



2007 GALVANIZING PROCESS SURVEY

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American Galvanizers Association
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INTRODUCTION

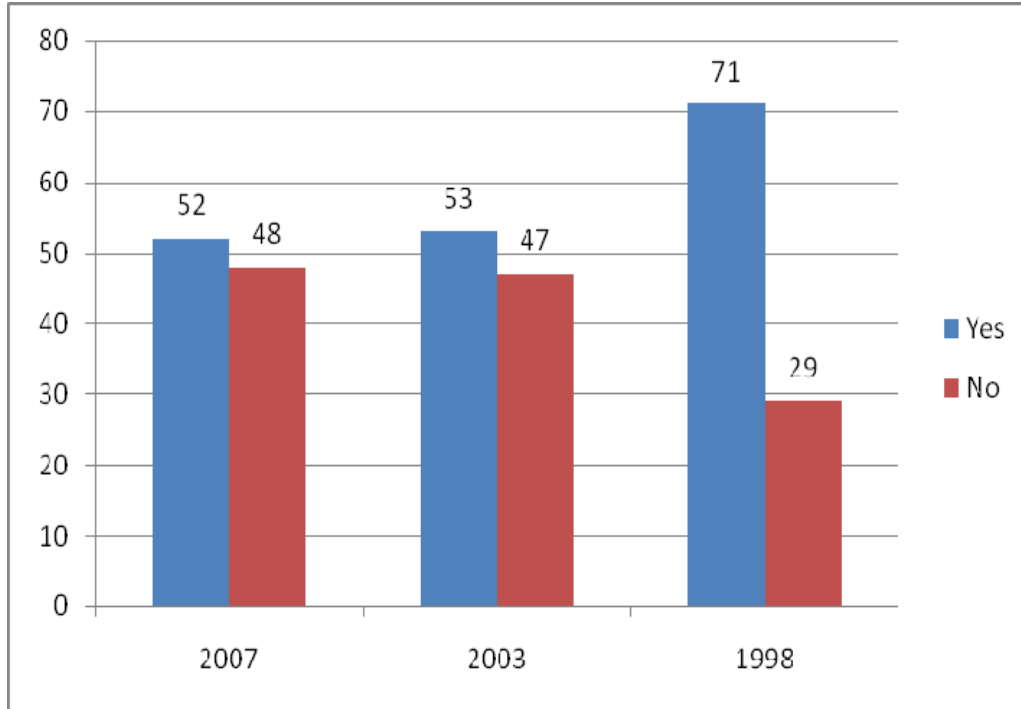
The American Galvanizers Association (AGA) conducted Galvanizing Process Surveys in 1998, 2003 and 2007. The 2007 Process Survey Report includes the results from this year's survey plus the trend analysis and comparisons to previous surveys. The Process Survey Report is a tool that galvanizers can use to compare their performance to the galvanizing industry as a whole. From these comparisons, galvanizers can identify areas where they are lagging and areas where they are excelling.

The Galvanizing Process Survey is comprised of nine categories: general information, caustic cleaning, acid pickling, flux cleaning, zinc kettle, zinc metal, zinc by-products, quenching, and material handling systems. Each of these categories is then broken down into subcategories. Each category will have accompanying data in the form of graphs or charts.

The y-axis (vertical aspect) of each graph is the *percentage* of respondents that supplied a particular answer. In some cases the overall percentage may be slightly higher or lower than 100 percent due to rounding.

The AGA created the 2007 Process Survey to help you, the galvanizer, understand where the galvanizing industry has been and where it is headed. If you have questions about this information, or would like to see more categories added to future surveys, please send an email to bduran@galvanizeit.org.

SURVEY RESPONSE RATE



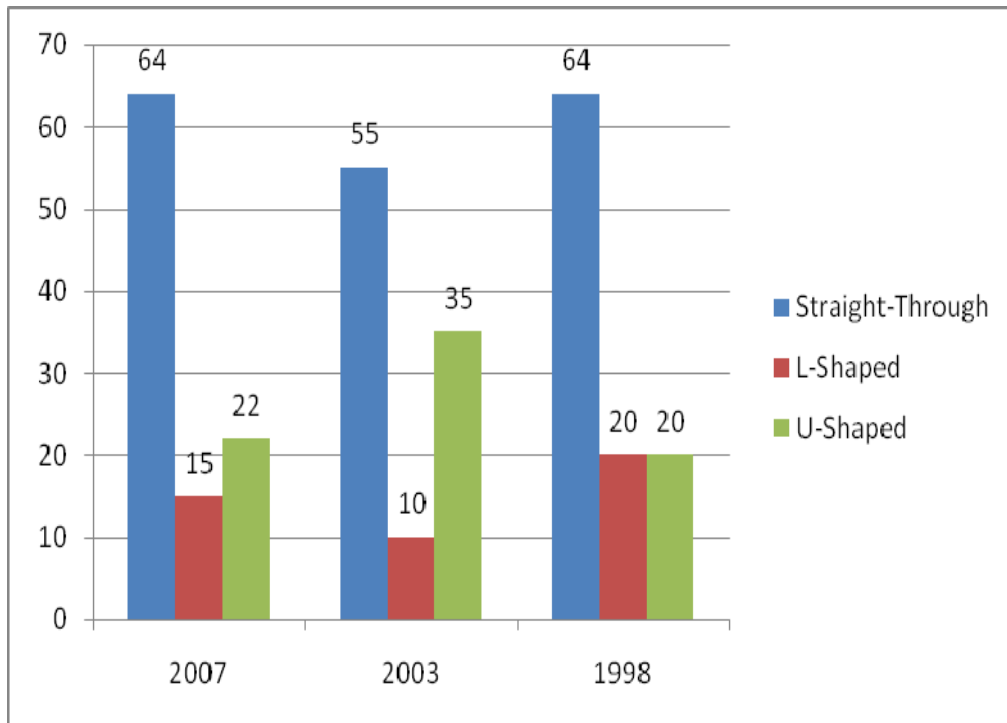
Each year the AGA has conducted the Process Survey, a smaller percentage of galvanizers have participated. In 1998, 83 out of 117 or 71% of AGA galvanizers participated in the survey. In 2003, this number fell to 53% with 63 out of 120 AGA galvanizers responding. And in 2007, 65 out of 126 or 52% of AGA galvanizers responded to the survey. The accuracy of the survey, with respect to the galvanizing industry as a whole, is based on the percentage of galvanizers that participate. If a smaller percentage of galvanizers participate in the survey, the margin of error in average numbers is greater. Slight fluctuations in answers between 2007, 2003 and 1998 Process Survey reports might be partially explained by the decrease in the percentage of survey respondents.

Another possibility for error is changes in which galvanizers responded since not all galvanizers that participated in previous surveys participated in the 2007 Survey. Once again, since the percentage of galvanizers that have participated is smaller, there is more chance for shifts in average numbers if different galvanizers respond to this survey than have in previous surveys.

Section 1 – GENERAL INFORMATION

This section contains general information on the overall plant structure, working conditions and total plant production.

PLANT LAYOUT



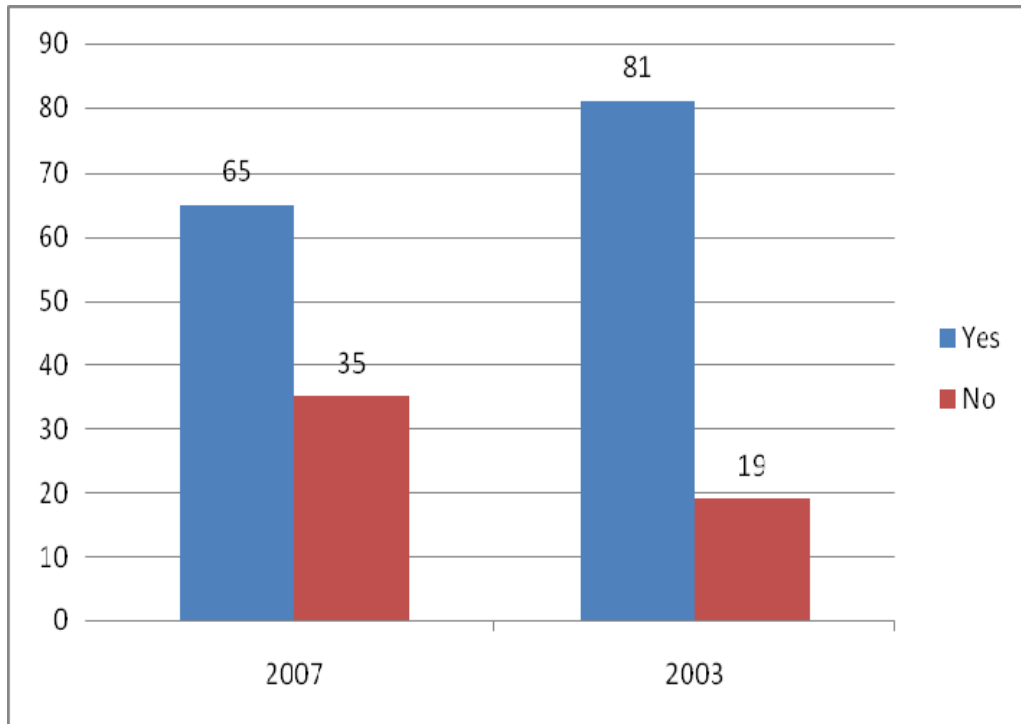
Most galvanizers use one of three plant layouts, which include straight-through, L-shaped and U-shaped.

The straight-through design has been the most popular plant layout for each process survey. This is probably because of the ease of processing the steel with the straight-through layout. The steel arrives at one end of the plant and is able to follow a linear path to its final destination at the other end of the plant. This reduces the possibility of congestion as the steel goes through the pre-cleaning and galvanizing processes. The same amount of galvanizers reported using this layout in 2007 as in 1998. In 2003 nearly 10% less galvanizers reported using the straight-through design. The difference might be due to the composition of survey respondents in 2003.

The next most popular plant layout was the U-shaped design. Similar percentages of galvanizers reported using this design on the 2007 and 1998 Surveys. The survey in 2003 indicated 15% more galvanizers reported they used this design than in 2007 and 1998.

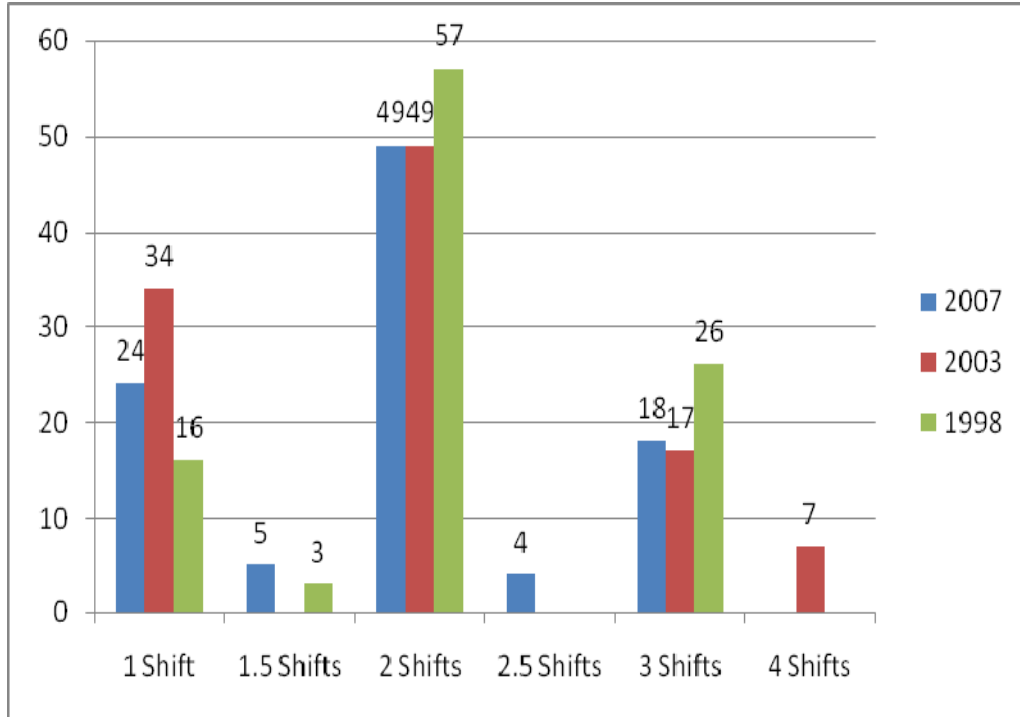
The least popular plant design is the L-shape. This design was reported more often in 2007 than in 2003, although the design had its highest percentage of reported users in 1998. In fact, in 1998 the number of galvanizers who reported using the L and U-shaped designs were equal.

PRODUCTION INCENTIVE



Galvanizers were asked if they give their employees production incentives during only the 2007 and 2003 process surveys. In 2007, 16% fewer galvanizers reported offering production incentives than in 2003.

PRODUCTION SHIFTS PER DAY



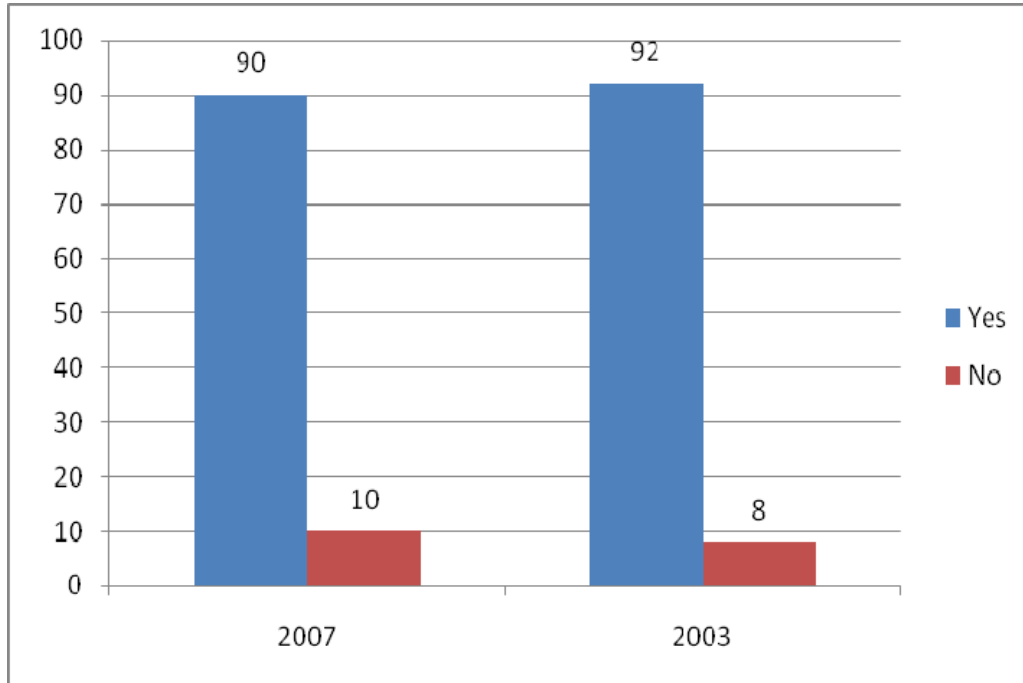
All surveys noted that shifts/day and days/week could depend on the workload. The average number of shifts per workday has remained at around two, although the surveys show galvanizers have been experimenting with different numbers of shifts. This is likely due to changes made because of workload variations. This could also be caused by maintenance and other changes at plants, which requires changes in the number of shifts that can work every day.

In 2007, almost a quarter of galvanizers reported having one shift only. This was a decrease from 2003 but still more than in 1998. Nearly half of galvanizers surveyed in 2007 and 2003 had two shifts. In 1998, more galvanizers used two shifts than in 2007 or 2003. Nearly 20% of galvanizers reported using three shifts in 2007, which is similar to the percentage from the 2003 survey. In 1998, more galvanizers reported employing three shifts. Galvanizers that utilize half shifts (1.5 or 2.5 shifts) made up less than 5% of galvanizers in 2007 and 1998.

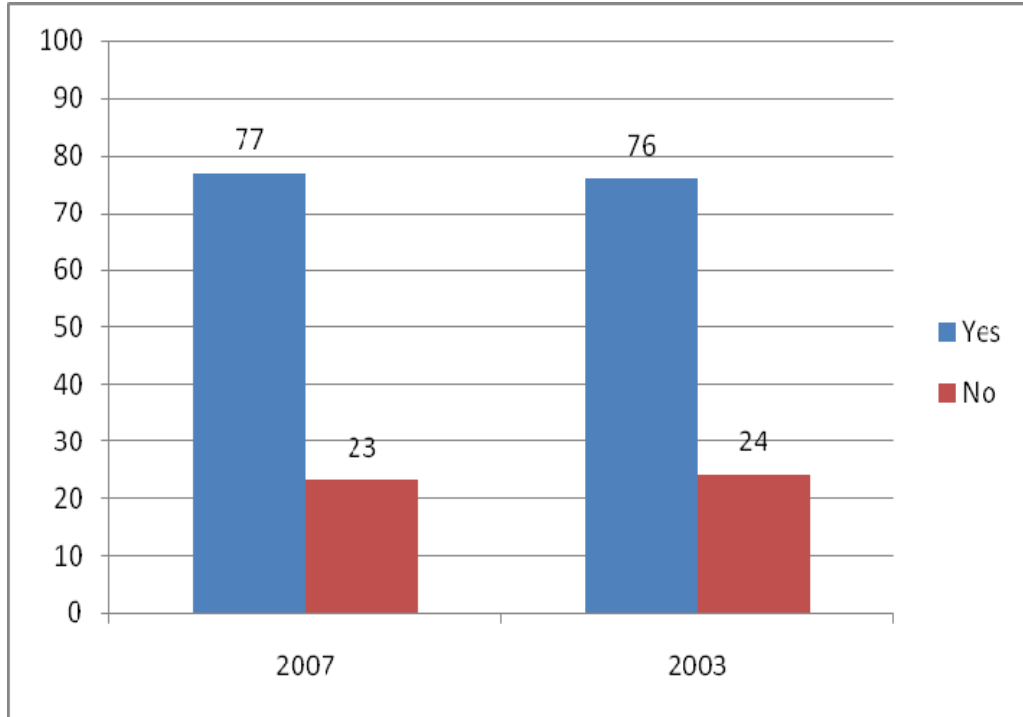
PRODUCTS THAT ARE GALVANIZED

MIXED STRUCTURES

Mixed structures include light, medium and heavy structural parts, beams, angles and channels. Most survey respondents reported that they galvanize mixed structures in 2007 and 2003. The slight variation is likely due to variations in the composition of survey respondents.

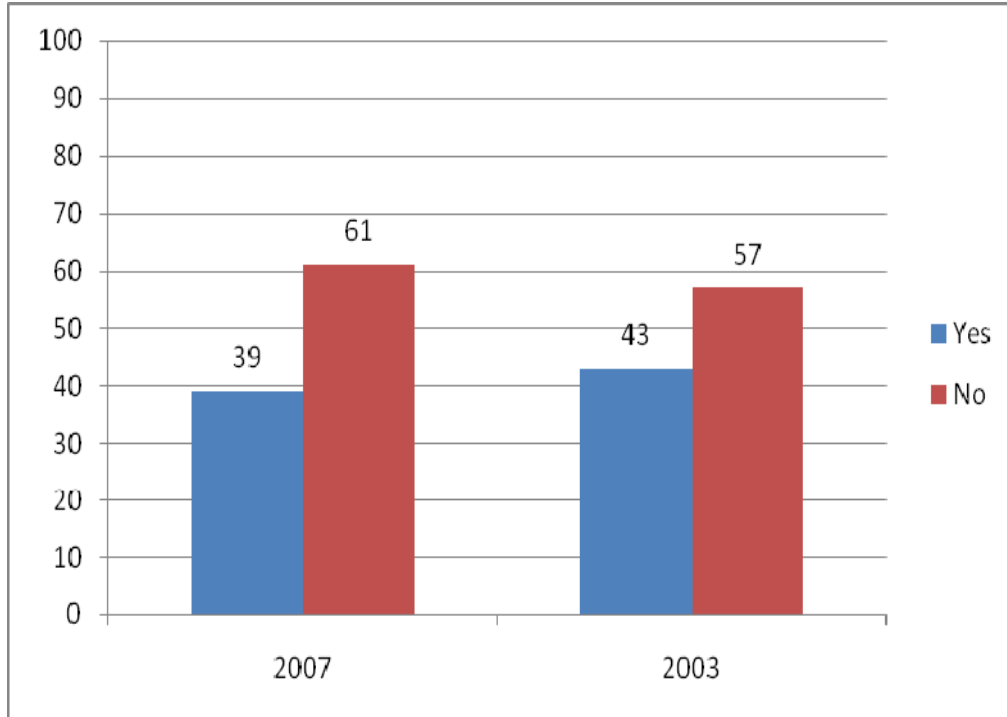


HIGHWAY PRODUCTS



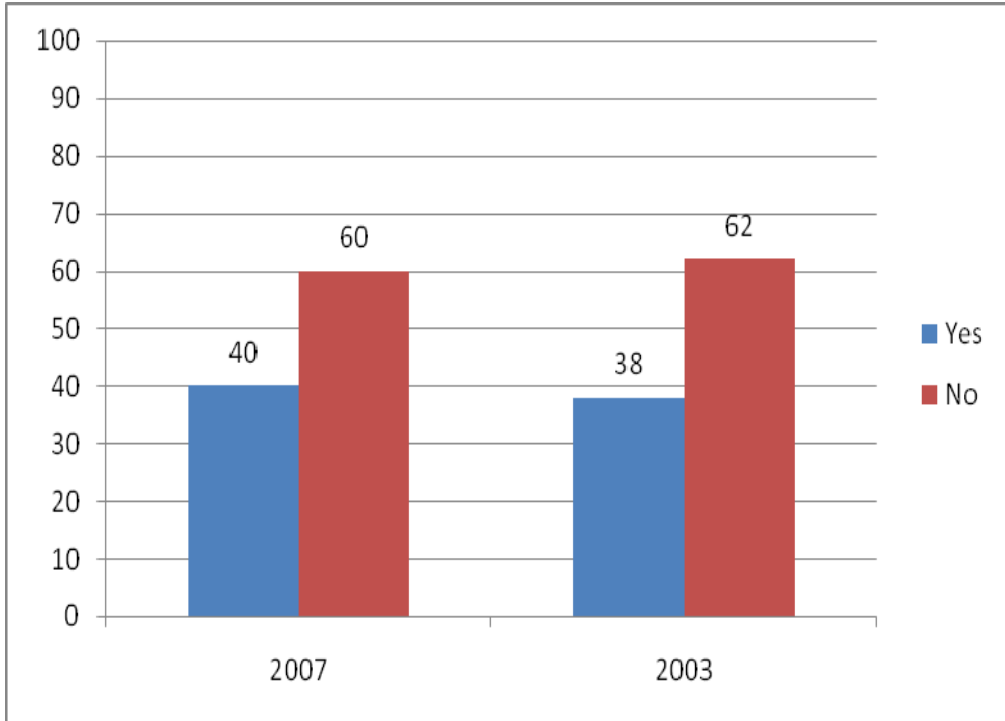
Survey results for 2007 have not changed much compared to 2003. Three-quarters of respondents galvanize highway products.

FASTENERS AND HARDWARE



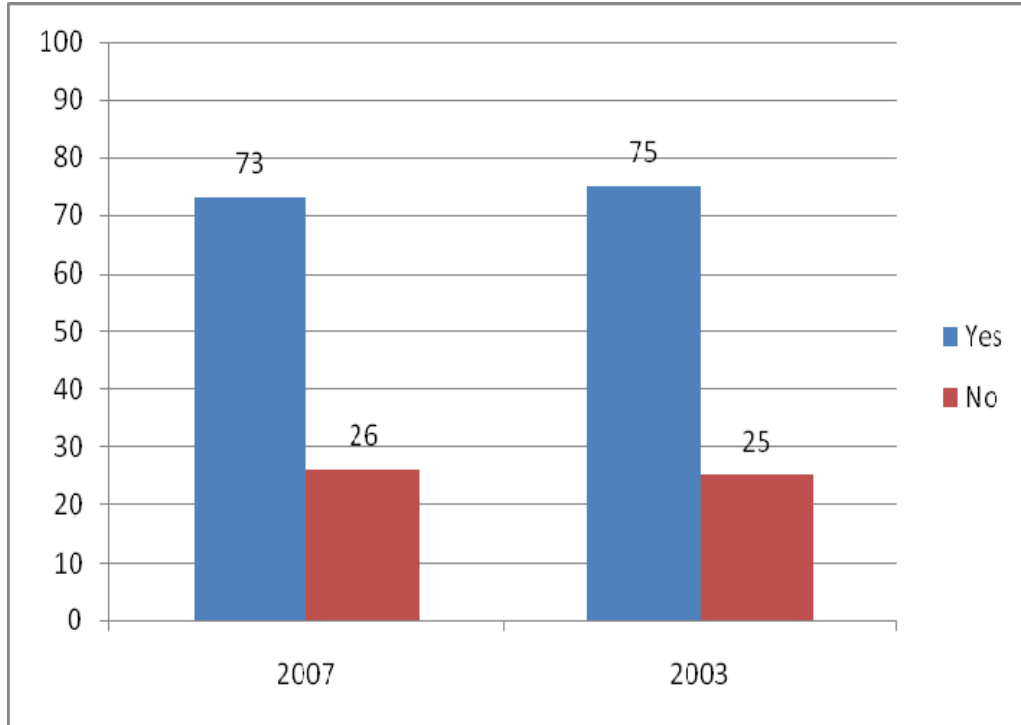
Approximately 40% of respondents reported galvanizing fasteners and hardware in 2007 and 2003. These results include galvanizers with and without spinning or centrifuging capabilities.

