

Weighing Black Steel and Hot-Dip Galvanized Steel

.....PROFIT & PROCESS
IMPROVEMENT OPPORTUNITY

New Orleans Oct 4-6, 2016



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Takeaways

- **WHAT DO WE KNOW ABOUT THE STEEL WE HOT-DIP GALVANIZE?**
- **WHAT DOES KNOWING BLACK AND WHITE WEIGHT TELL US?**
- **HOW TO TAKE ADVANTAGE OF KNOWING BLACK AND WHITE WEIGHT?**

Steel Practices

- **MILL INVOICING PRACTICES**
 - **ACTUAL WEIGHT**
 - **THEORETICAL MINIMUM WEIGHT**
 - **THEORETICAL NOMINAL WEIGHT**

Steel Plate Thickness Variation

1" THICK STEEL PLATE 1 FT²

THEORETICAL NOMINAL WEIGHT

40.8 LBS. (DENSITY IS 489.6 LBS./FT³)

ACTUAL WEIGHT (+ OR – 0.06")

38.35 LBS. – 43.25 LBS.



Galvanizing Plate

- **ASSUME 3% PICKUP**
- **100 LB. PLATE, EXACTLY 1" THICK, WOULD INVOICE OUT AT 103 LBS.**
- **98 LB. PLATE, INVOICED OUT AT 100.9 LBS. ***
- **94 LB. PLATE, INVOICED OUT AT 96.8 LBS. ****

Invoicing Implications

- **ASSUME YOUR SELLING PRICE IS \$0.30/LB.**
- **ASSUME ZINC COST TO YOU IS \$1.00/LB.**

Plate with Nominal Thickness

- **B/L WEIGHT = 100 LBS.**
- **ACTUAL BLACK WEIGHT = 100 LBS.**
- **ACTUAL HDG WEIGHT = 103 LBS.**
- **GROSS SELLING REVENUE = \$30.90**
- **LESS ZINC COST =\$3**
- **GROSS MARGIN = \$27.90 OR 27.9% OF BLACK WEIGHT OR 27.1% OF WHITE WEIGHT**

Plate with Thickness Less Than Nominal

- **B/L WEIGHT = 100 LBS.**
- **ACTUAL BLACK WEIGHT = 98 LBS.**
- **ACTUAL HDG WEIGHT = 100.94 LBS.**
- **GROSS SELLING REVENUE = \$30.27**
- **LESS ZINC COST = \$2.94**
- **NET GROSS MARGIN = \$27.33 OR 27.8% OF ACTUAL BLACK WEIGHT OR 27.1% OF HDG WEIGHT**

Plate with Thickness Less Than Nominal

- **B/L WEIGHT – 100 LBS**
- **ACTUAL BLACK WEIGHT = 94 LBS.**
- **ACTUAL HDG WEIGHT = 96.8 LBS.**
- **GROSS SELLING REVENUE = \$29.04**
- **LESS ZINC COST = \$2.82**
- **GROSS MARGIN = \$26.22 OR 27.8% OF BLACK WEIGHT OR 27.1% OF HDG WEIGHT**

Plate Weighing Less Than Nominal

- B/L WEIGHT 100 LBS.
- ACTUAL BLACK WEIGHT = 99 LBS.
- ACTUAL HDG WEIGHT = 103 LBS.
- GROSS SELLING REVENUE = \$30.90 (\$0.30/LB. X 103 LBS.)
- LESS CALCULATED ZINC COST = \$3.00
- APPARENT GROSS MARGIN = \$27.90 OR 27.9% OF B/L BLACK WEIGHT
- ACTUAL GROSS MARGIN = \$30.90 - \$4.00 = \$26.90 OR 27.1% OF ACTUAL BLACK WEIGHT, 26.1% OF HDG WEIGHT

Plate Weighing More Than Nominal

- **B/L WEIGHT = 100 LBS**
- **ACTUAL BLACK WEIGHT = 102 LBS.**
- **ACTUAL HDG WEIGHT = 105.1 LBS.**
- **GROSS SELLING REVENUE = \$31.53**
- **LESS CALCULATED ZINC COST = \$3.00**
- **APPARENT GROSS MARGIN = \$28.53 OR 28.53% OF BLACK WEIGHT OR 27.1% OF HDG WEIGHT**
- **ACTUAL GROSS MARGIN = \$31.53 – \$3.10 = \$28.43 OR 27.9% OF ACTUAL BLACK WEIGHT, 27.1% OF HDG WEIGHT**

Macro Zinc Pickup

ZINC CONSUMPTION IS CALCULATED MONTHLY OR ANNUALLY BASED ON HOW MUCH ZINC YOU PUT IN THE BATH OVER THAT TIME PERIOD DIVIDED BY THE TOTAL WEIGHT OF BLACK OR HDG STEEL YOU PROCESSED.

