this method.
8. If they are not using an in-line NDT method, have they ever considered it; whether they are considering or expecting a need to make any product mix changes that may impact on the adequacy of the present method of inspection; and whether in-line weld inspection would help adapt the welding equipment to a variability of substrate grades /gauge changes.

9. The thickness gauges of substrate processed by the galvanizing lines surveyed; the type of substrate thickness measurement equipment used on the entry for your line, how long these instruments have been in use, their expected lifetime, and how much longer they are expect it to last; the most important attributes of thickness measurement gauges for the galvanizing line; substrate thickness tolerances and the consequences of out-of-tolerance substrate; the impact of the accuracy of the gauge of incoming substrate on the production of advanced high strength steels; and how metallic coating weight is verified and the consequences of out-of-tolerance coating weights.
10. Significant concerns regarding in-line cleaning capability; the impact of excessive incoming strip surface carbonaceous residue or iron ore fines on cleaning.
11. Coating problems related to residual oils, greases, and iron ore fines, etc. on the strip; whether the maintenance and reliable operation of the in-line cleaning equipment present real quality and cost problems, and whether the disposal of spent cleaning solutions an environmental headache; and whether they have any other particular concerns regarding the in-line cleaning equipment.
12. The lines that apply a passivation, including the percent and total (square footage of strip) of zinc coated (galvanize) and zinc/aluminum coated steel that is passivated, including the percent and total (square footage) that is passivated with either hexavalent chrome or RoHS compliant chrome; and the lines that apply an acrylic coating, including the percent and total (square footage of strip) of total zinc coated (galvanize) and zinc/aluminum coated steel that is passivated.
13. Whether this line occasionally experiences corrosion problems in tanks, piping, secondary containment areas; typical methods employed to repair leaks, extend life in holding tanks, piping, stacks, fume exhaust duct work, etc.; whether they have ever contracted with a firm that can do live-on-line leak repairs; whether they have ever had fiberglass reinforced corrosion resistant polyester or vinyl ester applied as a repair of equipment; and plans or anticipated requirements for the application of corrosion, secondary containment and other protective coatings and related refurbishing or repair of plant facilities.
14. The Galvanizing Furnace configuration; types of furnaces and firing; types and quantity of Radiant tubes used; the leading galvanizing furnace suppliers; the types of furnace firing & tubes by supplier; the most important factors in selection of a galvanizing/ furnace line equipment supplier; and performance ratings of the leading furnace suppliers
15. The biggest current problem or major issue regarding the present of future of these galvanizing operations; whether there are “must do” projects planned for these galvanizing line; plans to address needs; and the status of the overall drive system of the line; furnace related bottlenecks.
16. The kinds of outsourced services or technical support needed or considered and type of contract arrangement.

Methodology

Overall, 62 individuals were interviewed in the survey. Individuals specifically from “Operations” accounted for 68% (45) of all of the individuals interviewed. Figure 1 provides a summary of the functions of the individuals interviewed in the survey. The names of these individuals are provided in Appendix 2.

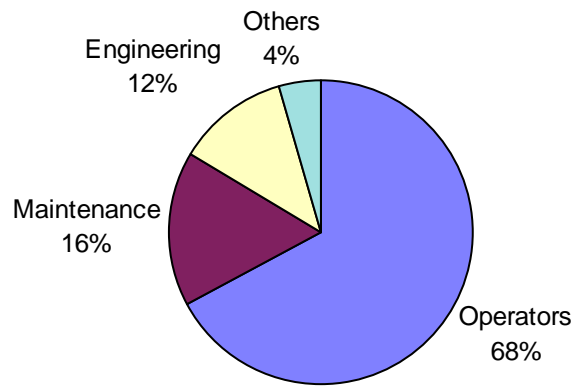


Figure 1 - Function of Individuals Surveyed

The survey was conducted between January 11, 2010 and March 15, 2010. A questionnaire was developed for use as the basis for collecting data from the individuals interviewed². The questionnaire is also the basis of the format for the “Profile Reports” provided for each of the installations surveyed. The completed Profile Reports are included in a separate binder.

² The interviews were all conducted over the phone.