FENCE



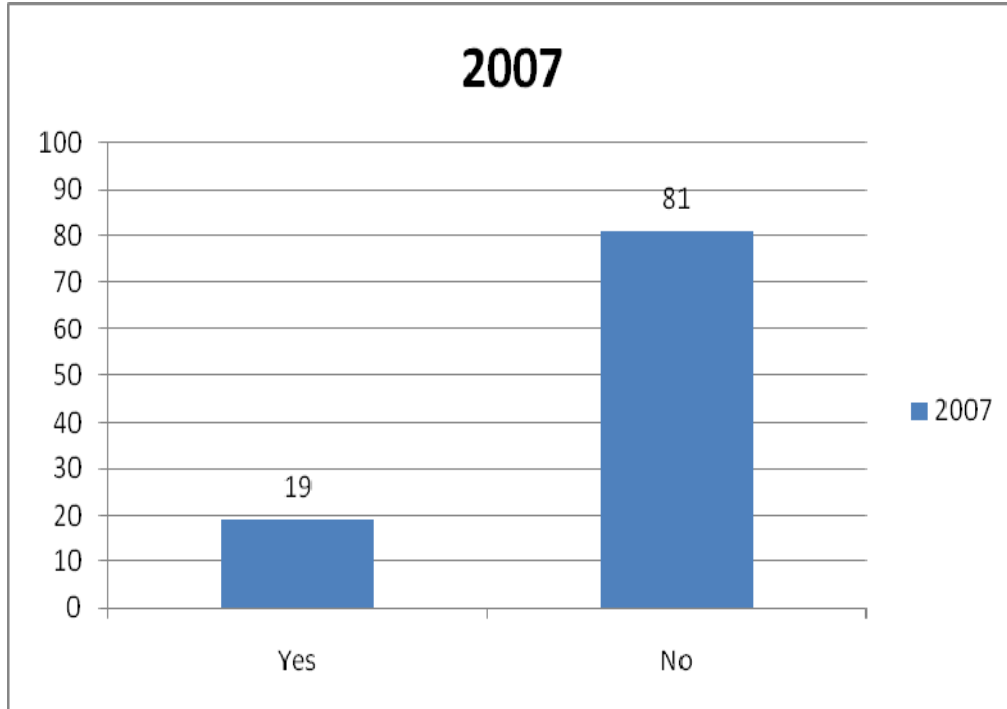
Approximately 40% of respondents reported galvanizing fence products.

PIPE AND TUBE



Three-quarters of respondents reported they galvanize pipes and tubes. Once again, there has not been much variation between the 2007 and 2003 survey results.

WIRE

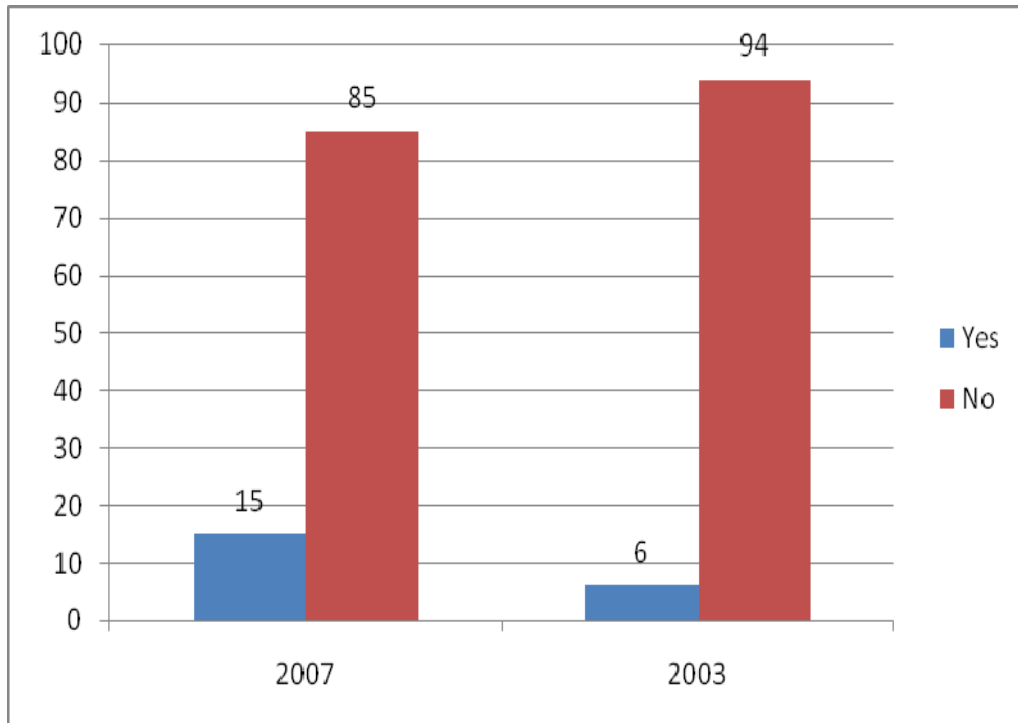


Fewer than 20% of survey respondents indicated they galvanize wire products. A new category for wire was introduced on the 2007 Survey. It is likely wire was galvanized before 2007, but previous surveys didn't ask about it.

Survey results reveal that there has not been much change between the 2007 and 2003 Process Surveys in the types of products that are galvanized. New items were galvanized in 2007, but the most traditional items of structural steel and highway products still dominate the market place.

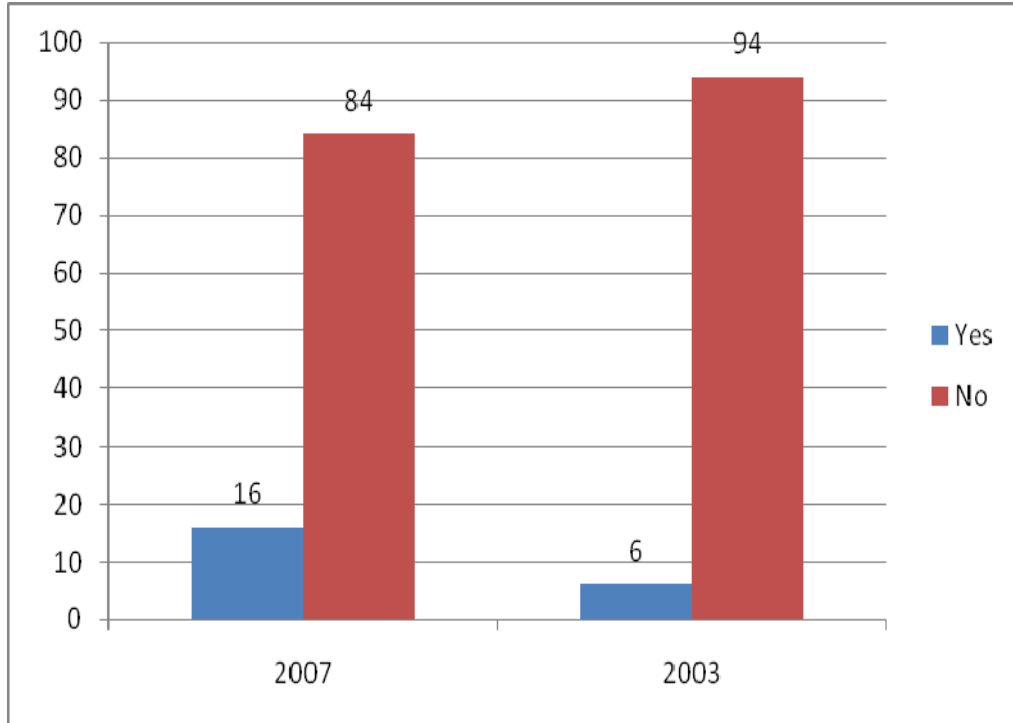
CERTIFICATION

SAFETY MANAGEMENT



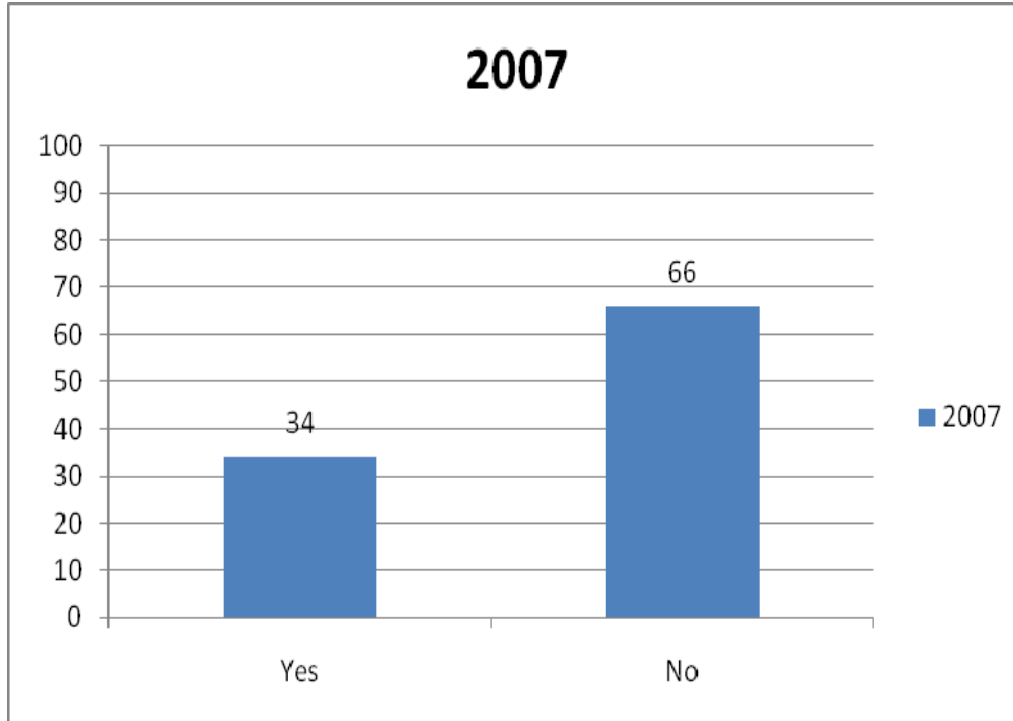
There was a fluctuation in the survey results for this category between the 2007 and 2003 Surveys. More galvanizers are obtaining certification for safety management. This is due to better safety records and corresponding insurance rates that are less expensive.

ENVIRONMENTAL MANAGEMENT



Slightly more galvanizers were certified for environmental management in 2007 than in 2003. Galvanizers who obtain certification for environmental management are trying to stay ahead of new environmental policies and regulations.

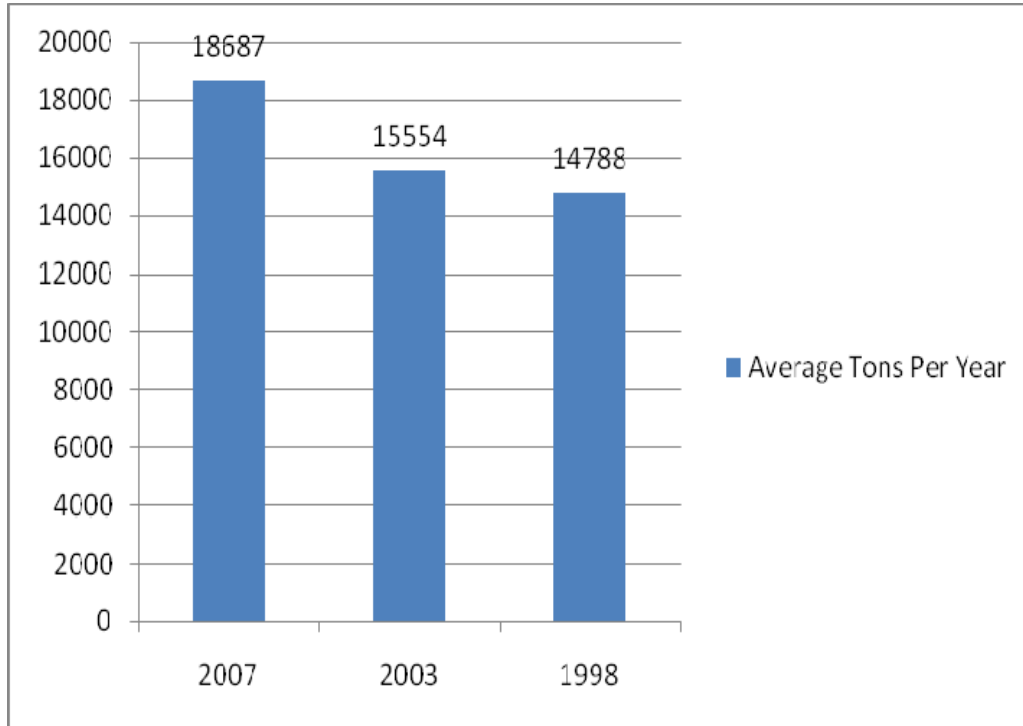
QUALITY MANAGEMENT



Survey results for quality management were obtained only on the 2007 Process Survey. One-third of galvanizers have quality management certification, which means more galvanizers are certified in quality management than in any other certification category. This has been required by way of galvanizing customers, so the number of galvanizers that have been certified in quality management is increasing.

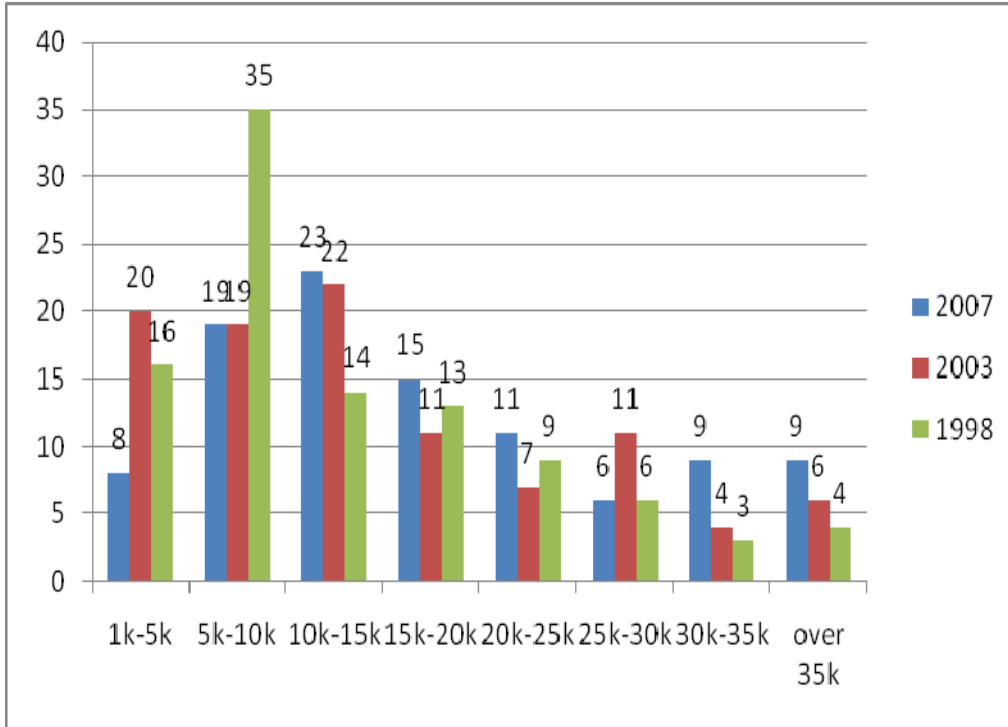
PLANT PRODUCTION

AVERAGE AMOUNT OF STEEL GALVANIZED PER YEAR



The survey results show an increase in the amount of steel galvanized per year each time a survey is conducted. The 2007 Survey showed a 20% increase in the average amount of steel galvanized (per reporting galvanizer) per year over the 2003 Survey average. The 2003 Survey showed a 5% increase in the average amount of steel galvanized in 1998.

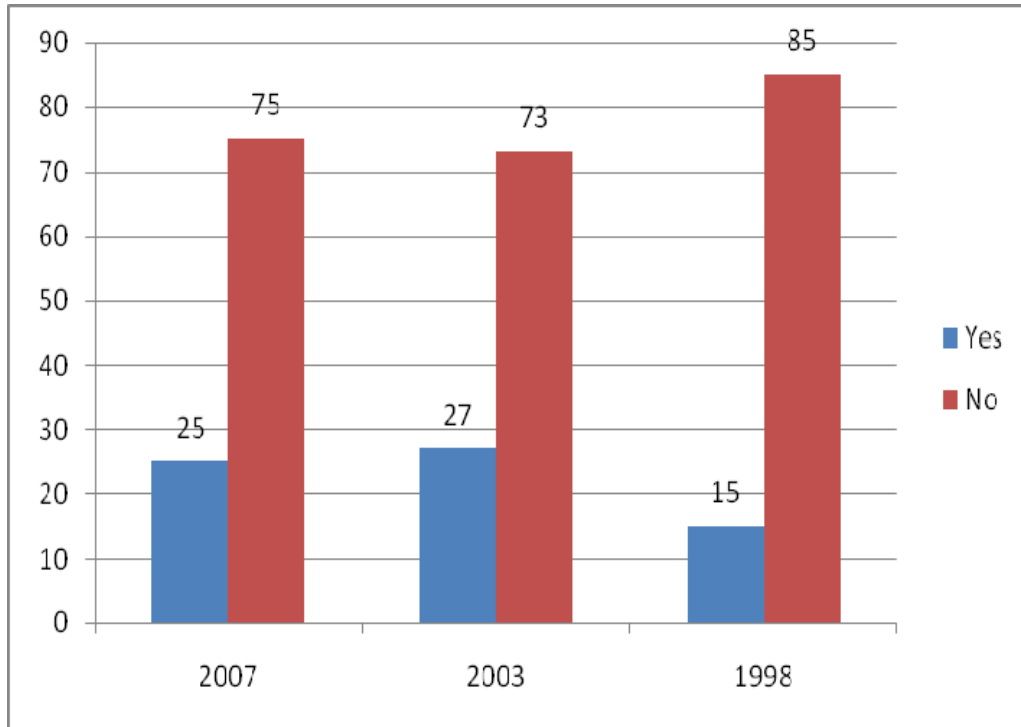
TONS OF STEEL GALVANIZED



The chart is arranged in ranges of steel galvanized by tonnage (i.e., 1000 to 5000 tons; 20,000 to 25,000 tons). The 2007 Survey results show higher amounts of steel being galvanized per range in higher ranges than in previous surveys. Also, the number of respondents that galvanized an amount of steel that fell into the lowest range, 1000 tons to 5000 tons, fell sharply on the 2007 Survey. This is probably due to differences in composition of survey respondents. The large jump in the average tonnage of steel being galvanized per year when compared to the 2003 Process Survey is explained by more steel being galvanized in the higher ranges and less steel being galvanized in the lower ranges.

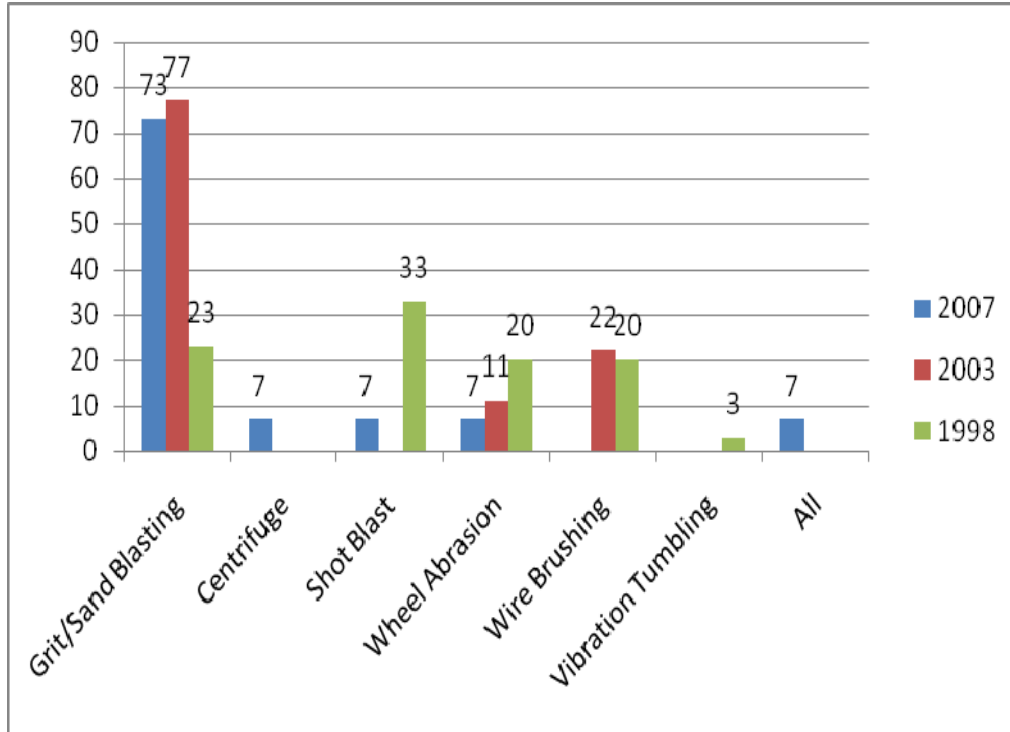
CLEANING

MECHANICAL CLEANING



Roughly the same amount of galvanizers reported using mechanical methods to clean the steel prior to degreasing in 2007 as in 2003.

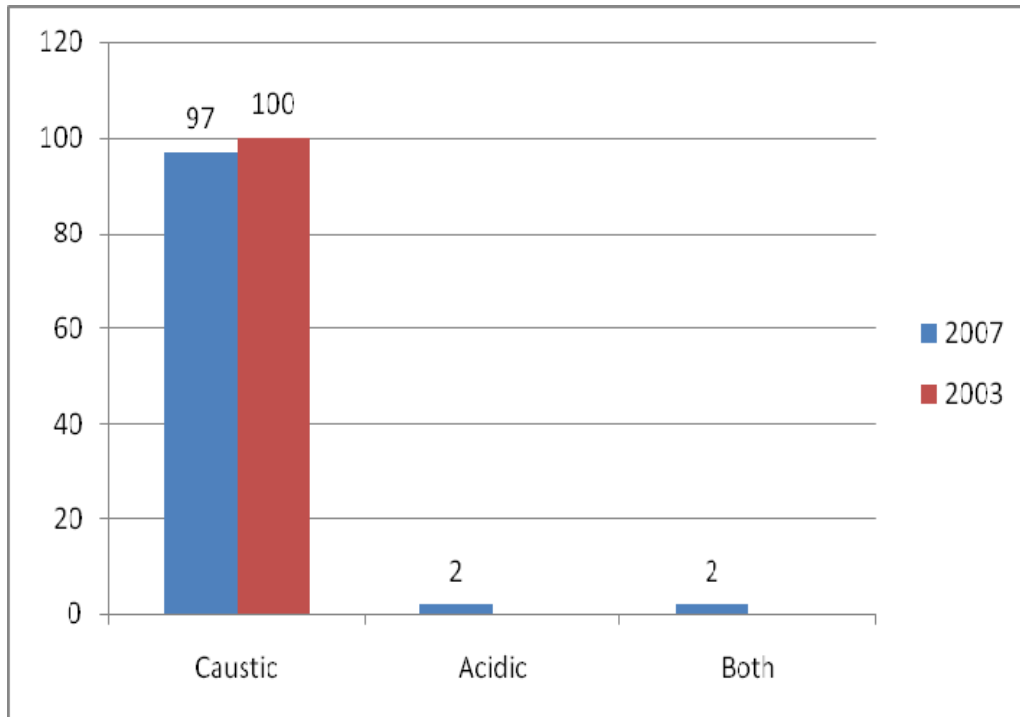
MECHANICAL CLEANING METHODS



Grit or sand blasting was reported as the most popular choice to mechanically clean steel; 70% of respondents reporting using these methods. Other than grit or sand blasting, respondents varied widely in the mechanical cleaning methods they use.