THE COMPONENTS OF CONSUMPTION ARE APPROXIMATELY:

35% TO DROSS AND SKIMS

10% TO WIRE, CHAIN, FIXTURES, SPLASH

55% TO ZINC COATING

FACT: ZINC PICKUP IS NOT PRECISELY KNOWN

WHAT IF YOU
PROCESSED LESS STEEL
THAN YOU THINK?

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Micro Zinc Pickup

- **SUPPOSE EVERY 100 LBS. OF BLACK STEEL YOU PROCESSED ACTUALLY WEIGHED 97 LBS.**
- **BACKING INTO YOUR ZINC PICKUP NUMBER OF 3%, ON AVERAGE YOU INVOICED 103 LBS. OF HDG STEEL FOR EVERY 100 LBS. OF BLACK STEEL YOU THINK YOU GALVANIZED.**
- **IN REALITY, YOUR ZINC PICKUP IS 6.2%**

If you don't weigh black steel...

- **INVOICED AMOUNT = \$30.90 (\$0.30/LB. X 103 LBS.)**
- **ZINC COST = \$6.00**
- **GROSS REVENUE = \$24.90**
- **ACTUAL NET MARGIN ON BLACK STEEL WEIGHT = \$24.90/97 LBS. = 25.6%**
- **ACTUAL NET MARGIN ON HDG STEEL WEIGHT = \$24.90/103 LBS. = 24.2%**
- **IN EFFECT, YOU JUST SOLD 3 LBS. OF \$1.00/LB. ZINC FOR \$0.30/LB.**

If you weigh black steel....

- **INVOICED AMOUNT = \$31.93 ($\0.31×103)**
- **ZINC COST = \$6.00**
- **GROSS REVENUE = \$25.93**

- **ACTUAL GROSS MARGIN ON BLACK STEEL WEIGHT = $\$25.93 / 97 \text{ LBS.} = 26.7\%$**
- **ACTUAL NET MARGIN ON HDG STEEL WEIGHT = $\$25.93 / 103 \text{ LBS.} = 25.2\%$**

Margin Opportunity

- **WEIGHING HDG STEEL ONLY –
25.6%/24.2%**
- **WEIGHING BLACK AND HDG STEEL --
26.7%/25.2%**
- **NET MARGIN IMPROVEMENT OF \$0.011 /LB.**
- **1,000 TONS/MONTH**
- **\$22,000/MONTH OR \$264,000/YEAR**

Process Improvement Opportunity

- **SHORTEN THE DWELL TIME IN THE KETTLE FOR PRODUCTS YOU NOW KNOW HAVE PICKUP ON THE HIGH END OF YOUR EXPECTED RANGE**
- **SHORTEN IMMERSION TIME IN THE FLUX, WHICH CAN AFFECT ZINC PICKUP**
- **COMPARE PRODUCTS FROM CUSTOMER TO CUSTOMER....MATERIAL MAY BE QUITE DIFFERENT IN CHEMISTRY**
- **COMPARE PICKUP FROM SHIFT TO SHIFT**
 - **IMMERSION SPEED (STEADY RATE V. START/STOP)**

Summary

- **WEIGHING BLACK AND WHITE STEEL GIVES YOU...**
 - **ACCURATE TOTAL ZINC CONSUMPTION**
 - **ACCURATE DROSS AND SKIMS LOSS**
 - **ACCURATE ZINC PICKUP**
 - **FLEXIBILITY TO ADJUST SELLING PRICE BASED ON CUSTOMER AND STEEL TYPE**
 - **IDENTIFICATION OF PROCESS AREAS AND SHIFT OPERATING DIFFERENCES WHERE FINE-TUNING IMPROVES EFFICIENCY**

THANK YOU

QUESTIONS

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