Segment Analysis

In order to provide further insight, each of the **Galvanizing Lines** surveyed was assigned to one of four segments based on the “end-use markets” served by each Galvanizing Line surveyed. Overall, the “Construction” segment (41%) accounts for the largest share of plants surveyed, followed by the “Exposed Automotive” segment (27%). The analysis provided in this report summarizes the results overall and for each Type of Plant.³ Figure 2 indicates the share of plants surveyed from each segment.

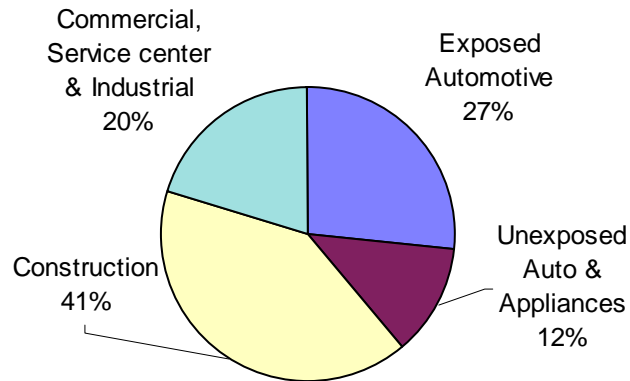


Figure 2 - End-Use Market Segments Share of Lines Surveyed

³ The criteria for assigning lines to a particular “end-use market” were : “Auto Exposed” – If a line produces any product for exposed automotive, “Other Auto & Appliance” – Other auto & appliance account for > 50% of production or the largest portion of production, “Construction” – construction market accounts for > 50% of production or the largest portion of production, “Commercial & Other” – commercial, service centers and other industrial markets account for the largest portion of production. Number in () indicates number of lines surveyed.

Location of Galvanizing Lines

The Galvanizing Lines surveyed are located in the U.S, Canada, and Mexico. The U.S. accounted for 92% of these Galvanizing Lines. The 50 Galvanizing Lines surveyed in the U.S. are located in 16 different states, Canada and Mexico. The leading states in terms of the number of Galvanizing Lines included in the survey are: Indiana (11), Ohio (7), Pennsylvania (5), and Michigan (4). Figure 3 summarizes the states or countries where these plants are located.

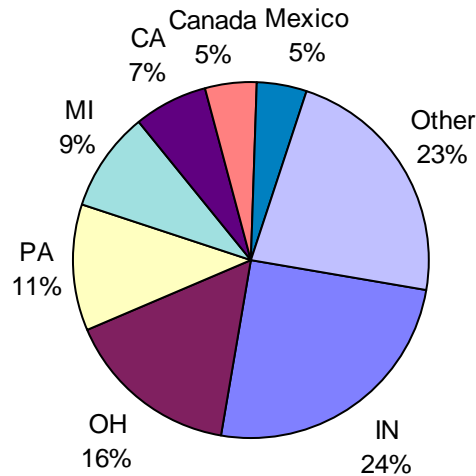


Figure 3 - Location of Galvanizing Lines Surveyed

Customized Database

A customized database was developed using the data obtained in this survey. In order to perform an analysis of this data, numerous spreadsheets and other reports were also generated. Appendices 1 – 39 summarize the data obtained in the profile reports in a tabular format. These Appendices are organized by issue and generally follow the organization of the profile report or the survey questionnaire (a copy of which is provided in Appendix 40). Data within each Appendix is organized by survey number. This permits reference to the detailed responses associated with the particular Galvanizing Line operation surveyed. In order to fully understand the basis of the information supplied in the Appendices, it will be helpful to refer to the appropriate question as it appears in the questionnaire or Profile Report.

Guidelines to interpreting the data in the figures:

1. When a number appears in parenthesis below (or beside) the “X” axis of a figure, this number refers to the total number of entities (Plants) that responded to this issue.
2. When a number appears on the “X” axis and is referred to as “Survey #”, this identifies the particular plant surveyed. The plant that is identified by this “Survey #” is indicated in Appendix 1.
3. If a number appears in parenthesis beside a percentage in the text, this indicates the number of Galvanizing Lines that that percentage represents.