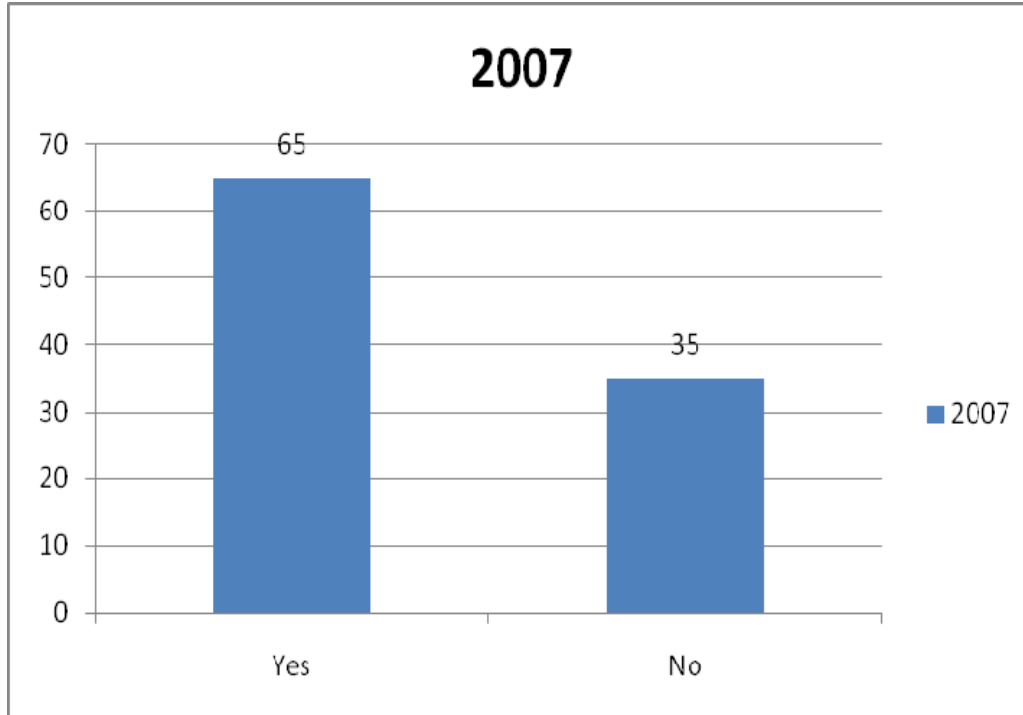
Section 2 – CAUSTIC CLEANING

TYPE OF DEGREASER USED



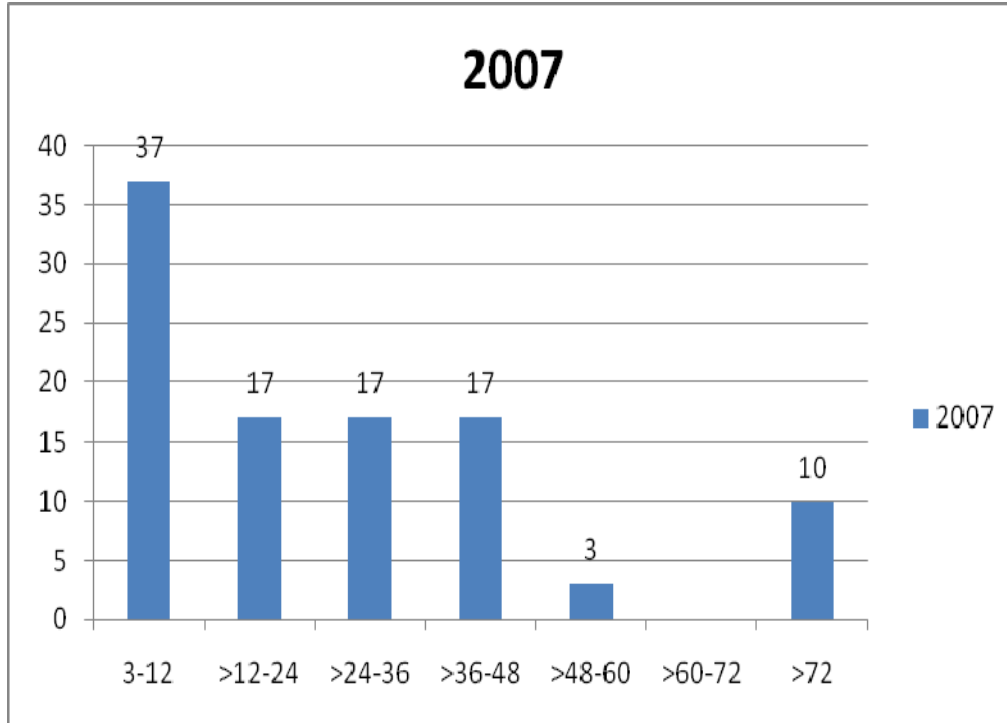
Six out of 59 (10%) galvanizers that responded to the 2007 Survey did not answer whether they have a degreasing bath. The 2007 Process Survey was the first survey that showed a small percentage of galvanizers use acidic baths in their degreasing process. An equally small percentage use both acidic and caustic cleaning baths. Using a caustic solution to degrease the steel remains the most popular method; 97% of respondents indicated using a caustic degreasing solution.

DEGREASING FILTRATION



The majority of respondents (65%) reported filtering their degreasing solution. This is a huge increase compared to 2003 when only 5% of galvanizers reported using a filtration system. Filtering the degreasing solution reduces or eliminates the need to decant the tank and remove the sludge from the bottom of the tank. This maximizes uptime and allows steel to be cleaned at more consistent solution concentrations. Filtering the degreasing solution also saves galvanizers money.

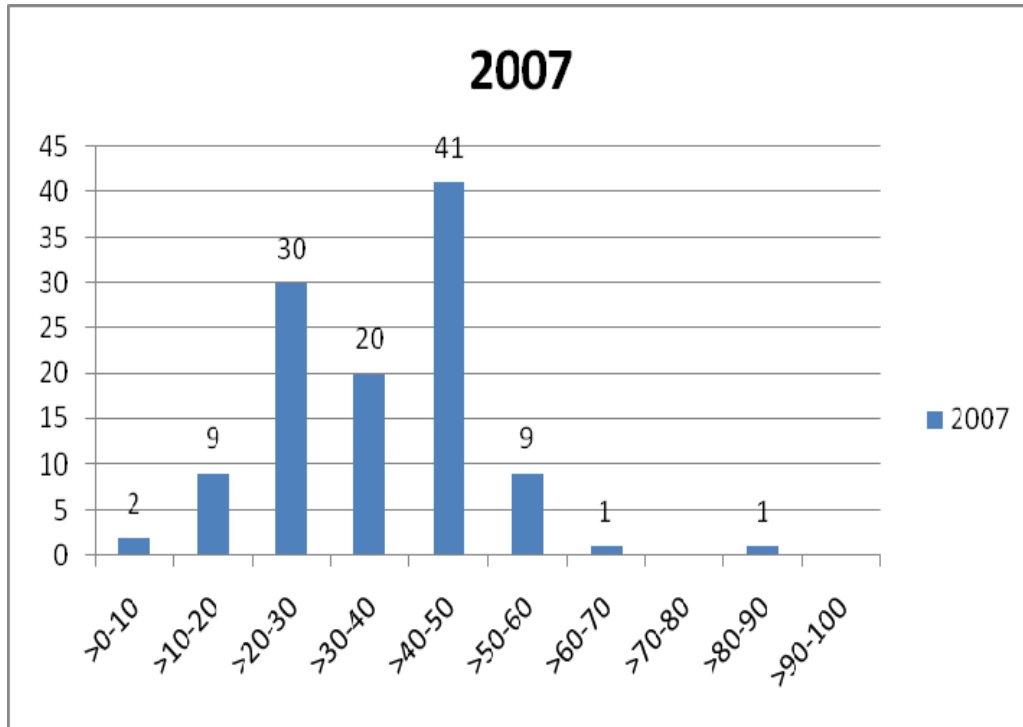
AVERAGE LIFE OF DEGREASING TANK IN MONTHS



The chart shows a wide distribution in reported degreasing tank life in months. 37% of respondents reported replacing their degreasing tank within 3 to 12 months. 88% reported replacing their tank within 60 months.

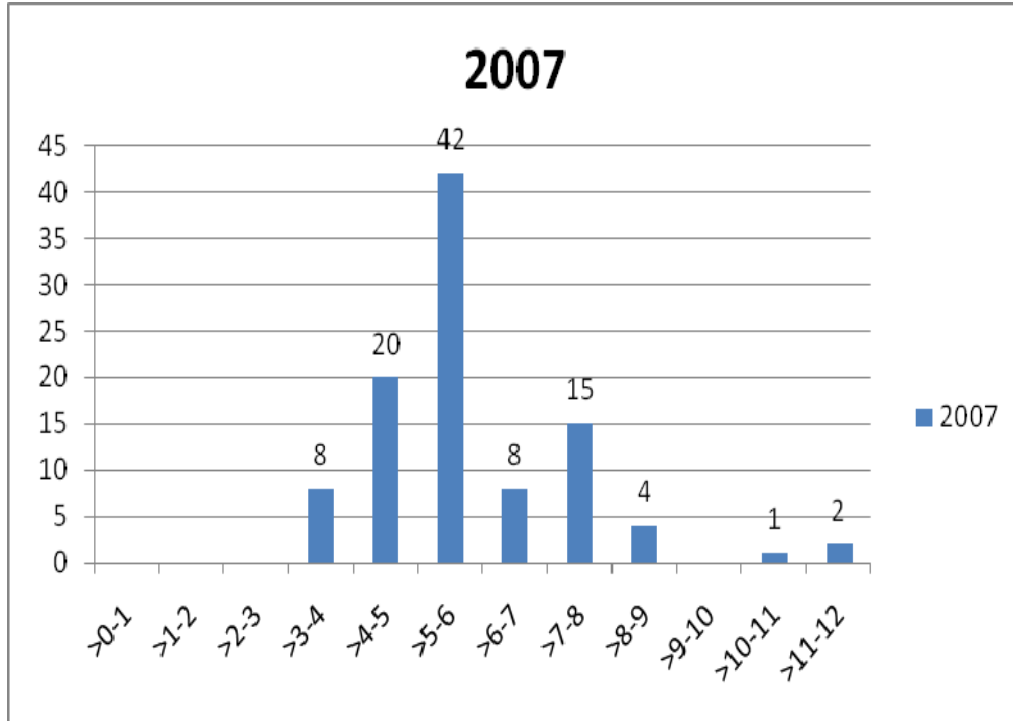
Section 3 – ACID PICKLING

LENGTH OF PICKLING TANK



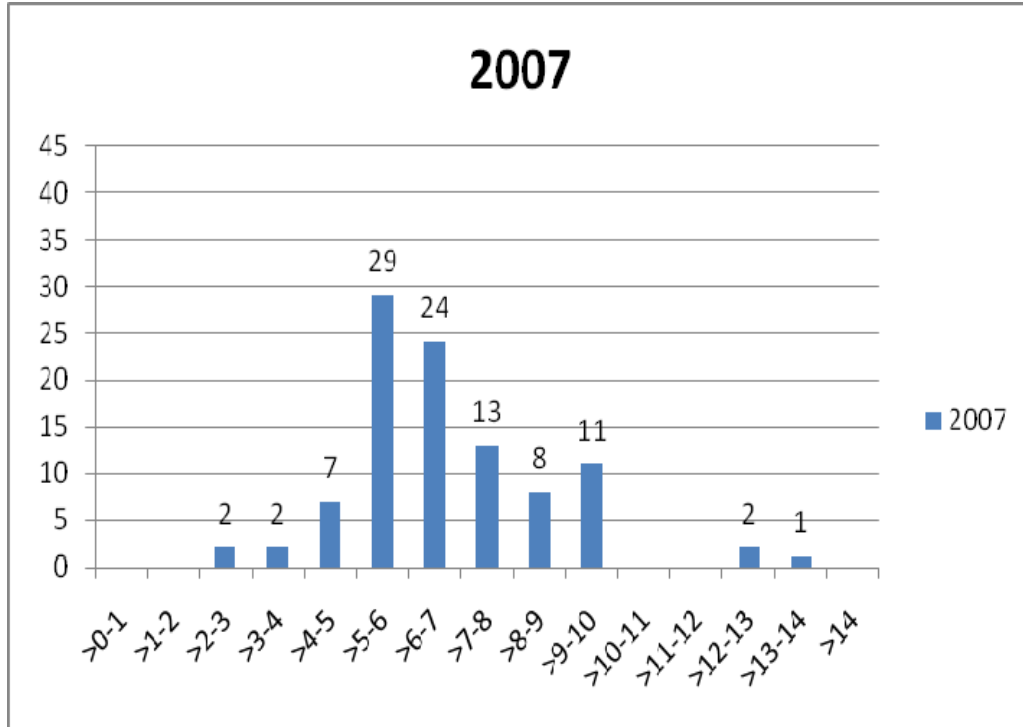
The chart indicates that 91% of respondents have pickling tanks with a length of 20 to 50 feet long. The average length of the 91 pickling tanks that were reported was 37.2 feet.

WIDTH OF PICKLING TANK



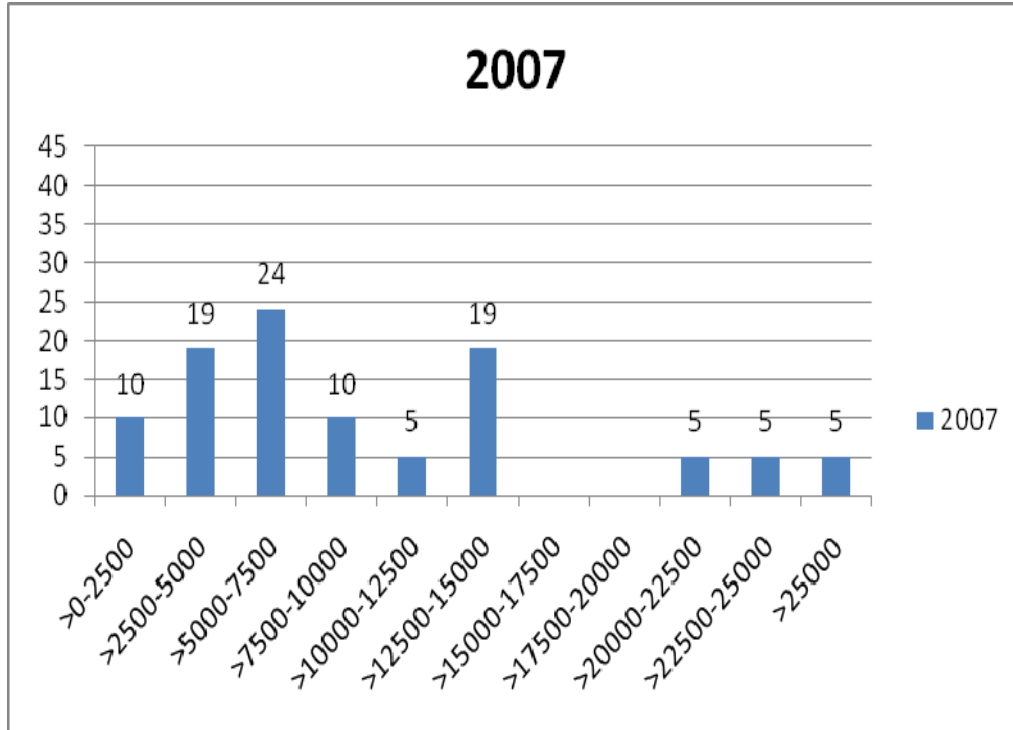
The most popular pickling tank width was from five to six feet; 42% of respondents reported this length. 85% of survey respondents reported pickling tanks with a width of 4 to 8 feet. The average width of the 91 pickling tanks that were reported was 6.3 feet.

DEPTH OF PICKLING TANK



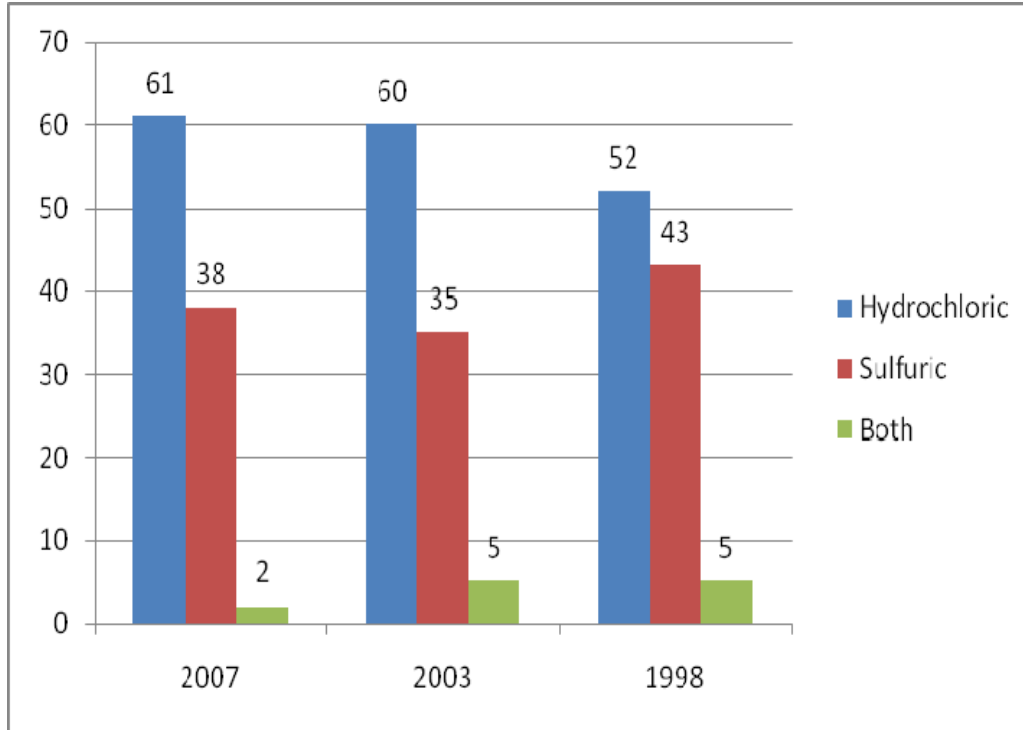
The chart shows that the most popular ranges of pickling tank depths was five to six feet and six to seven feet. These two categories accounted for 53% of the survey results. 85% of respondents indicated tank depths from five to 10 feet deep. Depth figures were reported for only 87 pickling tanks. The average depth was 7.14 feet.

GALLONS PER PICKLING TANK



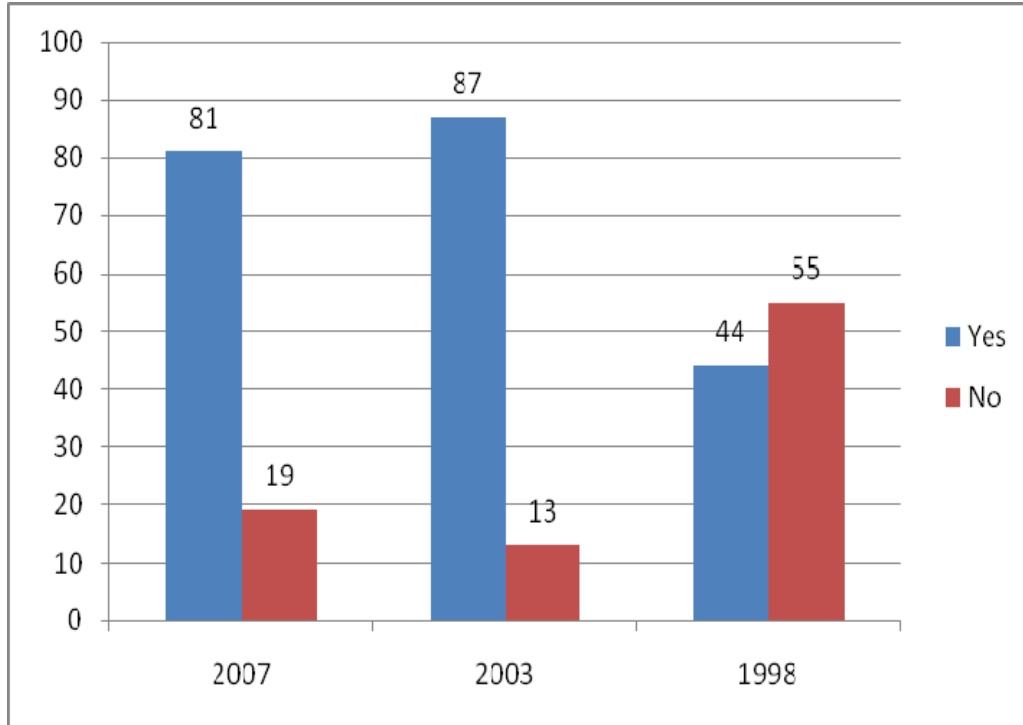
Survey respondents reported a wide range of gallons per pickling tank in ranges under 15,000 gallons. Results indicated 85% of the tanks were 15,000 gallons or less. The other 15% of pickling tanks had capacities greater than 20,000 gallons.

TYPE OF ACID USED IN PICKLING TANK



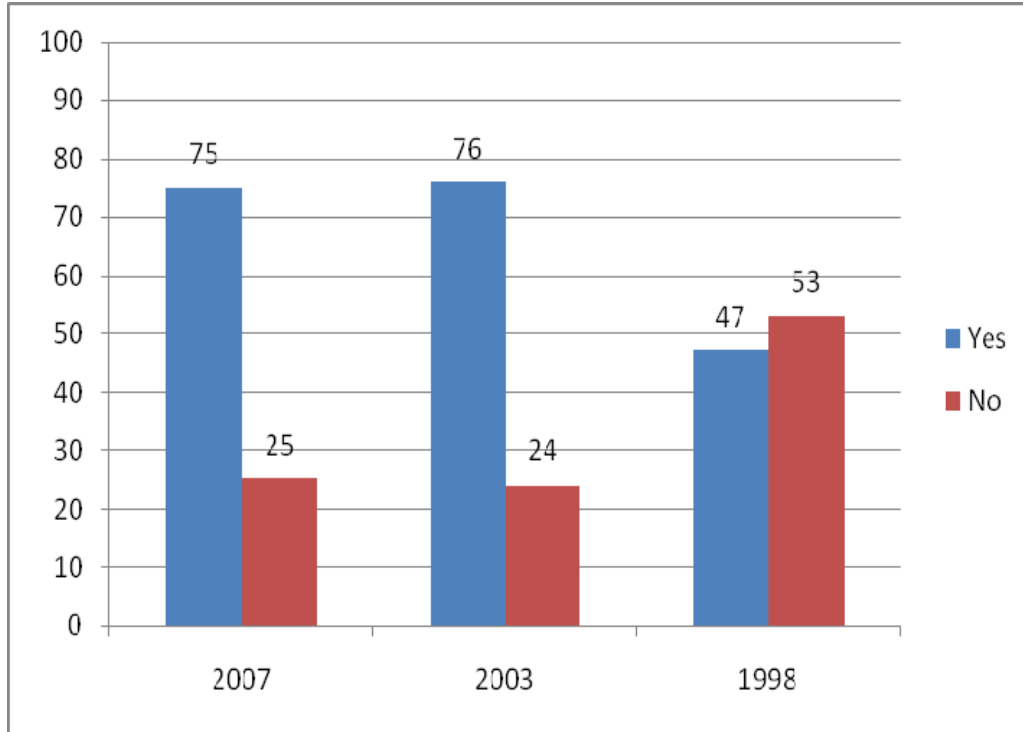
Previous surveys have shown a trend in galvanizers using more hydrochloric pickling tanks than sulfuric tanks. This trend seems to have leveled out when comparing the 2007 and 2003 Process Surveys results. Hydrochloric acid is the most common type of acid used to pickle the steel prior to fluxing with 61% of respondents. 38% of respondents reported using sulfuric acid.

ARE ADDITIVES USED IN THE PICKLING TANK?



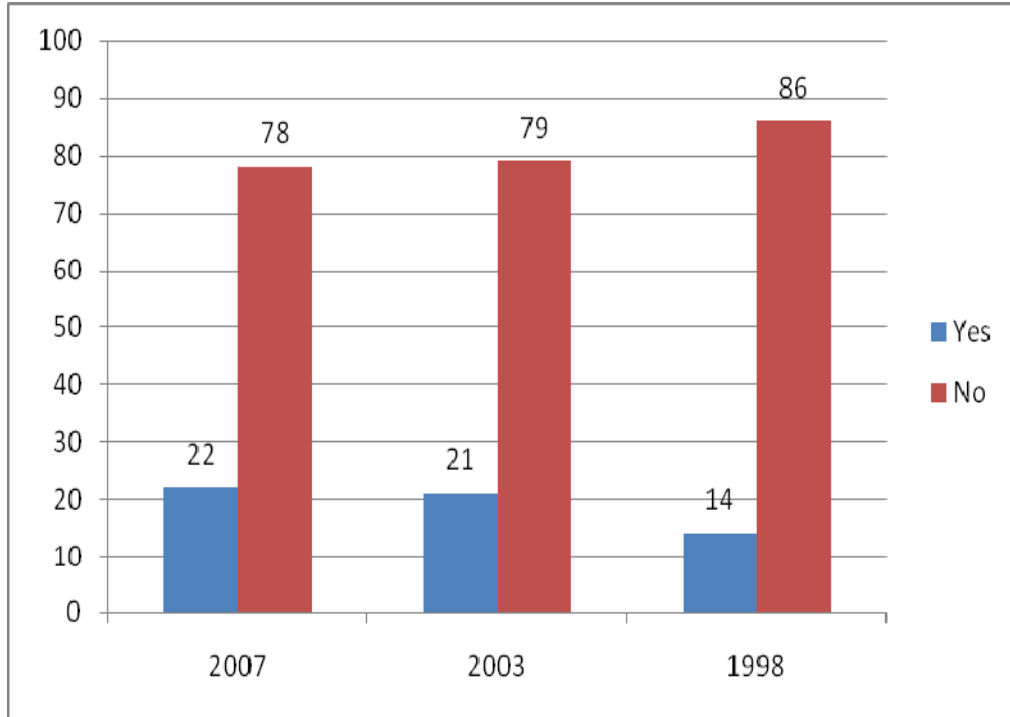
Nearly two times more galvanizers indicated using additives in their pickling tanks in 2007 than in 1998; however, the survey results show a slight decrease in the percentage of galvanizers using additives in 2007 compared to the 2003 Process Survey.

INHIBITORS



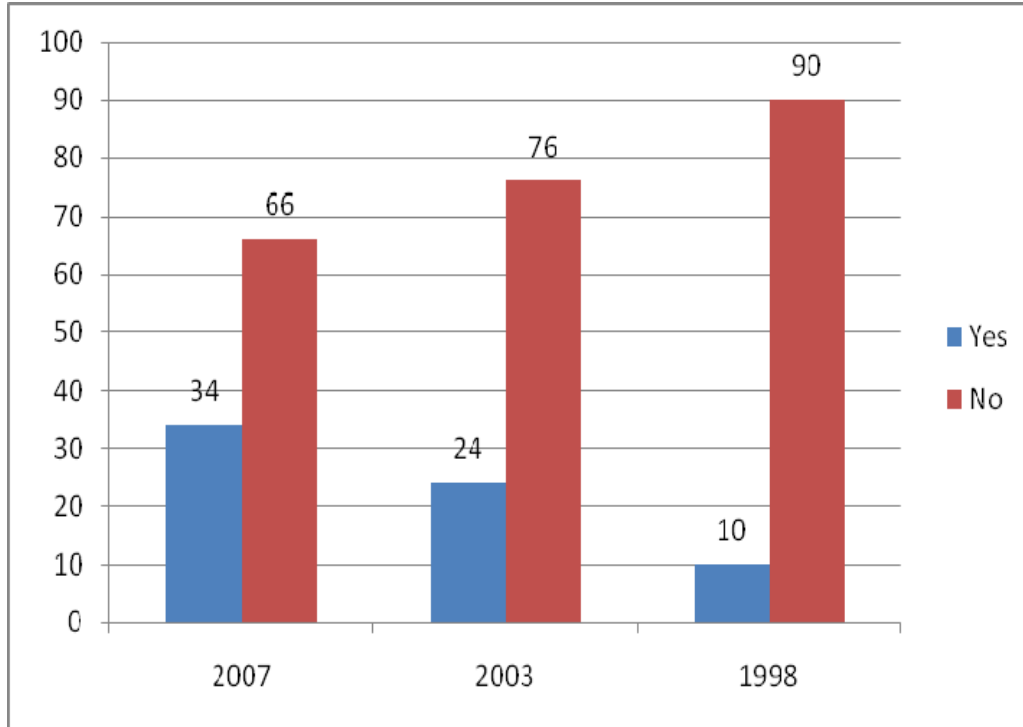
Survey results show that 75% of survey respondents use inhibitors. This is nearly the same value as reported in 2003.

