JM-4000
PERFORMANCE TEST RESULTS
FEBRUARY, 1994

Total Pounds Melted & Superheated   31,097#

Total Qty Natural Gas Used
      Meter Reading (37,893 - 37,590) x 100   =   30,300 Ft.^{3}

Total Btu's Used   30,300 Ft.^{3} x 1000 Btu/Ft.^{3} =   30,300,000 Btu

Total Cost to Melt   30.3 DTH x \$3.068/DTH   =   \$92.96

Cost Per Pound to Melt & Superheat   \$92.96 ÷ 31,097#   =   \$0.0029

Ave. Btu/#   30,300,000 Btu ÷ 31,097#   =   974.4 Btu/#

Peak Melting Capacity - Ave. 2-1/4 Hrs.   =   Approx. 4600#/Hr.

Energy Usage During Peak Melting
    2-1/4 Hrs. 10,900,000 Btu ÷ 12,338#   =   883.4 Btu/#

Hours of Production   9:22 a.m. to 6:45 p.m.   =   9 hrs. 23 min.
    Start of Melting to Completion of Stack Cleaning

Ave. Melt Rate for Total Hours   =   3315#/Hr.

Melt rate at steady state production level - furnace matching metal demand 11:35 a.m. to 5:00 p.m.

    15,356# ÷ 5.5 Hr.   =   2792#/Hr.

Energy Usage at steady state conditions
    Meter Reading 37,840 - 37,698 = 142
    142 x 100 x 1000 Btu/Ft.^{3} =   14,200,000 Btu

    14,200,000 Btu ÷ 15,365#   =   924 Btu/#

Total Material Removed from Furnace Bath including
    Recoverable Metal in Dross   =   273#

Modern Equipment Company, Inc.

Recoverable Metal Content of Dross @ 20%

273 x 20% = 54.6#

Total Dross Wt.   273 - 54.6 = 218.4#

Wt. of Flux Added = 8#

Dross Less Flux   218.4# - 8# = 210.4#

Dross, Aluminum Oxide (AL_2O_3) is 52.9% AL & 47.1% O_2

So, Total Metal Lost as Dross is:

210.4# x 52.9% = 111.3#

$$\frac{111.3\# \text{ AL Lost}}{31,097\# \text{ Melted}} = .36\% \text{ Melt Loss}$$

Stack Temp. Range = 700°F - 950°F

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