FOAMING AGENTS



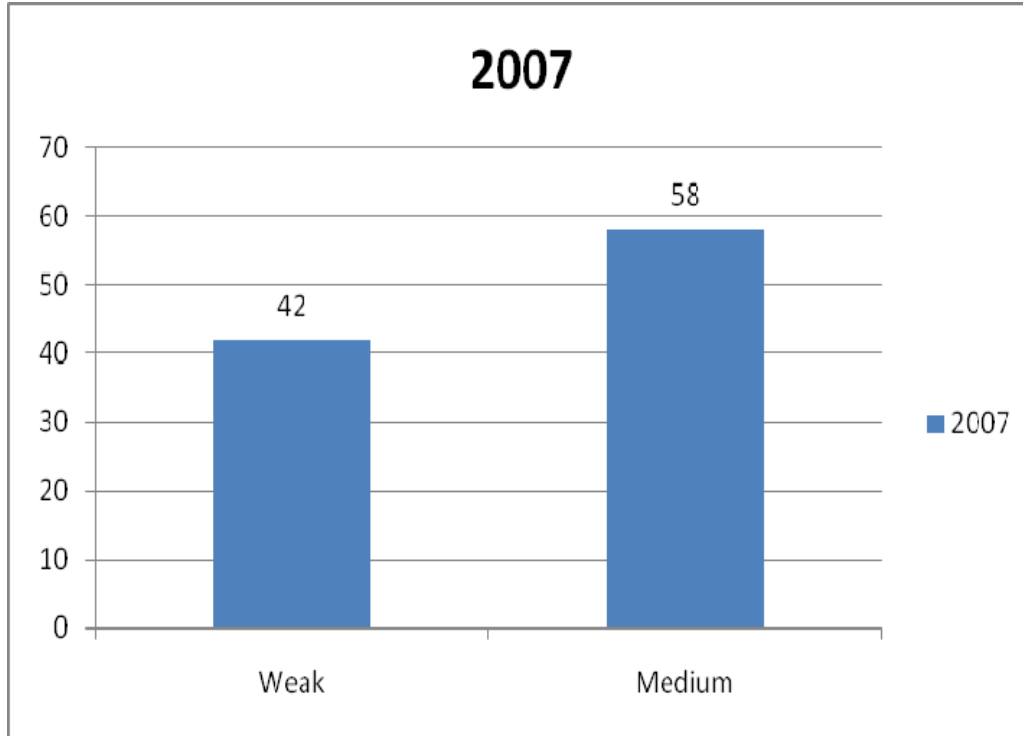
Survey results indicated the percentage of galvanizers using foaming agents for 2007 was nearly the same as in 2003.

WETTING AGENTS



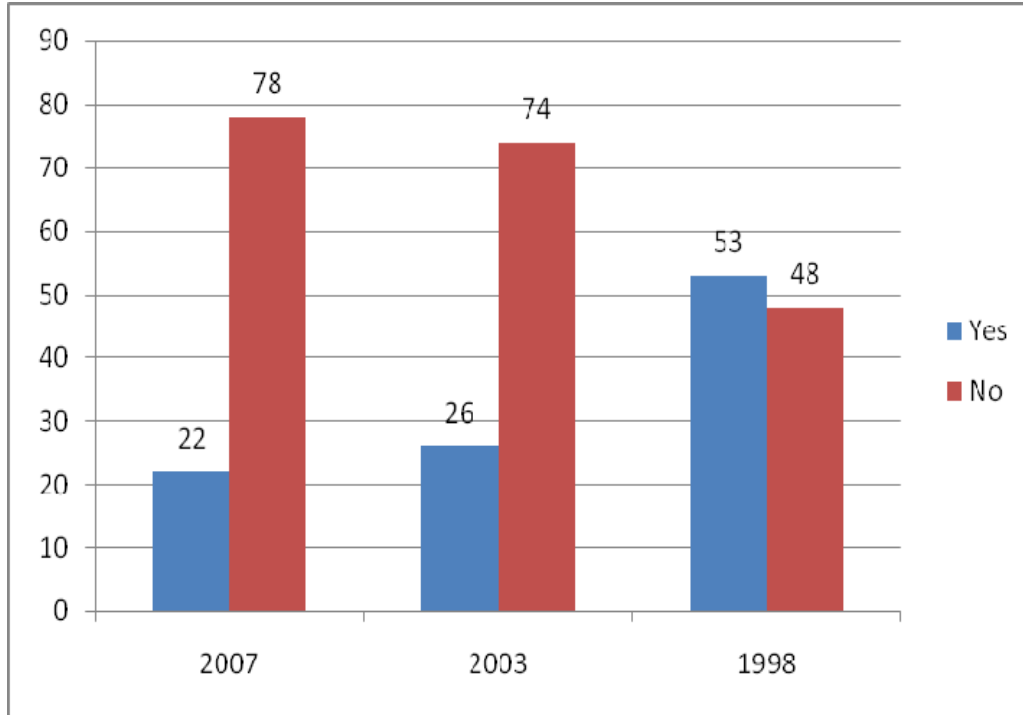
Survey results show a 42% increase in the percentage of galvanizers using wetting agents since 2003. More respondents indicate they use wetting agents on each successive survey.

STRENGTH OF FUMES FROM PICKLING TANKS



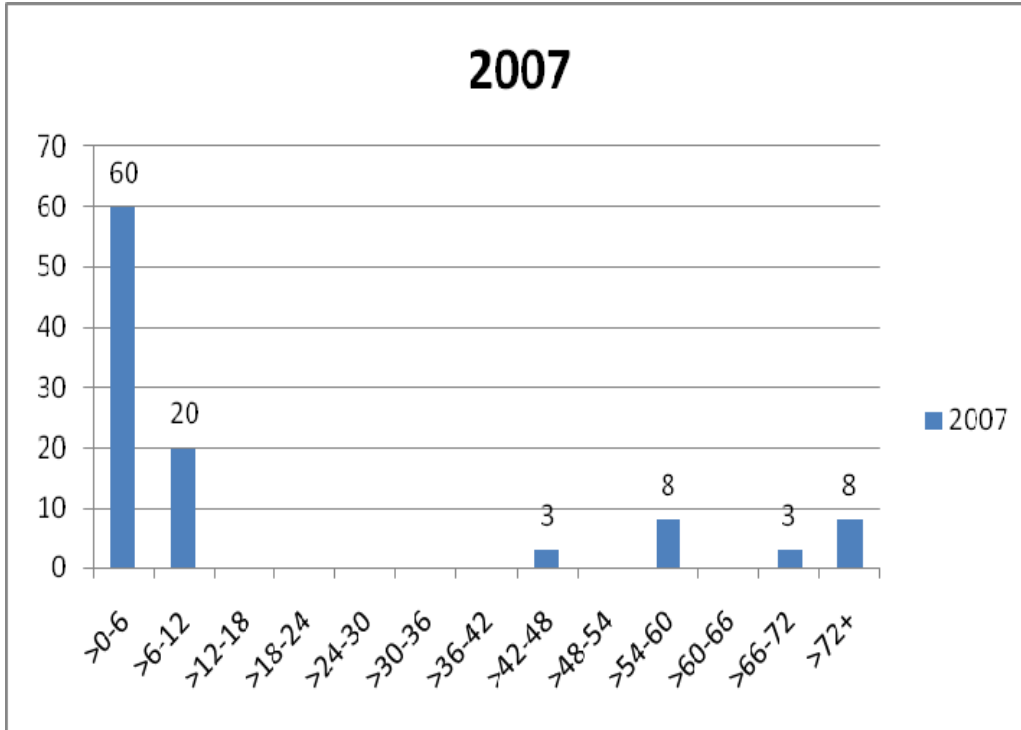
100% of survey respondents reported pickling fumes in the strength ranges of medium or weak. No galvanizer reported experiencing pickling fumes that are considered strong. Some galvanizers use chelating agents to control acid fumes.

SPENT ACID DISPOSAL AND RECOVERY



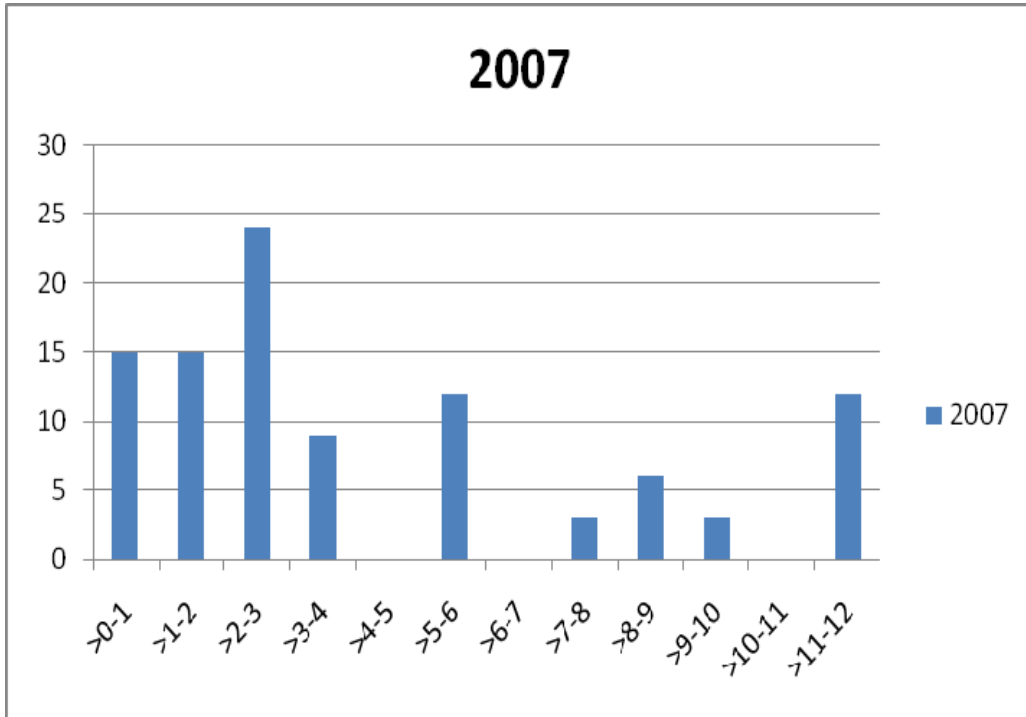
A trend has emerged that less galvanizers used acid recycling systems in 2007 than in previous surveys. A trend has emerged that less acid recycling systems are being used.

AVERAGE LIFE OF PICKLING TANK IN MONTHS



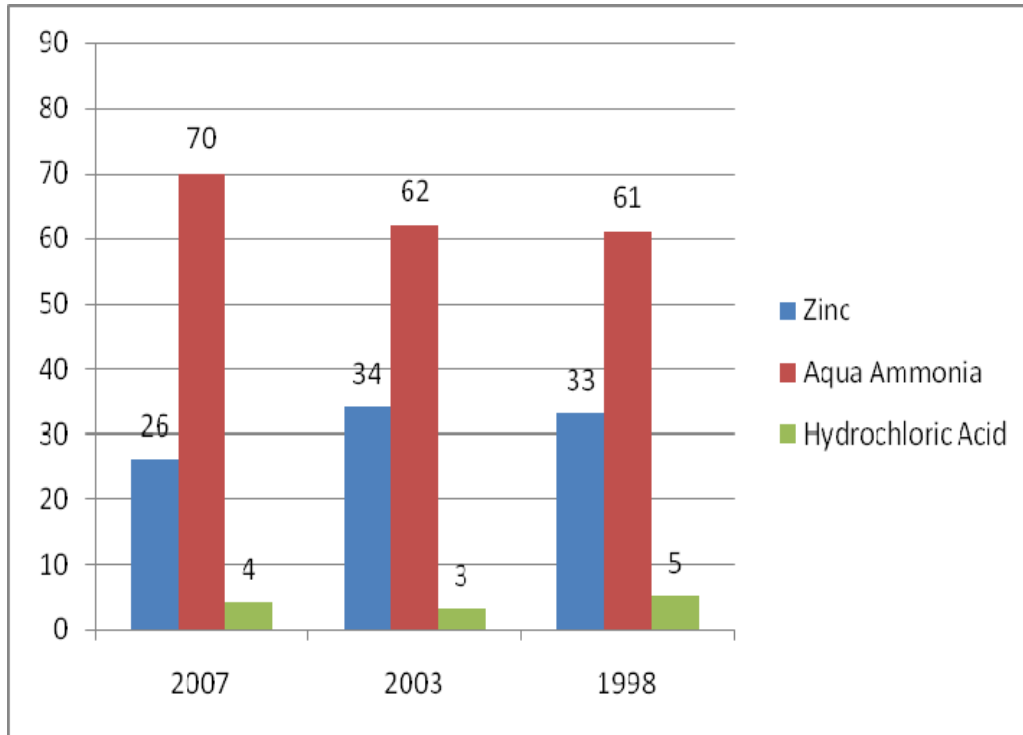
Respondents reported a sharp divide in how often they change their pickling tanks. Galvanizers reported changing their tank within 12 months or they wait longer than 42 months to change it. 80% of respondents changed their pickling tank within 12 months. Since 80% of respondents reported changing their pickling tank within 12 months, another chart below breaks down this range to provide more information.

AVERAGE LIFE OF PICKLING TANK IN MONTHS FOR THE 0-12 MONTHS RANGE



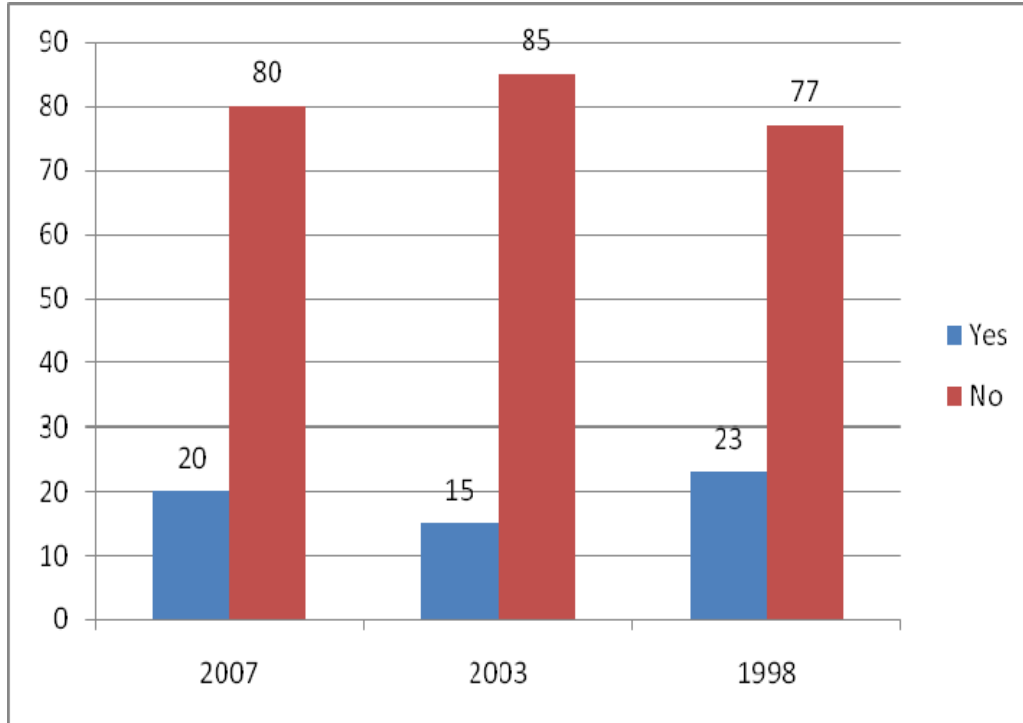
Section 4 – FLUX CLEANING

pH CONTROL METHOD USED IN FLUX TANKS



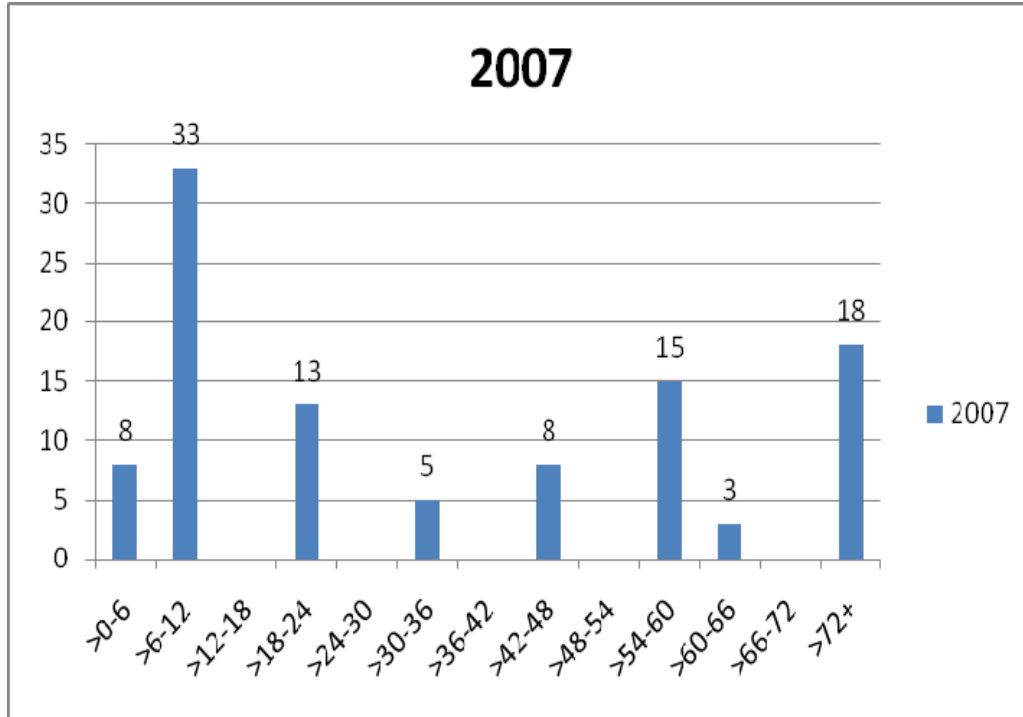
Aqua ammonia has continued to be the most popular pH control method for flux tanks since 1998. Nearly 20% more galvanizers indicated they use this method than in 2003. Aqua ammonia was used more than twice as much as the next popular method in 2007, which is adding zinc to the preflux tank. The number of respondents using hydrochloric acid as a pH control method has remained constant at about 4%.

IS A TOP FLUX USED?



The number of survey respondents using a top flux has remained relatively the same with only 20% of galvanizers choosing to use a top flux.

AVERAGE LIFE OF PREFLUX TANK IN MONTHS

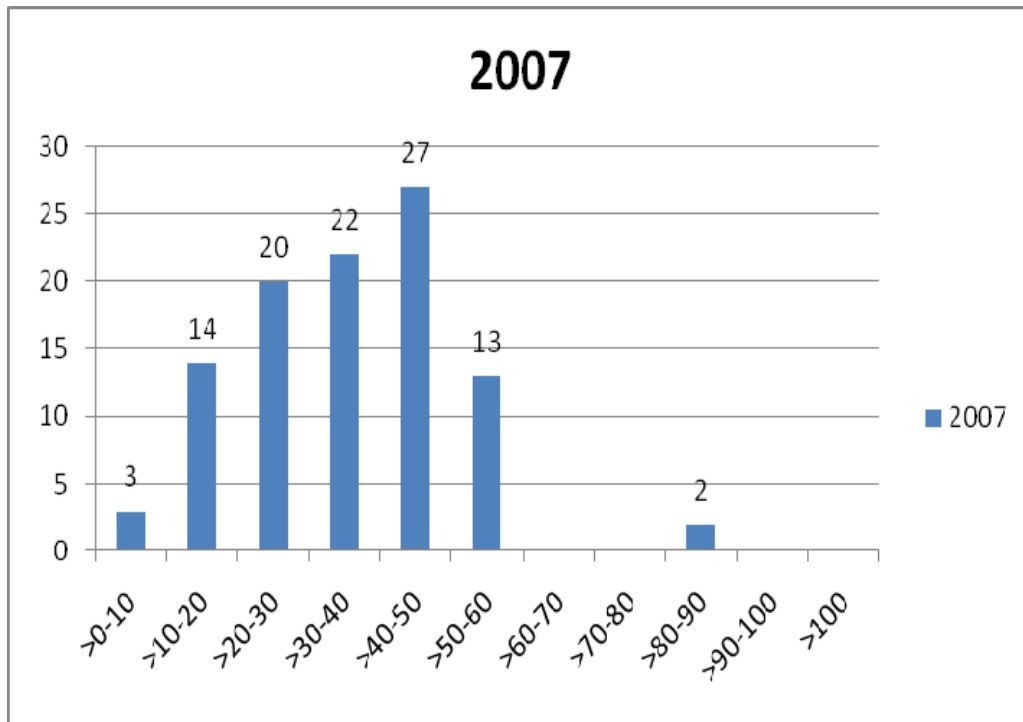


The 2007 Process Survey results showed a wide distribution in the average life of preflux tanks in months. The number of months before replacing a preflux tank ranges from less than six months to more than 72 months. The most popular average life of tanks was six to 12 months, with 33% of respondents.

Section 5 – ZINC KETTLE

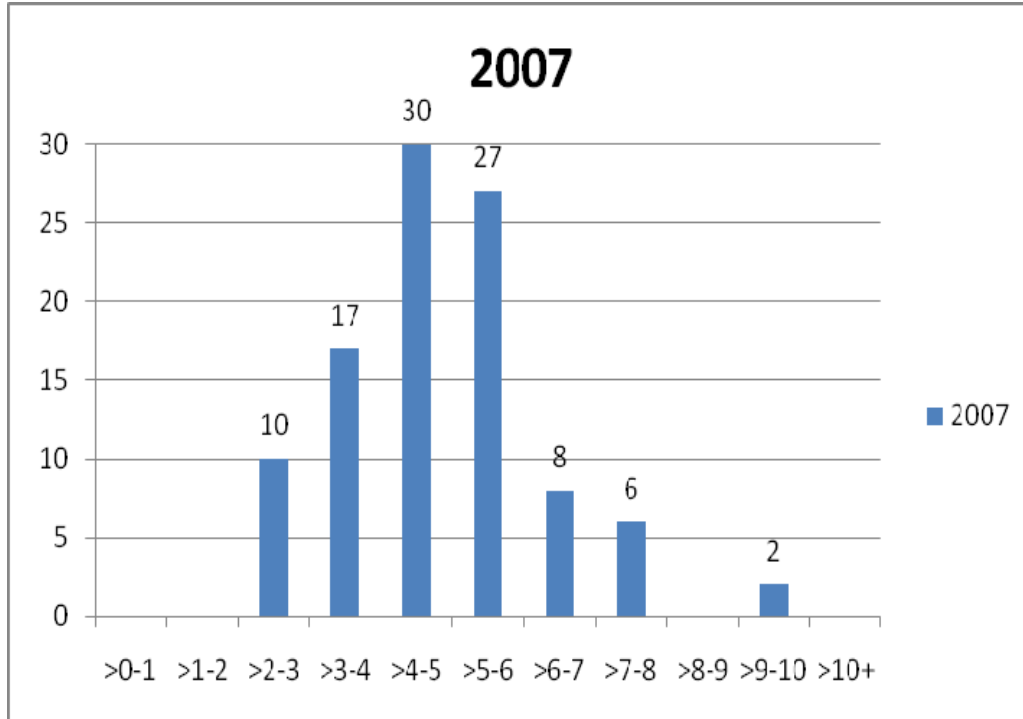
KETTLE DIMENSIONS

LENGTH OF KETTLE



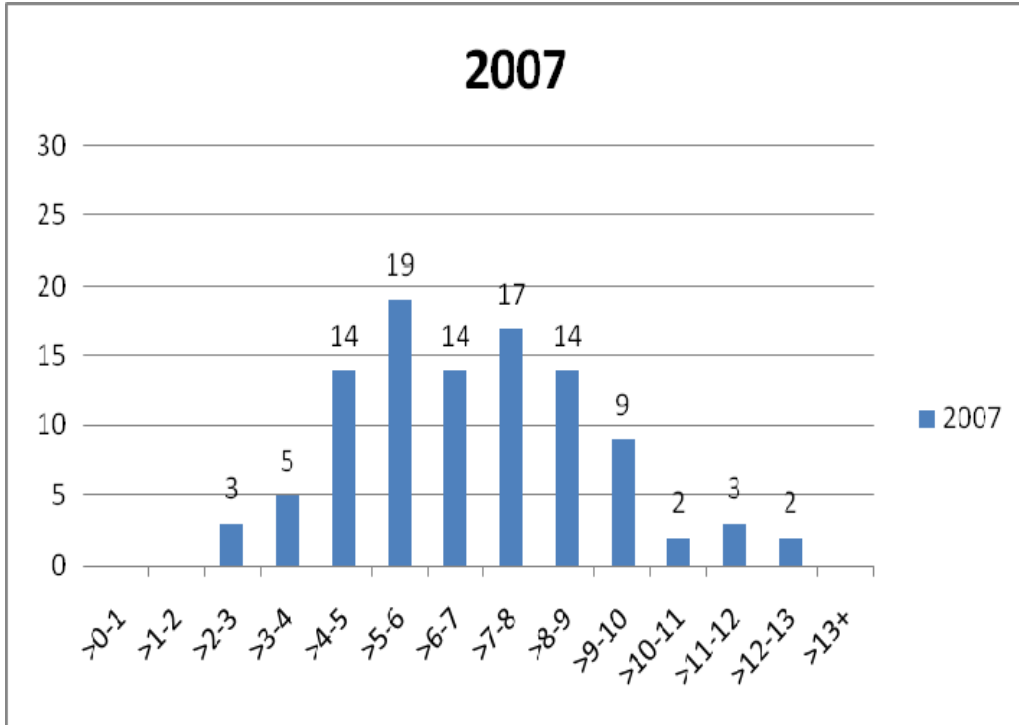
When comparing the last three Process Surveys, a trend appears that shows survey respondents are using longer galvanizing kettles. The average kettle length was 32.9 feet in 2007, 32 feet in 2003 and 29.5 feet in 1998. This indicates that longer products are being galvanized since kettle size indicates the mix of products that are being processed.

WIDTH OF KETTLE



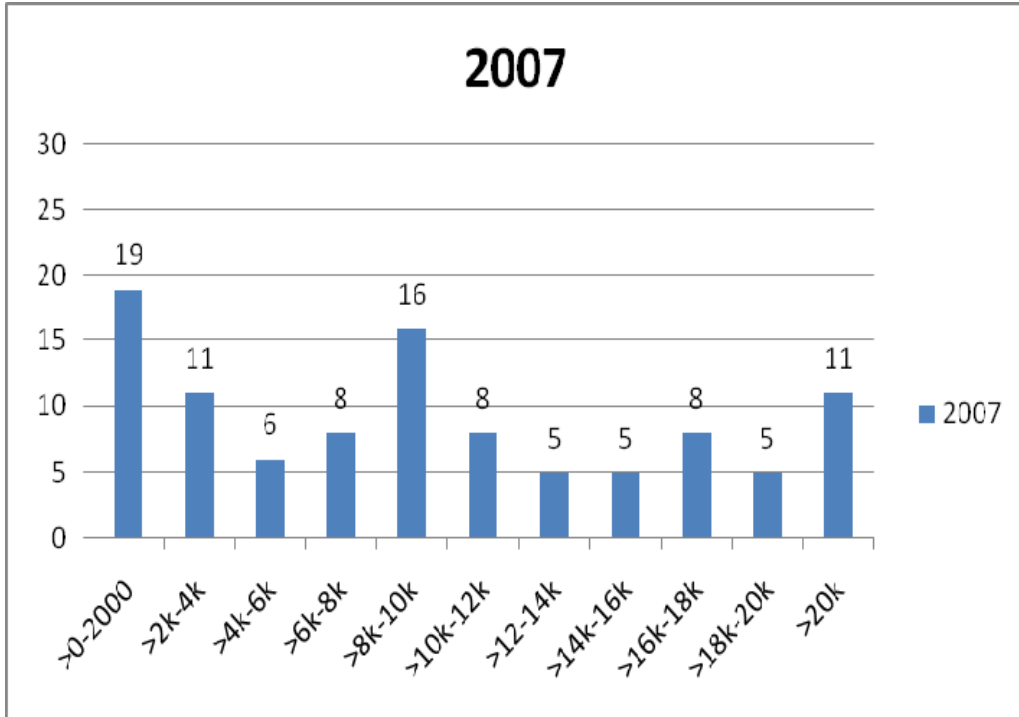
Similar to previous surveys, the average galvanizing kettle width was approximately five feet (5.1 feet for 2007). Kettle widths over five feet decrease the theoretical capacity of a kettle because there is more zinc in the kettle to maintain at the galvanizing temperature.

DEPTH OF KETTLE



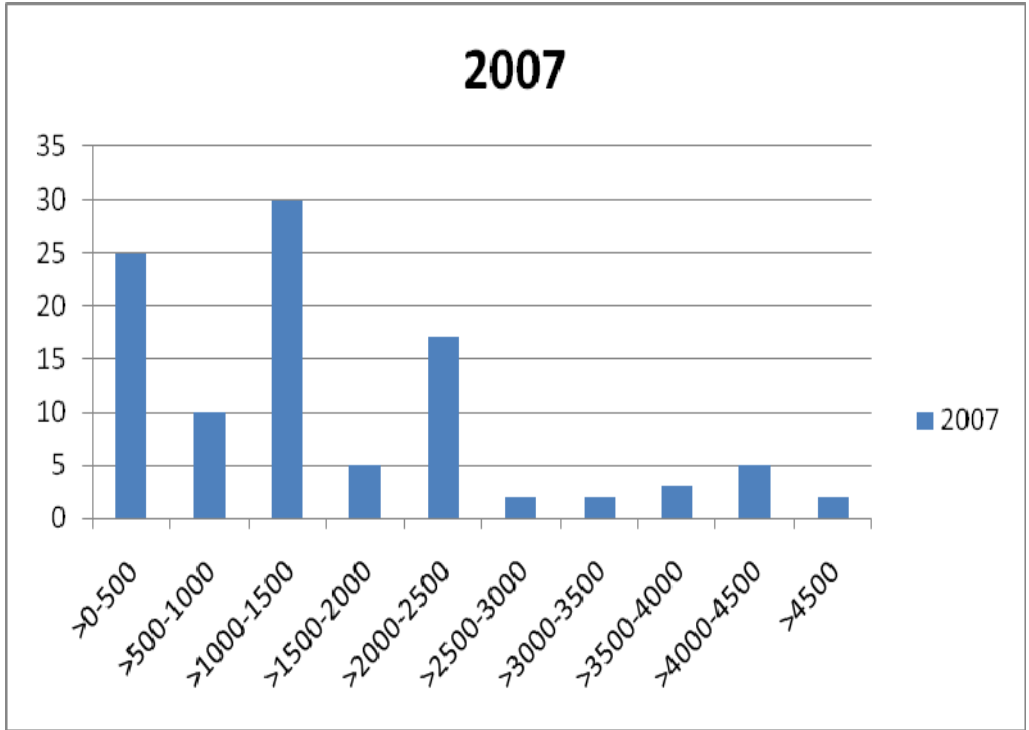
In contrast to increasing the width of a galvanizing kettle, increasing the depth increases the theoretical capacity because it provides a larger heat sink. For 2007, the average respondent's kettle was 6.9 feet deep. In 2003 the average kettle depth was 6.6 feet and in 1998 it was just over six feet. Survey respondents show a trend toward using deeper kettles.

GALLONS PER KETTLE

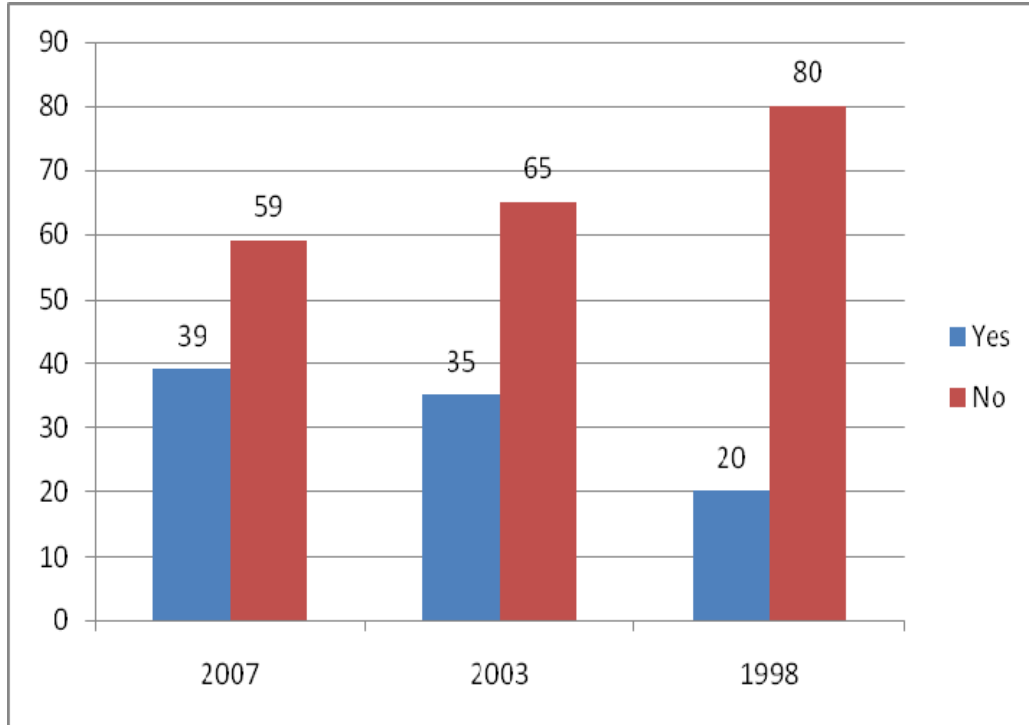


Each galvanizer uses the kettle that best suits their customers' needs and works best with their operation. The chart shows a wide distribution of kettle volumes and thereby shows a wide range of material being galvanized. The average kettle was 10,975 gallons in 2007. The graph below shows the same information but expressed in cubic feet rather than gallons.

CUBIC FEET PER KETTLE

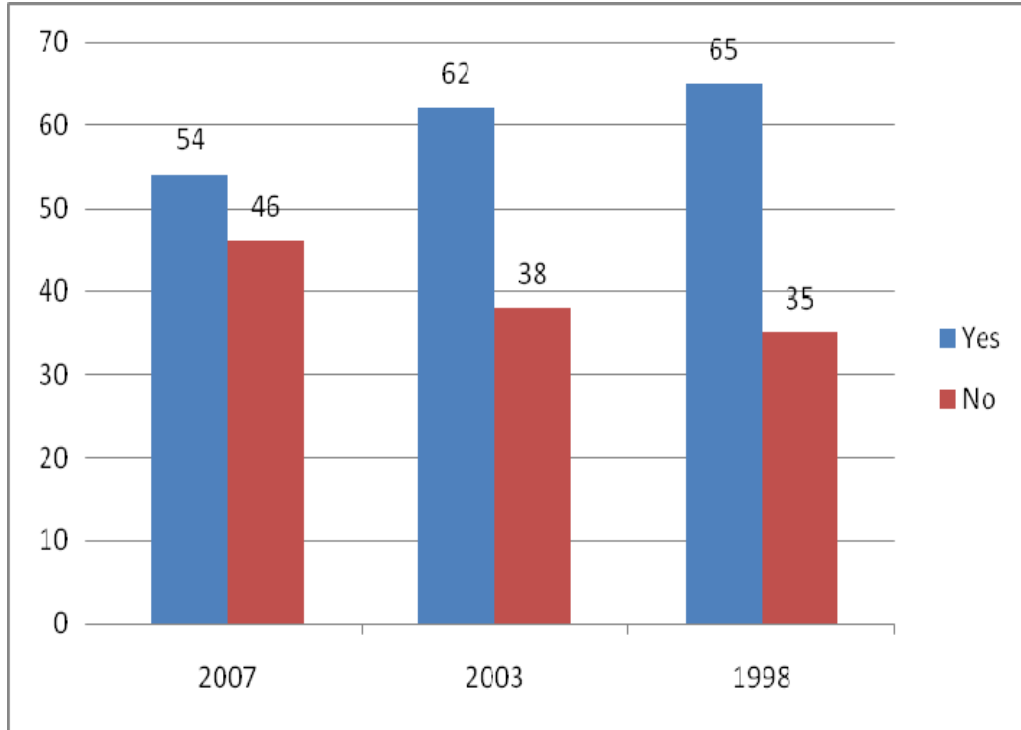


IS A KETTLE ENCLOSURE USED?



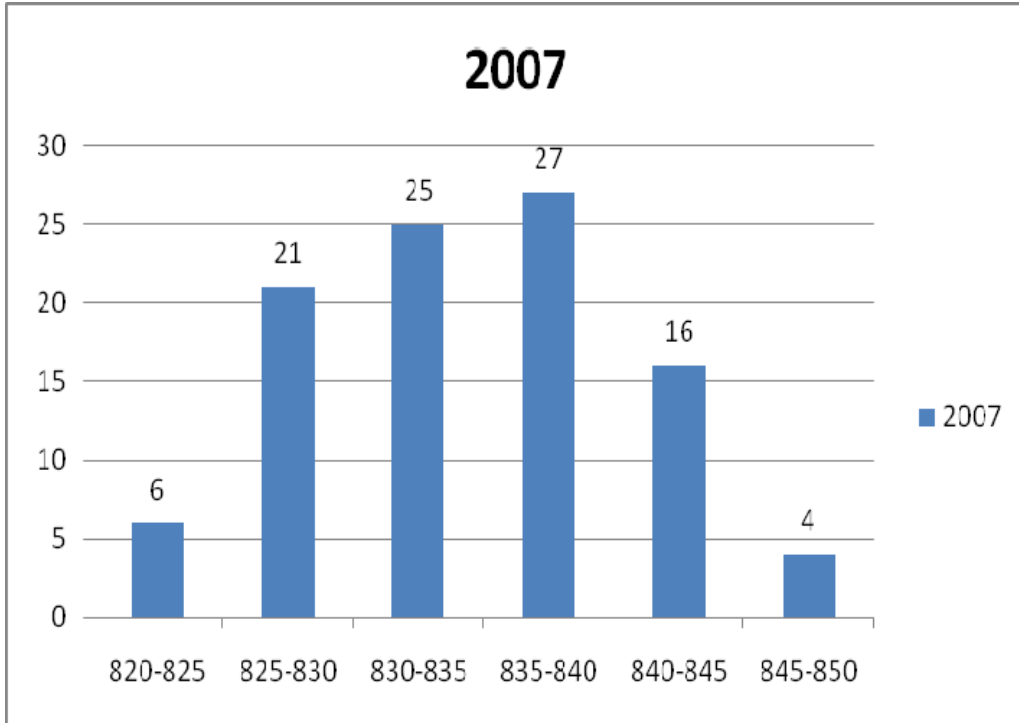
The 2007 Process Survey results show that 11% more galvanizers are using kettle enclosures than in 2003.

IS A SPINNING OR CENTRIFUGE SYSTEM USED?



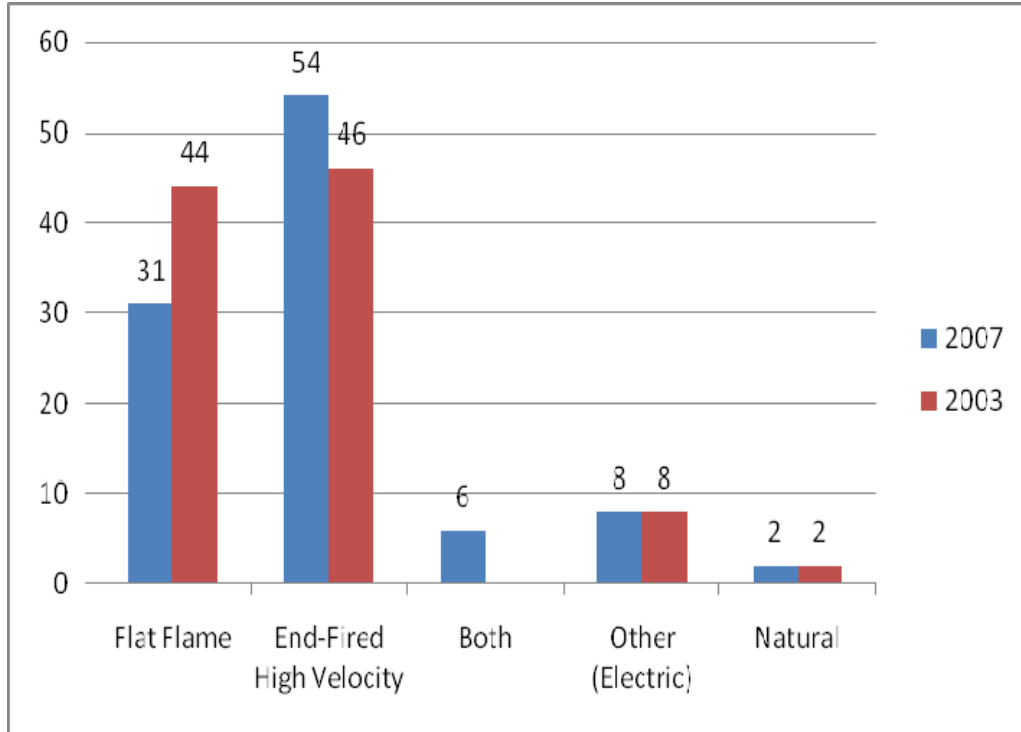
Slightly more than half of survey respondents reported using a centrifuge or spinner. This is a 13% decrease compared to the 2003 Survey results.

OPERATING TEMPERATURE OF KETTLE



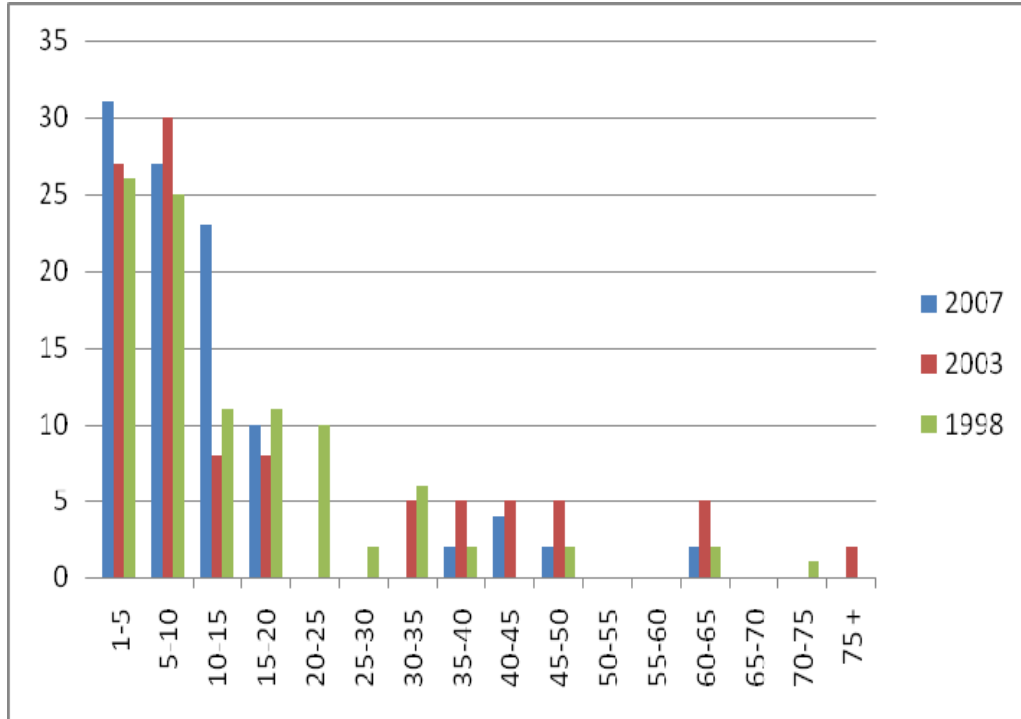
2007 Process Survey results showed that all respondents operate their kettle between 820 and 850 degrees. As in past surveys, some variation was observed in individual kettle temperatures, which is likely due to when the temperature was taken (during working or off hours). For 2007, the median kettle temperature was 835°F and in 2003 it was 825°F.

TYPE OF KETTLE FURNACE



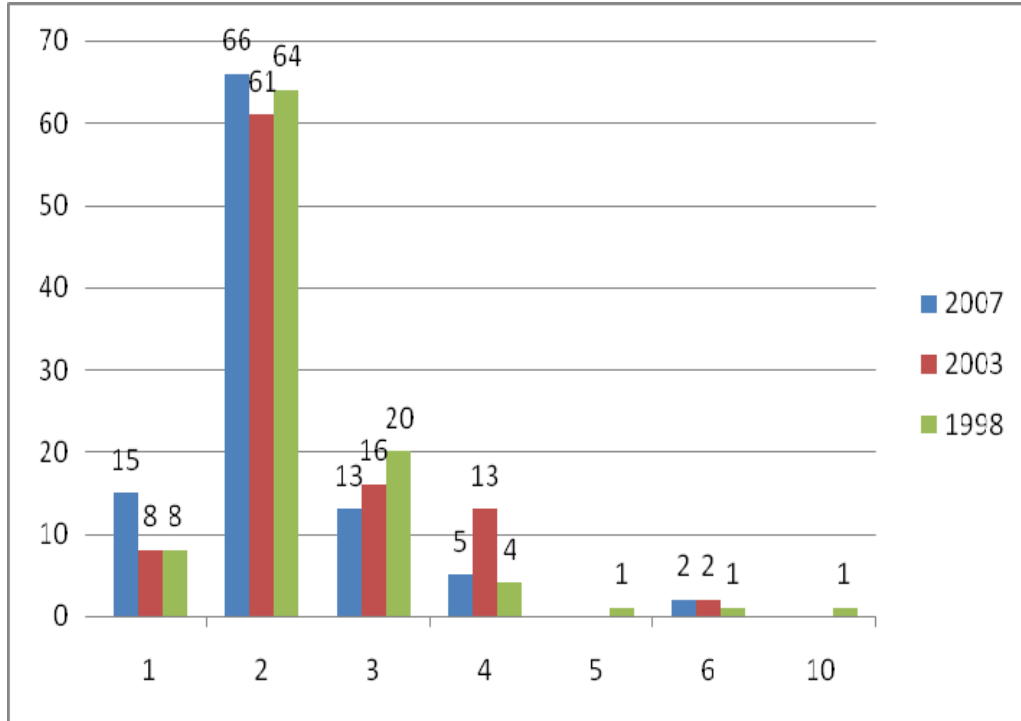
The chart shows that end-fired high velocity systems were used more often than flat flame systems in 2007. End-fired high velocity systems were used 22% more in 2007 than in 2003 and flat flame systems were used 30% less in 2007 than in 2003.

NUMBER OF BURNERS



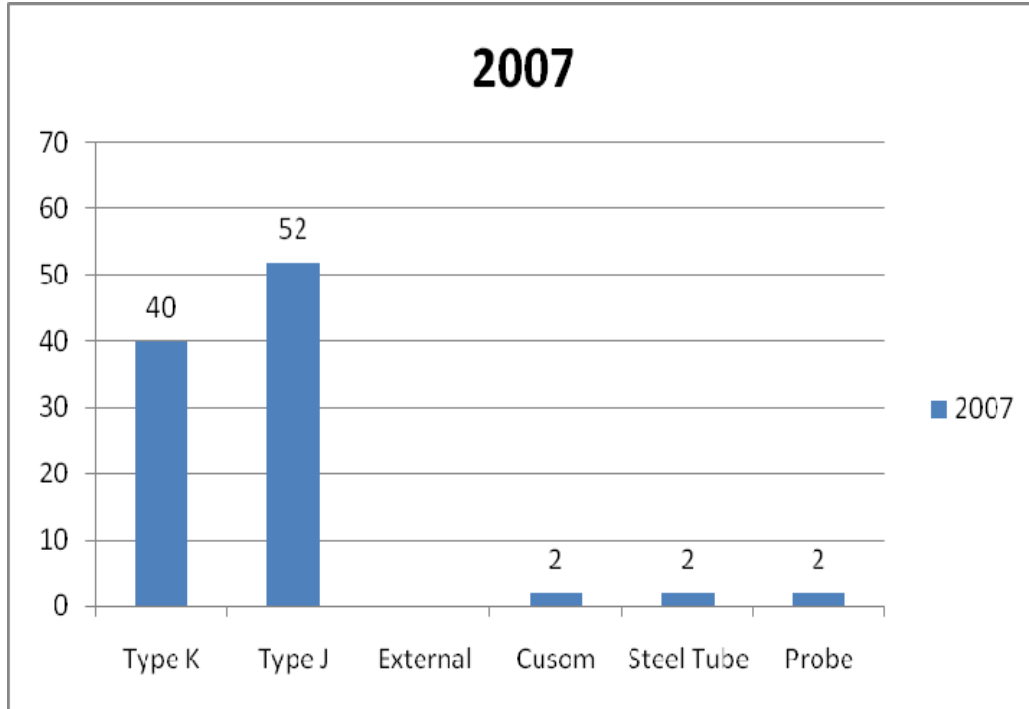
2007 Process Survey results showed a trend towards using less burners than in past surveys. For 2007, 91% of survey respondents reported using between one and twenty burners. This figure was only 73% for both the 2003 and 1998 Surveys, which shows respondents used more burners in 2003 and 1998.

NUMBER OF THERMOCOUPLES



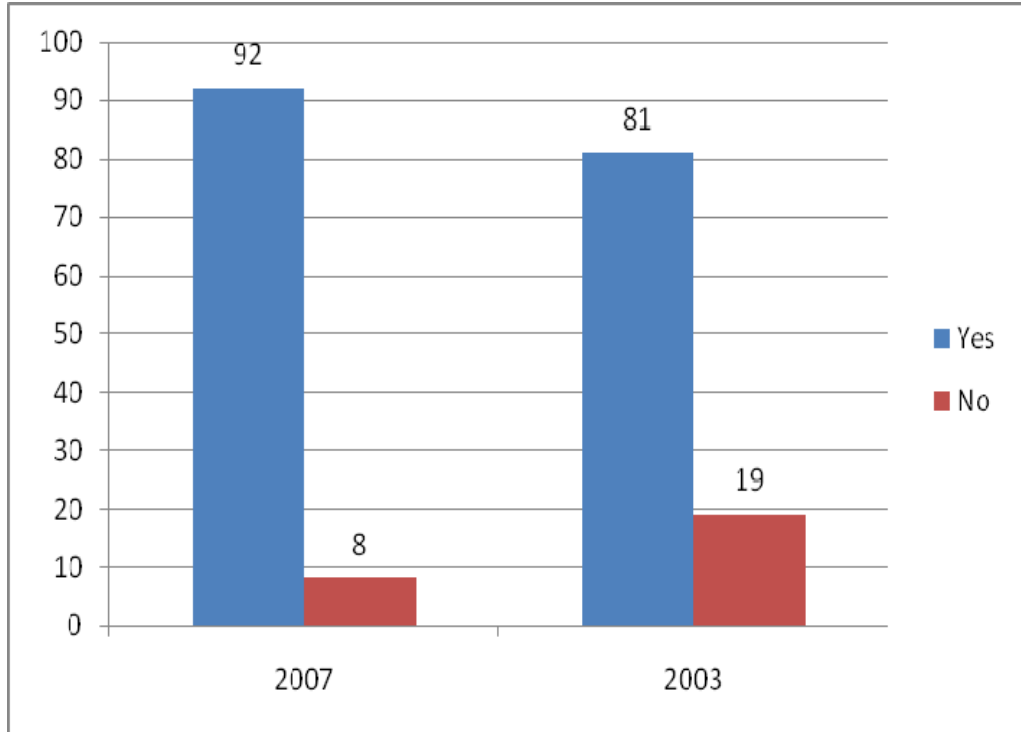
2007 Process Survey results show a trend towards using less thermocouples than in past surveys. 66% of survey respondents reported using two thermocouples on the 2007 Process Survey. Using two thermocouples has been the most popular choice among survey respondents each year a survey has been conducted. In 2003, the average number of thermocouples was 2.4 and in 2007 the average number fell to 2.15.

TYPE OF THERMOCOUPLES



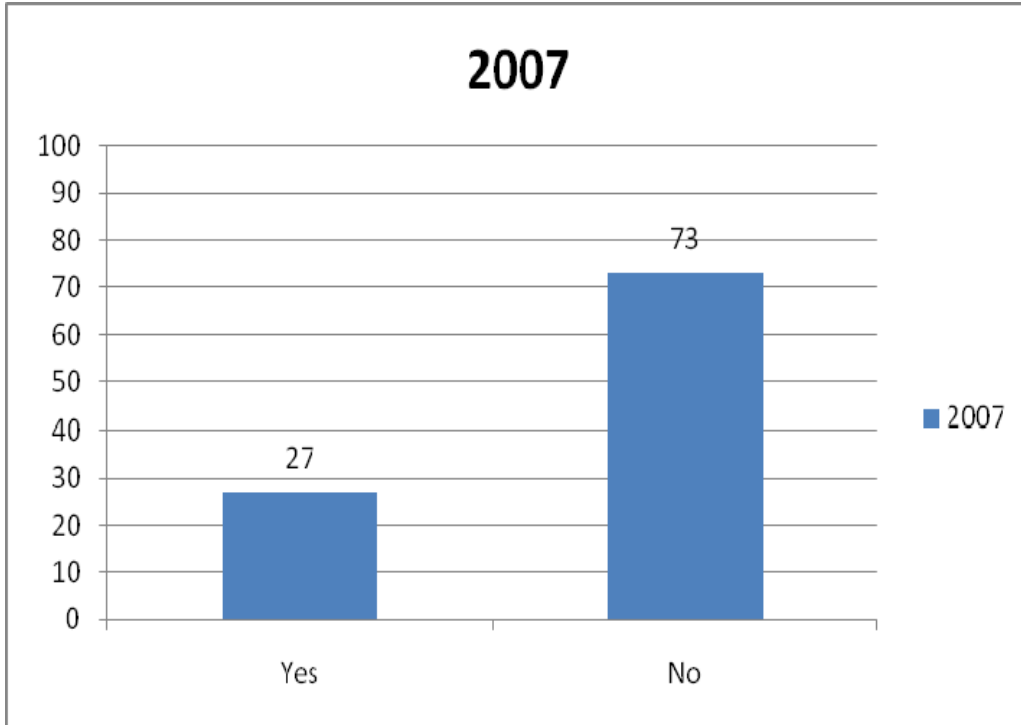
92% of survey respondents indicated using Type J and Type K thermocouples. Type J, the most popular type of thermocouple, was used by more than half of the respondents.

IS A KETTLE COVER USED?



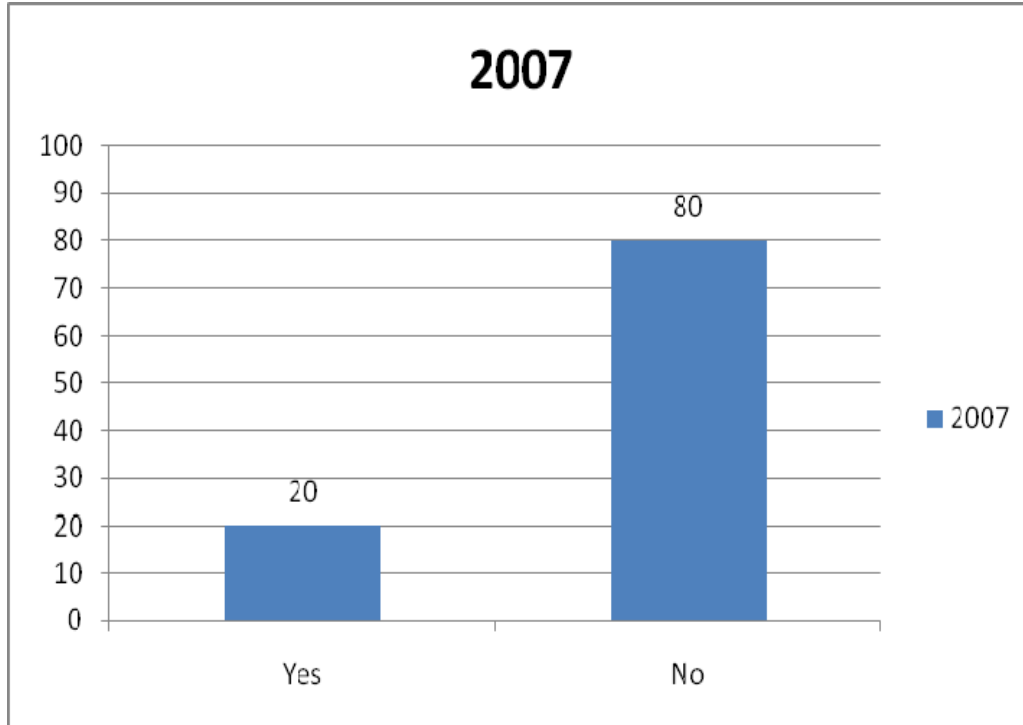
On the 2007 Survey, 92% of respondents indicated they used a kettle cover. This is 14% more galvanizers than in 2003.

IS A WASTE HEAT COLLECTION/EXCHANGER USED?



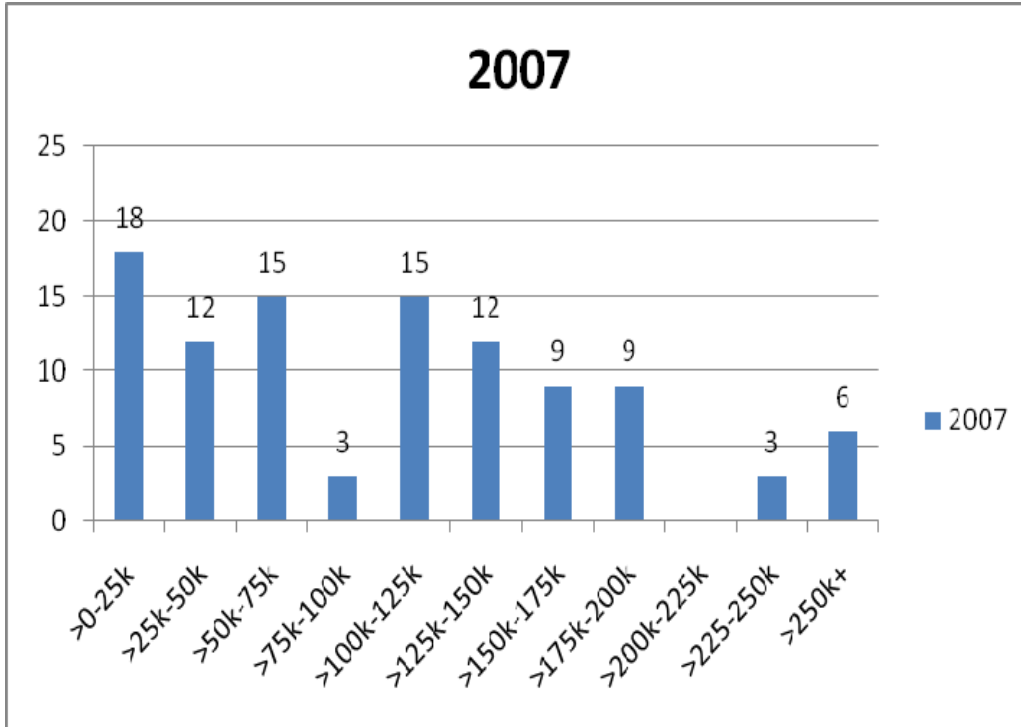
Slightly more than a quarter of survey respondents reported using a waste heat collection/exchanger.

HAS THE KETTLE EVER BEEN REPAIRED?



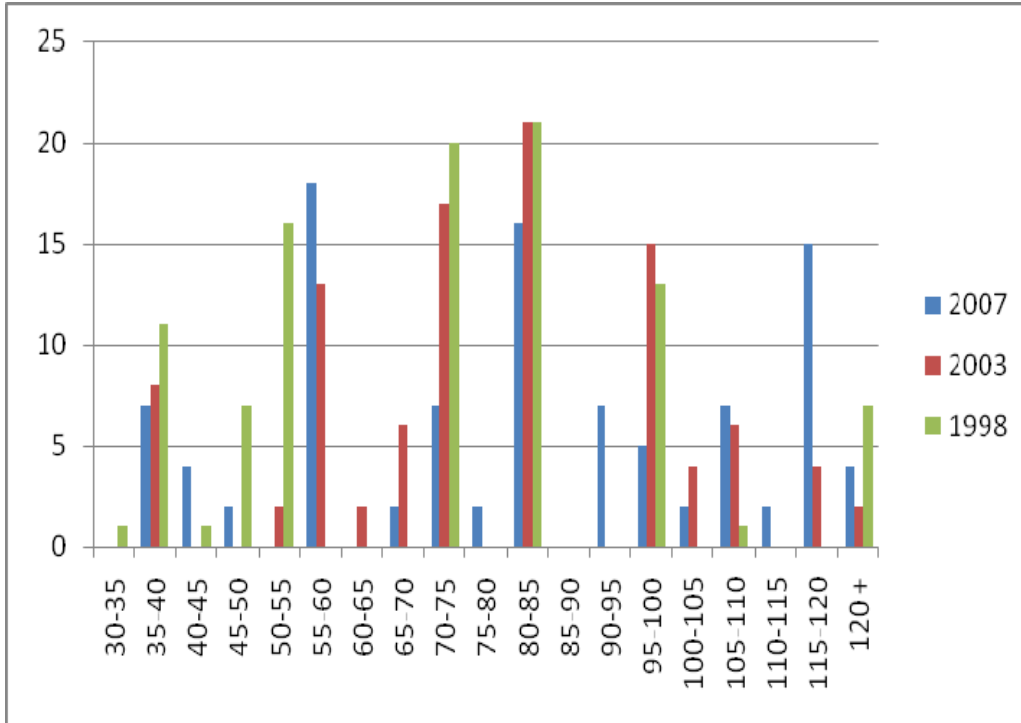
For the 2007 Process Survey, 20% of respondents indicated they have repaired a kettle at some point (not necessarily in 2007).

AVERAGE LIFE OF KETTLE IN TONS OF STEEL GALVANIZED



Most galvanizers replace their kettle when it has reached a particular number of years in service or a particular tonnage of steel has been galvanized in the kettle. Occasionally it is necessary to replace the kettle before either of these figures have been reached. As indicated in the chart, there was a wide distribution in the average kettle life in terms of tons of steel galvanized. 93% of respondents indicated they galvanize less than 200,000 tons of steel per year, and 50% of respondents galvanize less than 100,000 tons of steel per year.

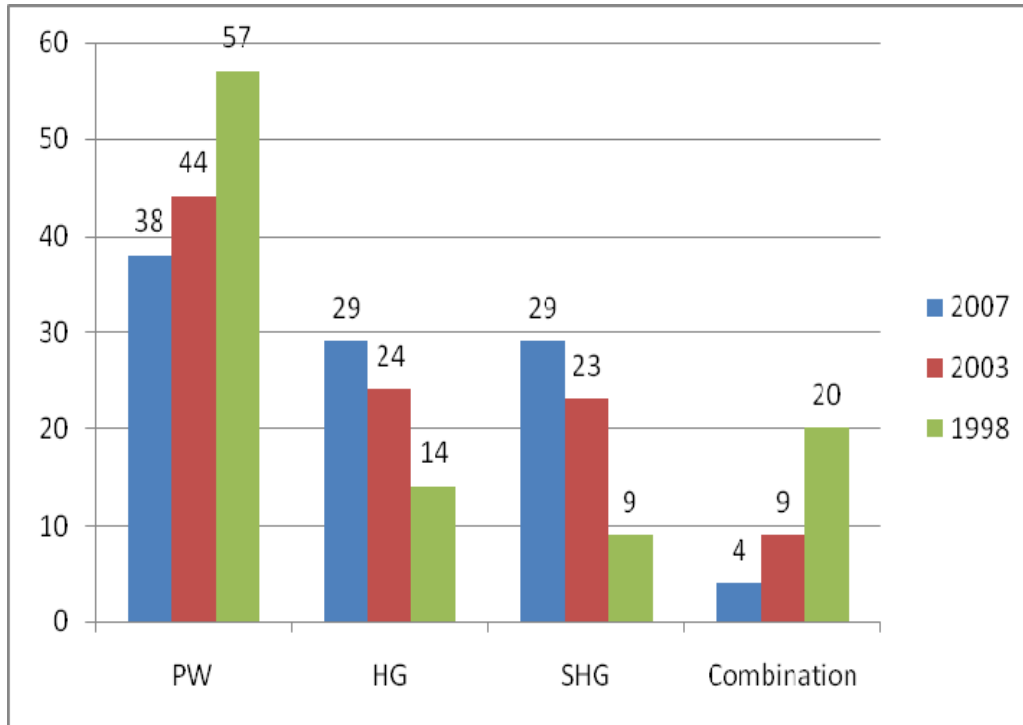
AVERAGE LIFE OF KETTLE IN MONTHS



The 2007 Survey results show an increase in the life of the galvanizing kettle in months. In 2007, the average kettle was replaced at 7.1 years. For 2003, the average kettle life was 6.6 years and in 1998 it was 6.1 years. As indicated on the 2007 Process Survey, galvanizing kettles lasted six months longer than in 2003 and one year longer than in 1998 before being replaced due to planned maintenance.

Section 6 – ZINC METAL

GRADE OF ZINC USED



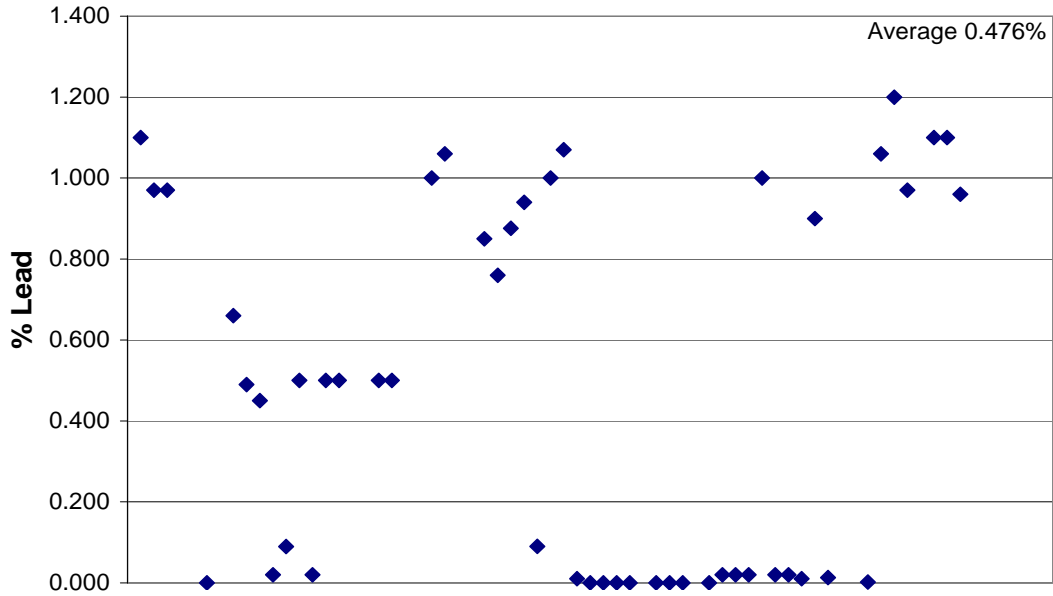
Prime Western was the most popular grade of zinc used in 2007; 38% of respondents indicated they used Prime Western. High Grade and Special High Grade zinc were each used by 29% of galvanizers in 2007. Each successive Process Survey since 1998 shows a shift from using Prime Western to using High Grade or Special High Grade. This reveals a trend that galvanizers are decreasing the lead content of their kettles as environmental and health concerns increase.

BATH CHEMISTRY

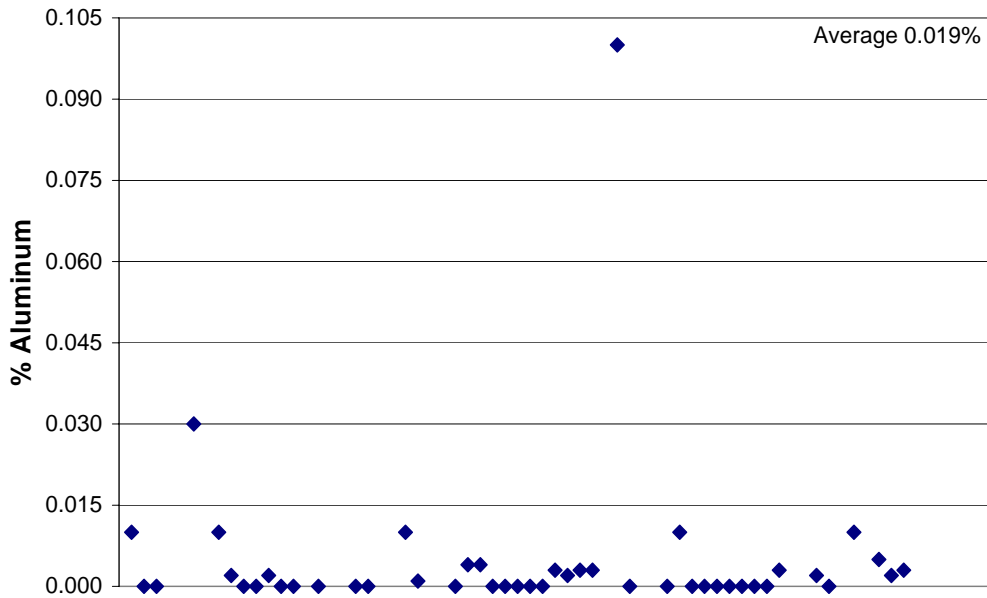
Bath levels for lead, nickel, tin, bismuth and iron decreased on the 2007 Process Survey. The lead content of kettles decreased because less galvanizers are using Prime Western zinc. Lead is used in the kettle to increase the fluidity of molten zinc, which helps the zinc to drain from the steel as pieces are withdrawn from the kettle. When the lead content in the kettle is reduced, bismuth is added to increase the fluidity of the molten zinc. As the lead content has decreased in kettles it is surprising that the bismuth content has also decreased. These fluctuations in bismuth concentration are likely due to the composition of survey respondents on the 2007 Survey differing from previous surveys.

Aluminum was the only elemental addition that showed an increase in bath level on the 2007 Survey. Copper levels were included on this Survey but not on previous surveys so comparisons are not possible.

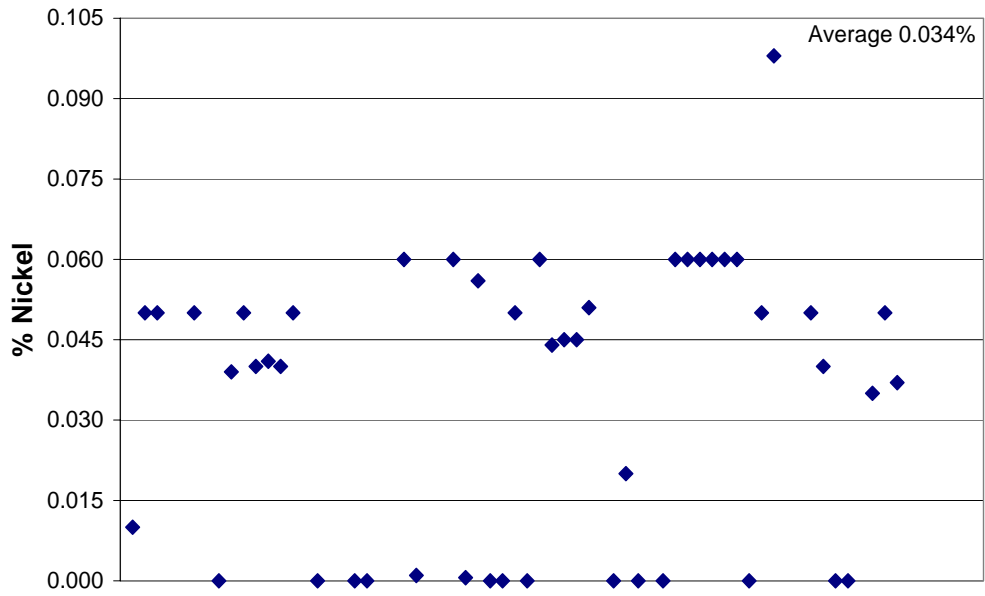
Lead Concentration



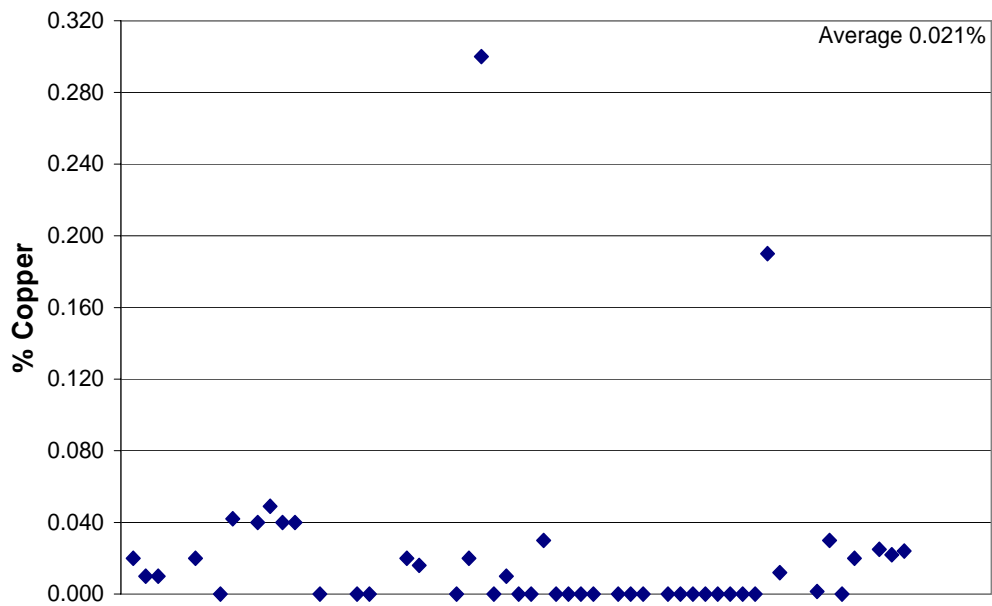
Aluminum Concentration



Nickel Concentration

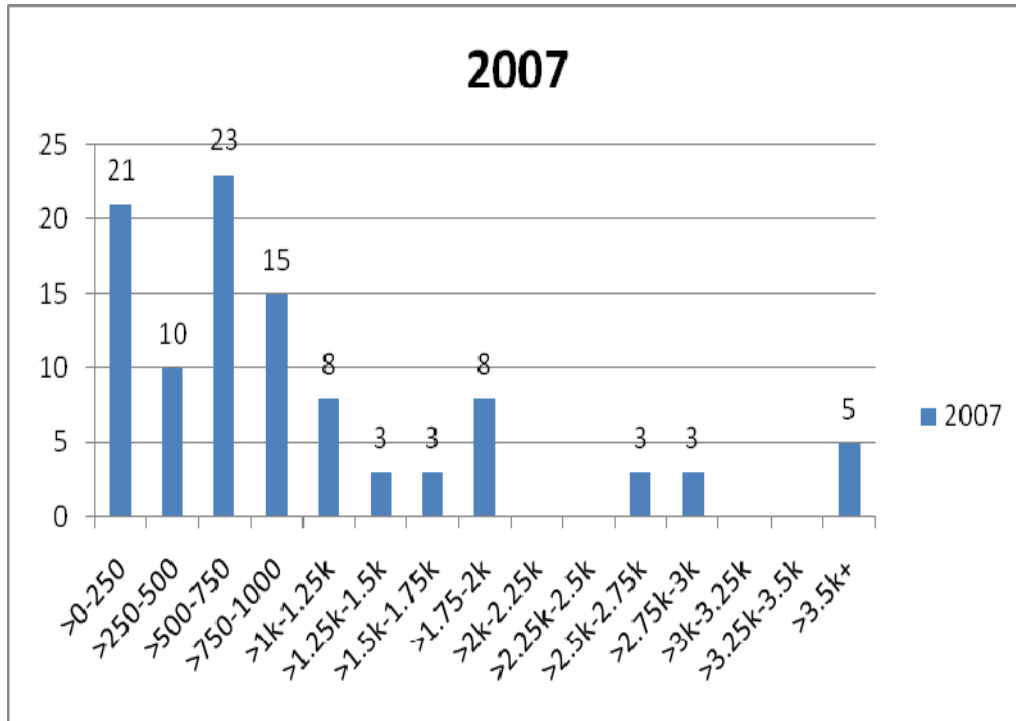


Copper Concentration



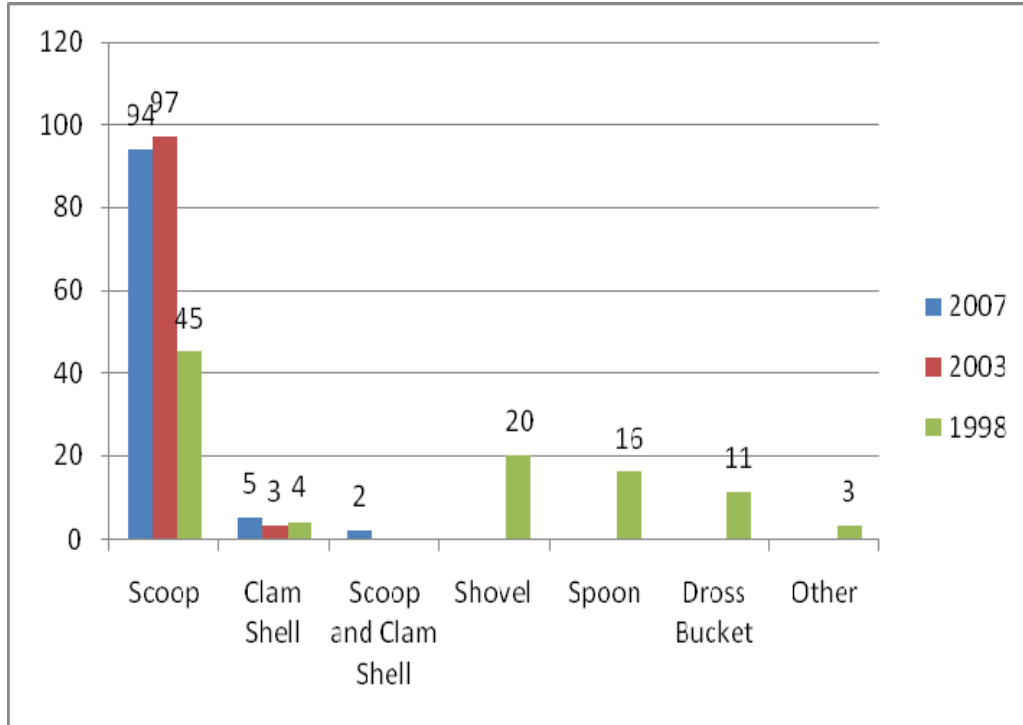
Section 7 – ZINC BY-PRODUCTS

AVERAGE ZINC USAGE PER YEAR IN TONS



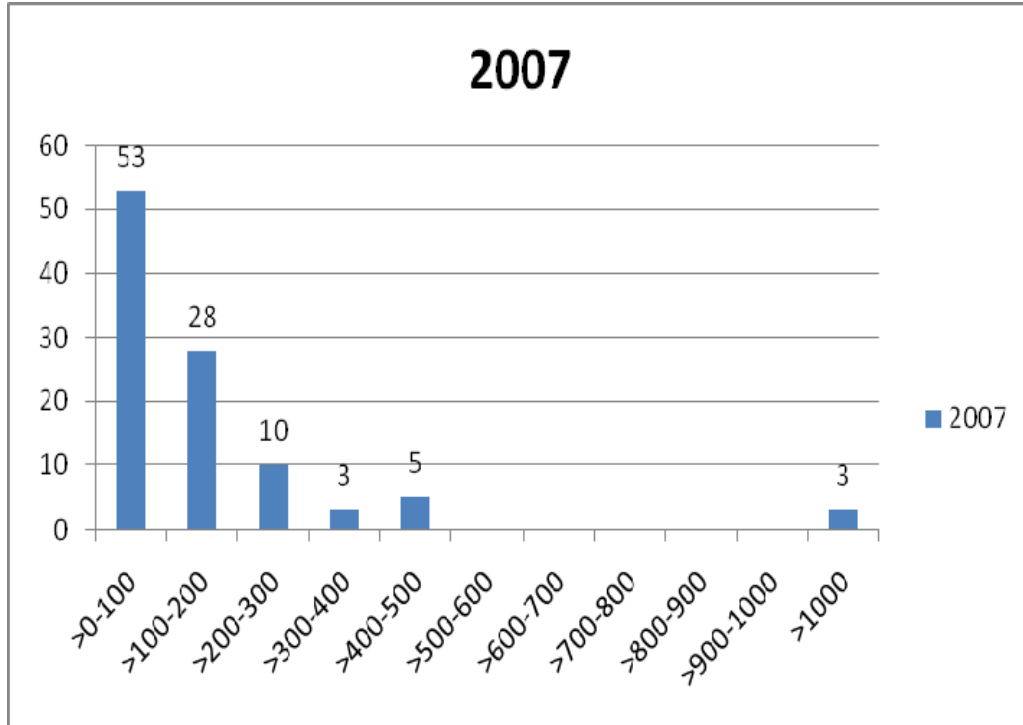
The average zinc usage for 2007 was 1159 tons per year. 91% of respondents indicated they used an average of less than 2000 tons of zinc each year for the last three years. The average annual percentage of zinc consumption was 6.28%. This shows an increase in zinc consumption, as the zinc usage was 6.07% in 2003.

DROSS REMOVAL METHOD



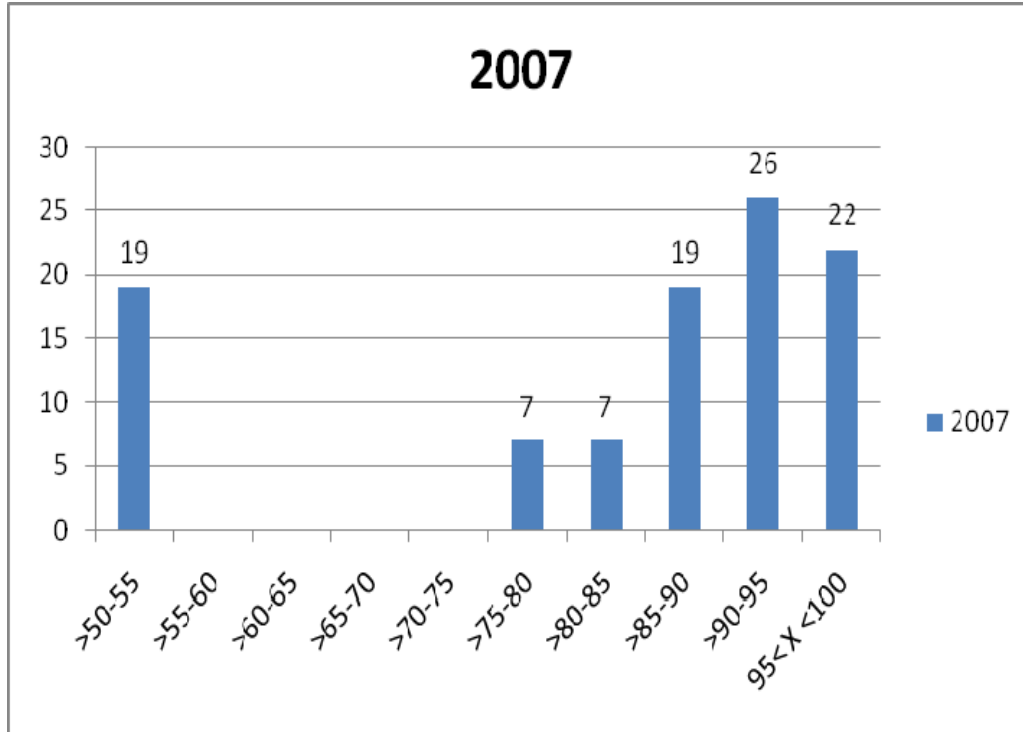
94% of respondents indicated they used a scoop to remove dross from the kettle. This represents a slight decrease from the 2003 Process Survey.

DROSS GENERATED PER YEAR (TONS)



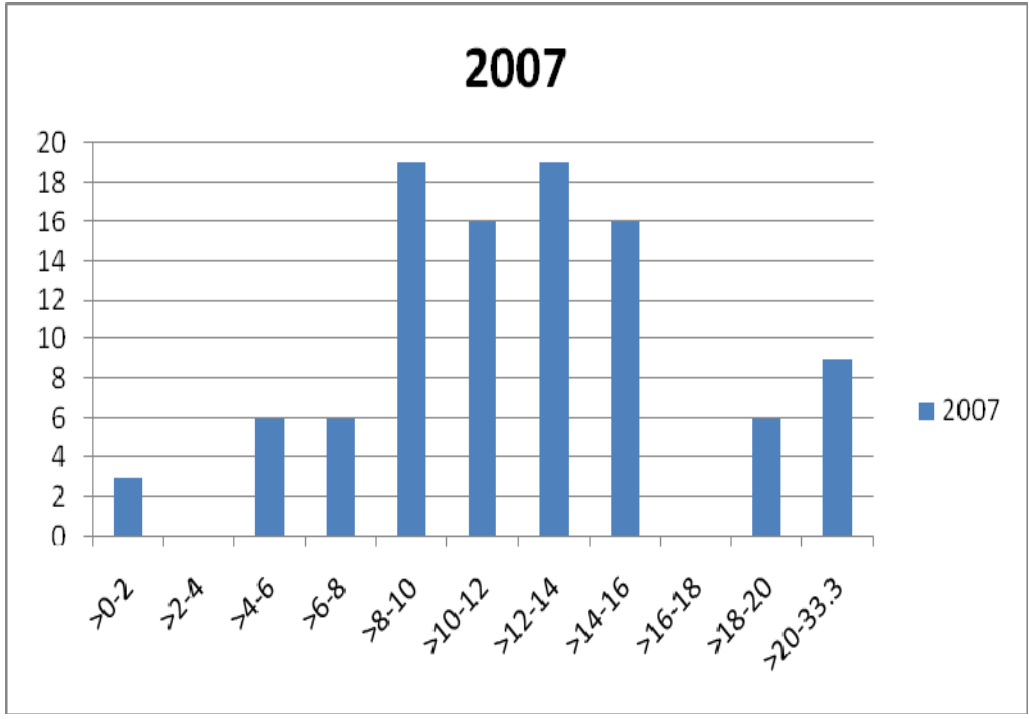
53% of galvanizers reported that they generated less than 100 tons of dross per year, and 81% of respondents indicated they generated less than 200 tons of dross per year. The average tonnage of dross generated per year reported on the 2007 Process Survey was 131 tons.

PERCENTAGE OF ZINC IN DROSS

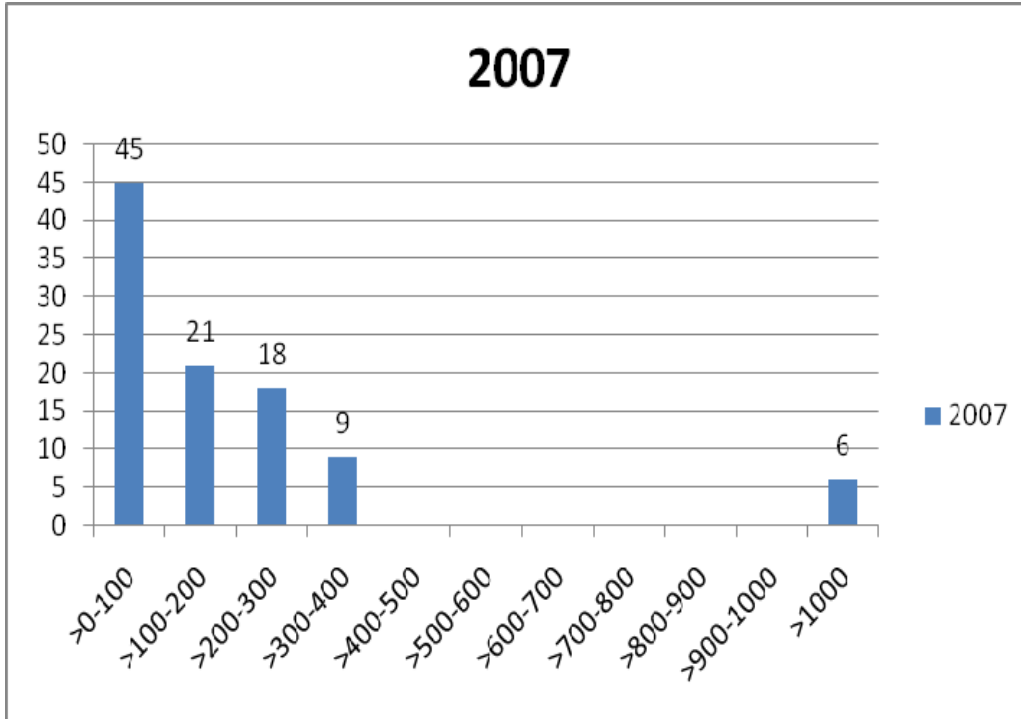


The chart shows a divide in the reported percentage of zinc in dross. 81% of respondents reported results in the ranges from greater than 75% to less than 100% zinc in dross. For 2007, there were 15.87 lbs of dross per 100 lbs of zinc. In 2003, there were 12.73 lbs of dross per 100 lbs of zinc and 14.77 lbs of dross reported on the 1998 Process Survey.

TOTAL DROSS DIVIDED BY TOTAL ZINC USED

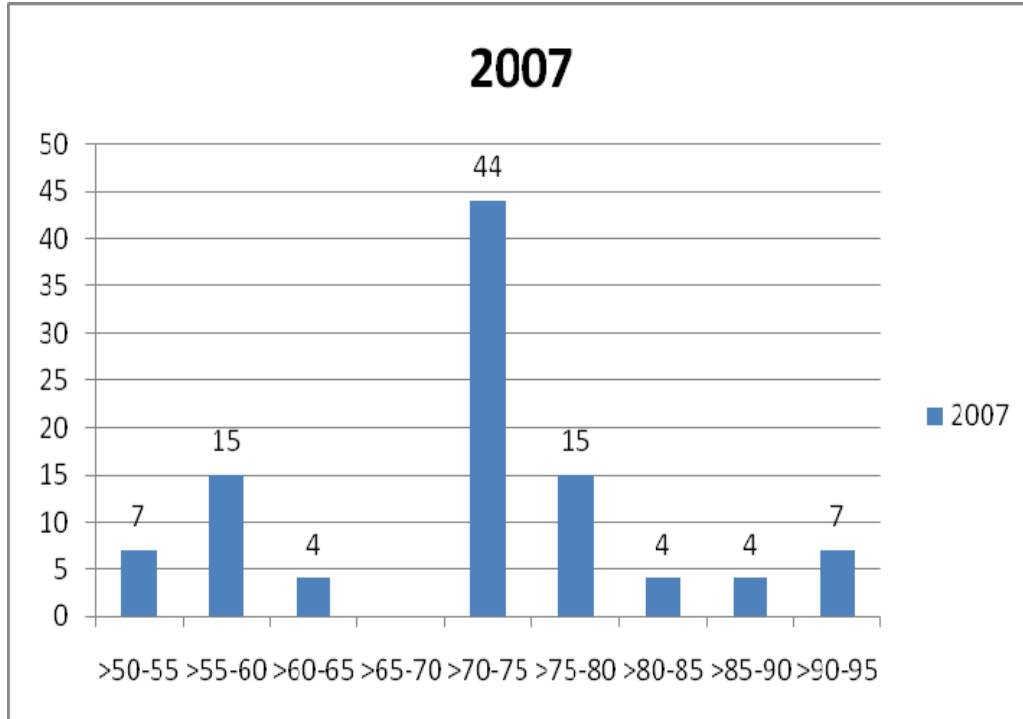


SKIMMINGS GENERATED PER YEAR IN TONS



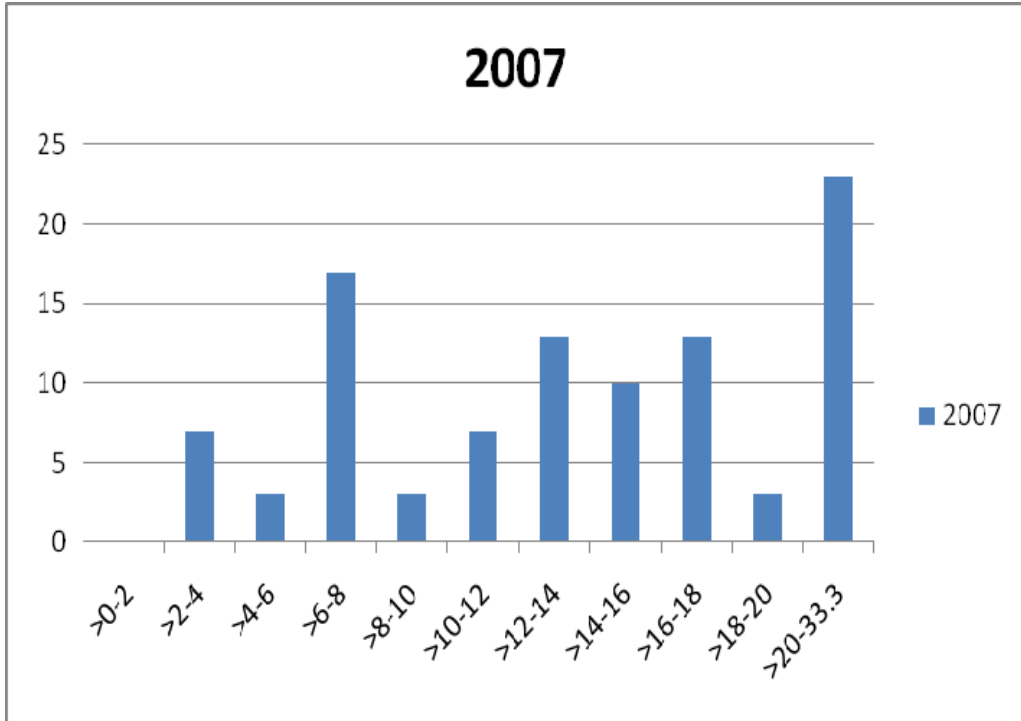
The chart shows a divide between survey results. 93% of survey respondents indicated their plant generates 400 tons or less of skimmings per year. The rest of the respondents (7%) reported that they generate over 1000 tons of skimmings per year. These results create an average of 236 tons of skimmings per year being generated per galvanizer that submitted a survey.

PERCENTAGE OF ZINC IN SKIMMINGS

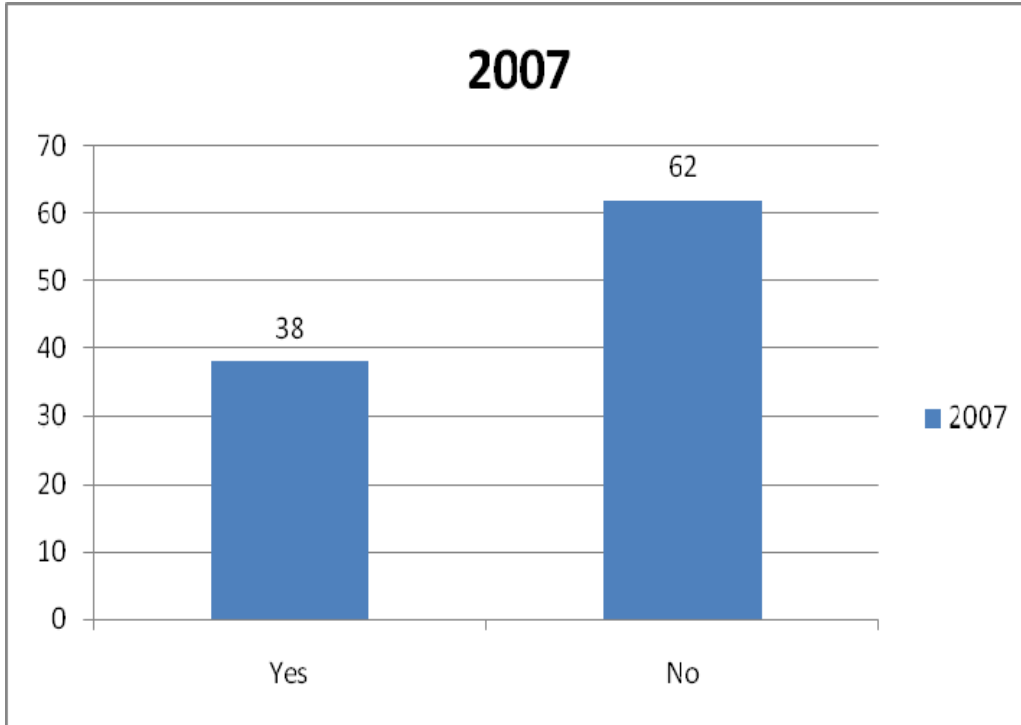


The most reported range of percentage of zinc in skimmings was from 70 to 75% with 44% of survey results. There was a wide distribution in the other ranges.

TOTAL SKIMMINGS DIVIDED BY TOTAL ZINC USED

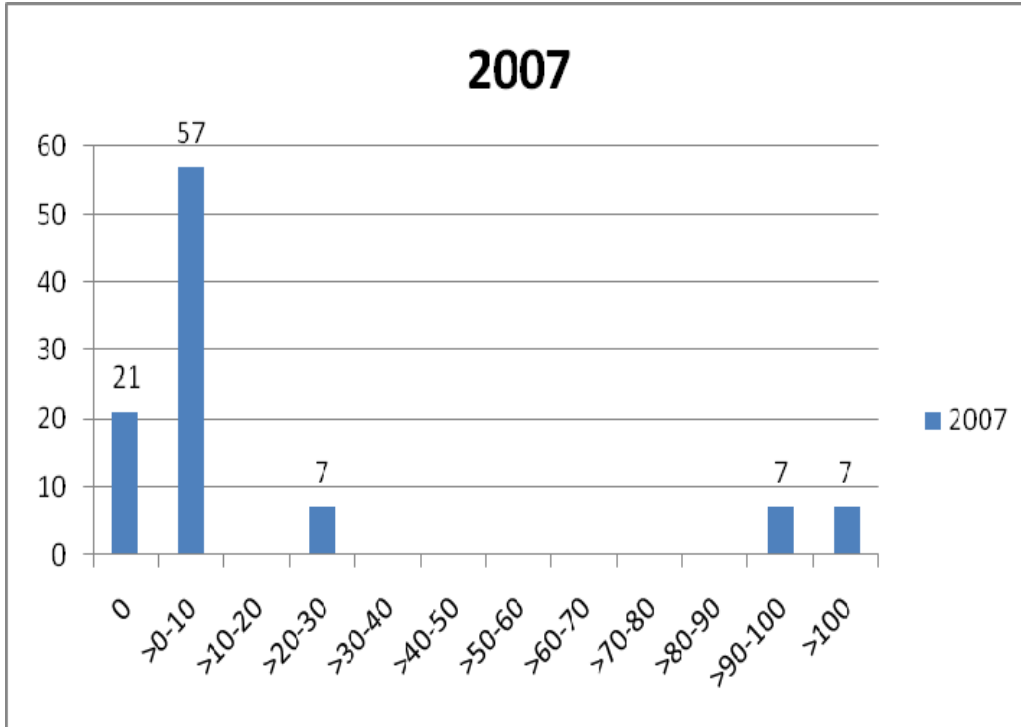


IS A SKIMMING RECYCLING SYSTEM USED?



Nearly 40% of survey respondents indicated they use a skimmings recycling system.

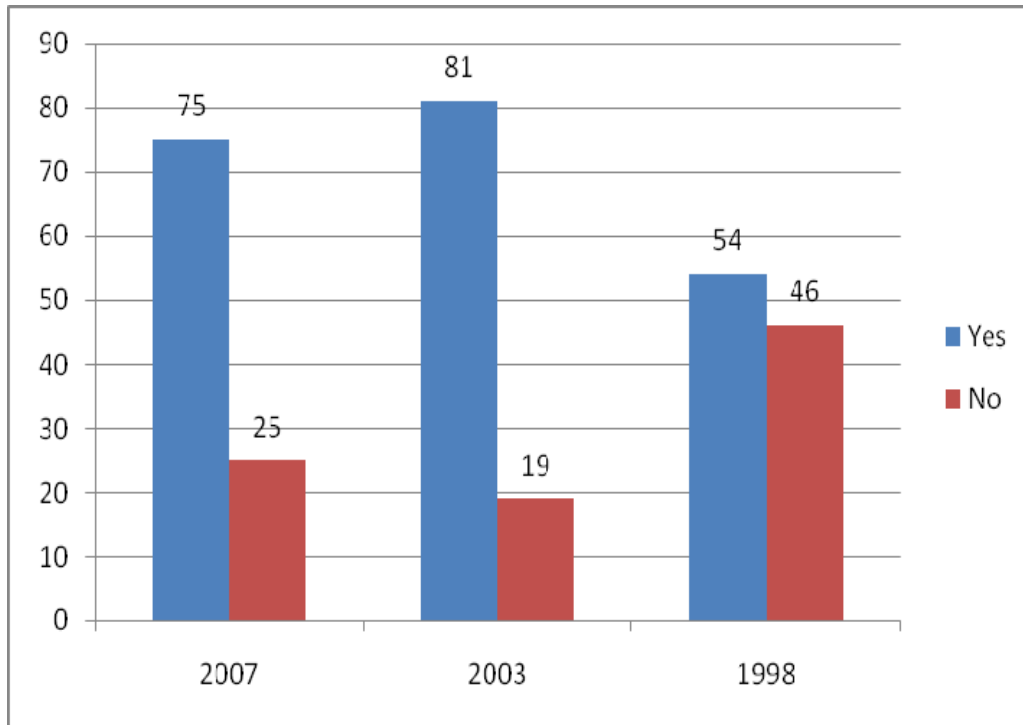
LEVEL OF ZINC IN THE PLANT'S STORM WATER RUNOFF LEVEL IN PPM



Nearly 80% of survey respondents indicated they have less than 10 parts of zinc per million in the plant's storm water runoff.

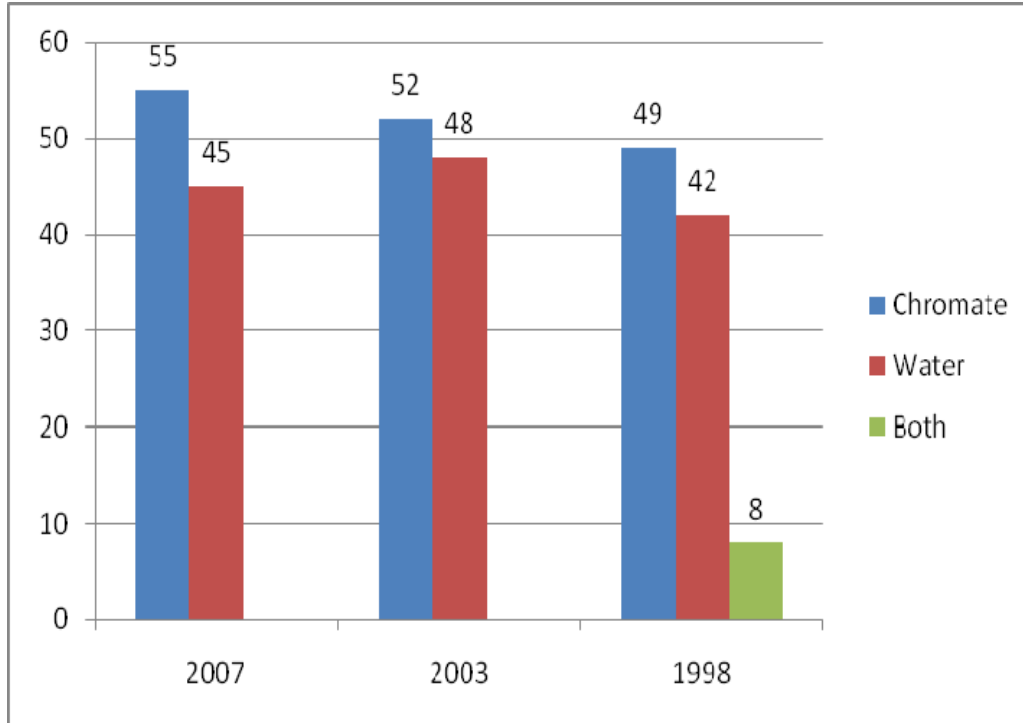
Section 8 – QUENCHING

IS A QUENCH BATH USED?



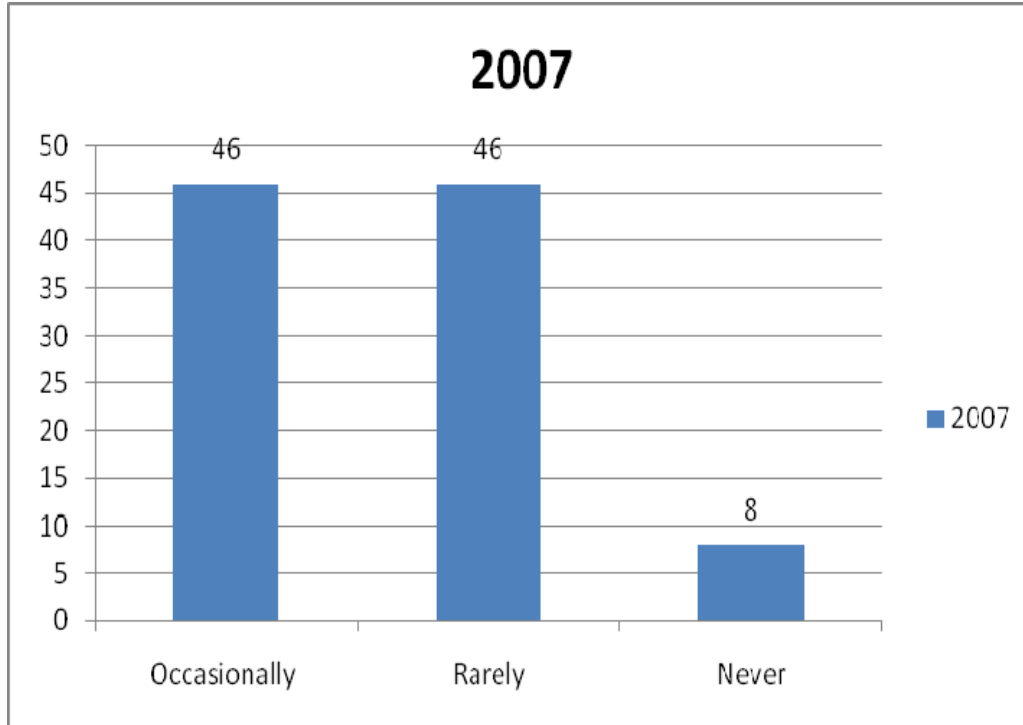
The 2007 Process Survey showed 75% of galvanizers use a quench bath. This is a slight decrease since the 2003 Survey.

TYPE OF QUENCH TANK



Of the galvanizers that reported using a quench tank, 55% reported using a chromate quench and 45% reported using a water quench. These results show a slight increase in the number of galvanizers using chromate quench tanks compared to previous surveys. This, once again, shows a difference in composition of survey respondents compared to previous surveys since less galvanizers are using chromate quenches.

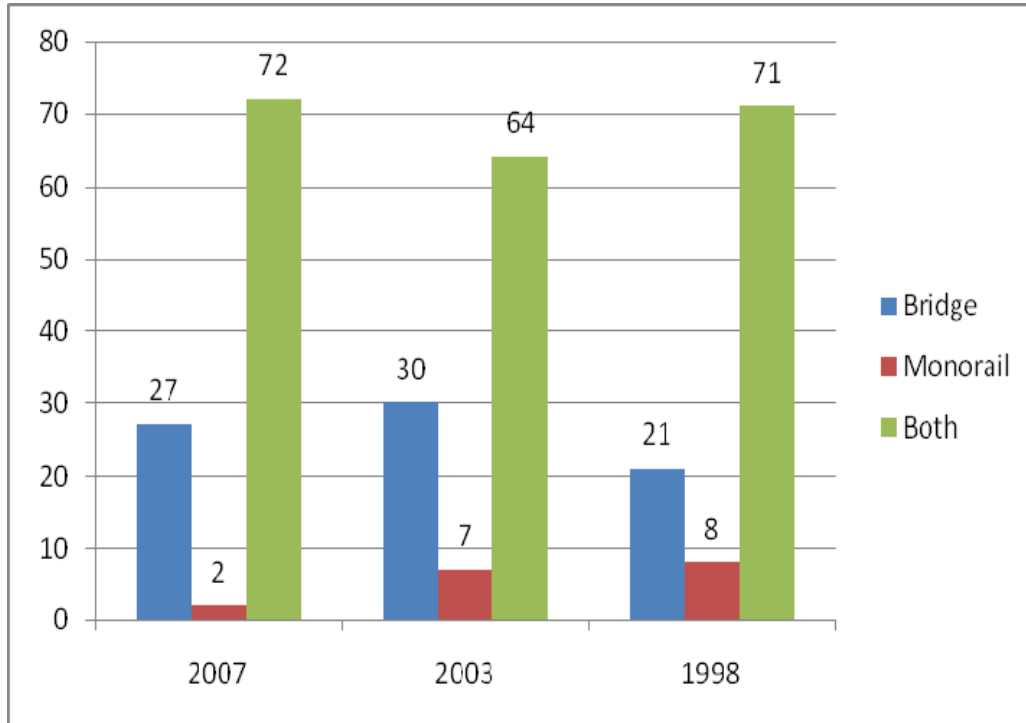
HOW OFTEN IS WET STORAGE STAIN PRODUCED?



Wet storage stain can develop in humid environments or when moisture remains on newly galvanized steel without adequate airflow. Chromate quenching newly galvanized steel prevents the occurrence of wet storage from occurring. More than 90% of survey respondents reported experiencing wet storage stain at some point. This emphasizes the importance of finding chromate alternatives as the industry transitions away from using chromate quenches.

Section 9 – MATERIAL HANDLING SYSTEMS

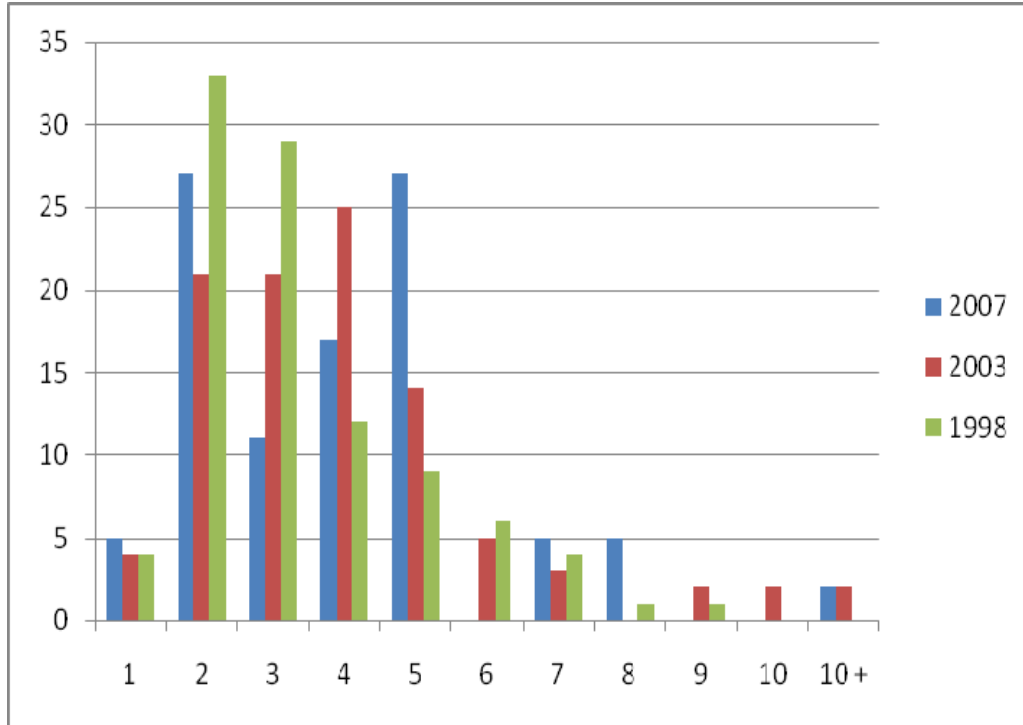
TYPE OF CRANE SYSTEM



Survey responses indicate most galvanizers (greater than 70%) use both bridge and monorails in their galvanizing operations. A trend has emerged which shows that less galvanizers are using monorail crane systems exclusively.

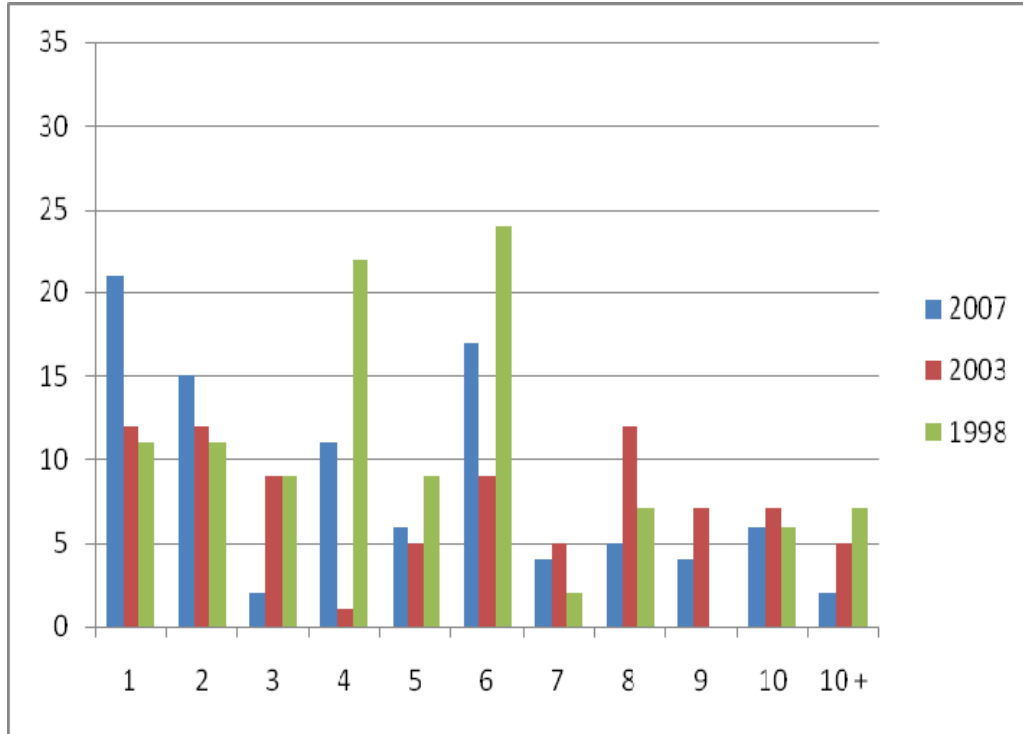
Bridge and monorail cranes each have advantages and disadvantages. Bridge cranes usually have a higher capacity than monorail cranes, but bridge cranes can move in only one direction. Monorail cranes generally have a lower capacity than bridge cranes, yet they can be more useful because they can move in forward and reverse directions.

NUMBER OF BRIDGE CRANES



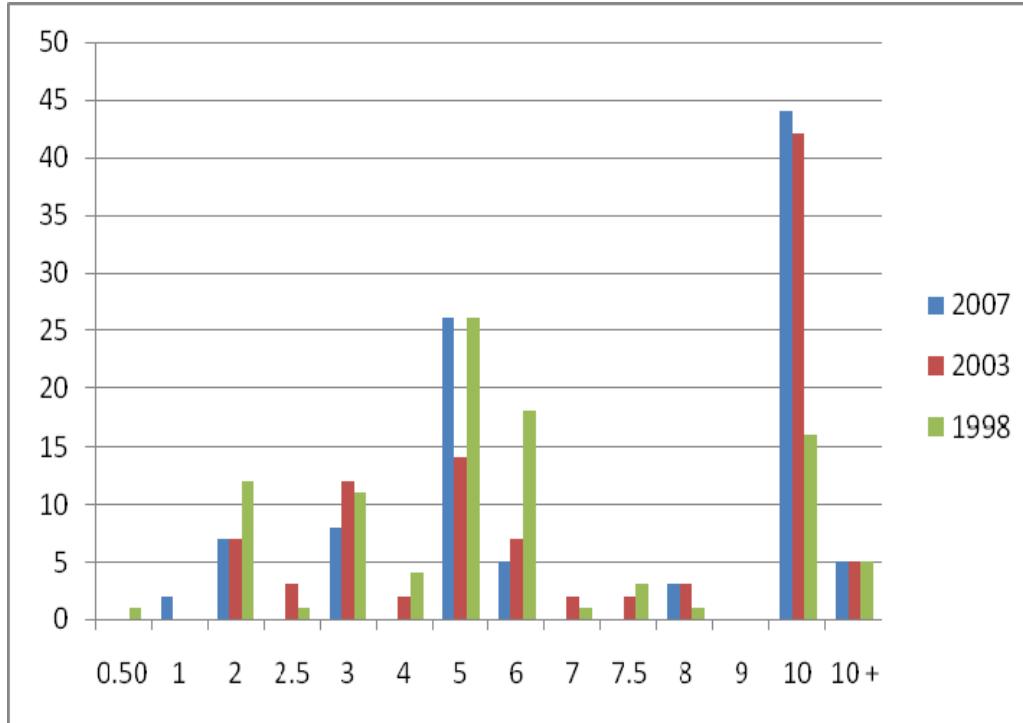
The 2007 Process Survey indicates the majority (87%) of galvanizers use five or less bridge cranes. In 2003, 85% of galvanizers used five or less bridge cranes, and in 1998 the percentage was 87%. There is some variation in the distribution of galvanizers using six or more bridge cranes.

NUMBER OF MONORAIL CRANES



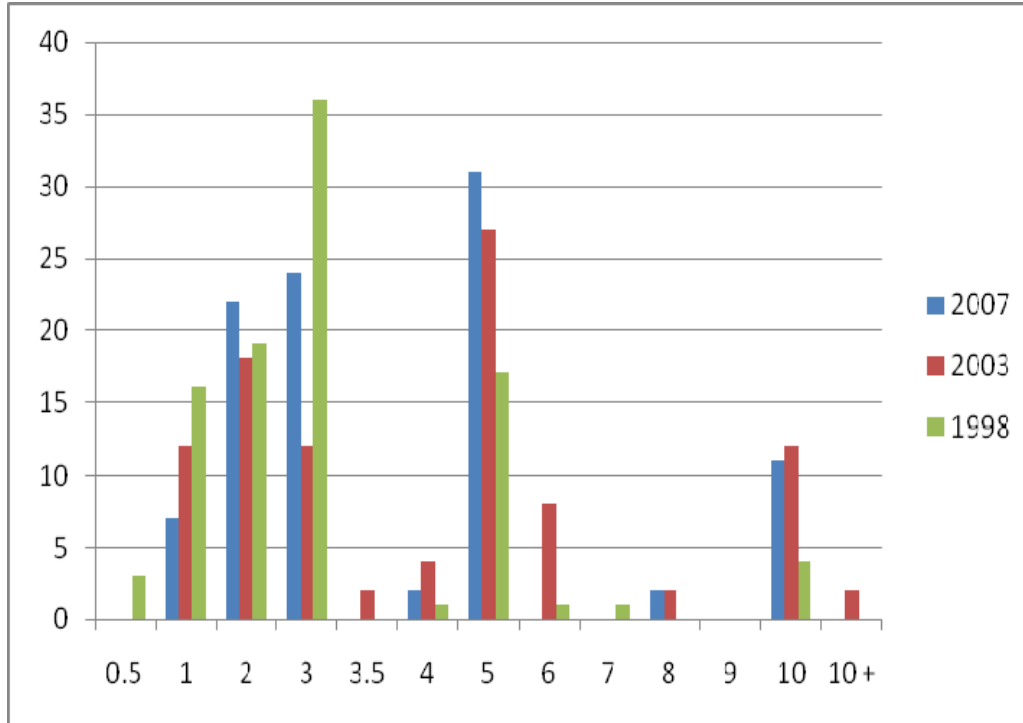
Each process survey has shown a wide distribution in results for the number of monorails operated per plant. Sizes and shapes of products to be galvanized and plant layouts both affect the ideal number of monorail cranes used. This hints at galvanizers setting up their plant in a way that is most efficient for them and their customers' steel rather than subscribing to a one-size-fits-all strategy. For 2007, the most popular number of monorails was 1 (21%), 2 (15%) and 6 (17%). For 2003, 1, 2 and 8 monorails were the most popular choices with 12% of respondents each. And in 1998, the most popular number of monorails was 4 (22%) and 6 (24%). This shows that galvanizers are willing to make changes to their material handling system to accommodate their customers' steel and to maximize efficiency in their operation.

WEIGHT CAPACITY OF BRIDGE CRANES



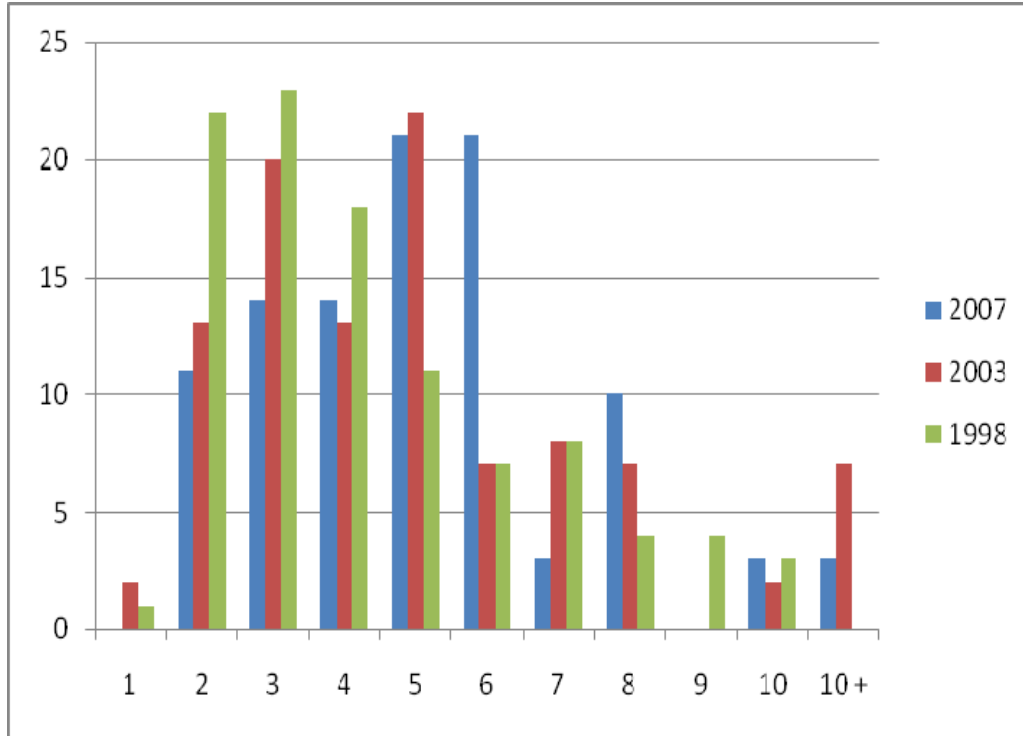
The capacity of bridge cranes has remained relatively constant when compared to previous surveys, with 10 (44%) and five (26%) tons being the most popular capacities.

WEIGHT CAPACITY OF MONORAILS



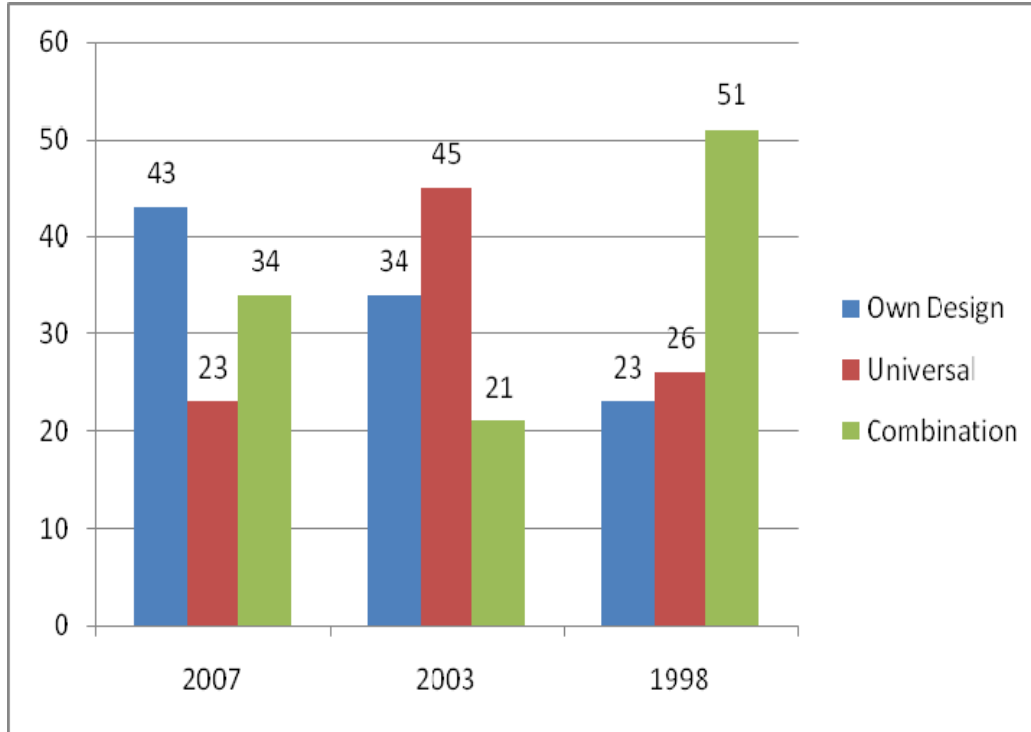
For 2007, the most popular capacities of monorail cranes was 2 (22%), 3 (24%) and 5 (31%) tons.

NUMBER OF FORKLIFTS



Each process survey has shown a wide distribution in the number of forklifts used per plant. The number of forklifts has changed slightly between surveys and the most popular range for 2007 was between two and six forklifts per plant, which made up 81% of survey results. For 2003 this percentage was 75% and in 1998 it was 81%.

TYPE OF RACKING SYSTEM



The 2007 Process Survey shows a trend towards more galvanizers designing their own racking systems. Since the 2003 Process Survey, the number of galvanizers using universal racking systems fell sharply and the number of galvanizers using a combination of racking systems increased sharply.

Section 10 – FURTHER STUDY

The information that is provided in this survey analysis is only the top level of information available from the survey responses. If you would like to probe deeper into the survey results please let me know what information that you are seeking and I should be able to provide you with an answer to your question. Please let me know if this information will be useful to you.