



Product Case Study

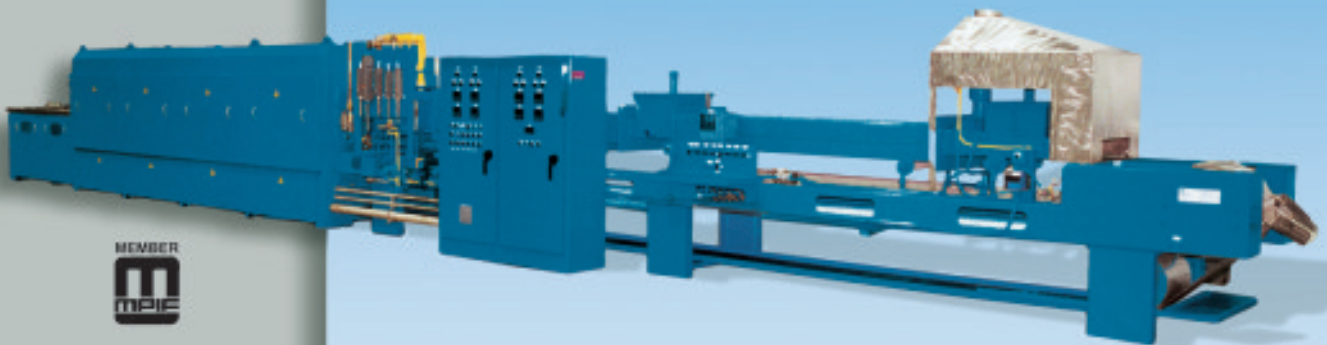
Fusing  
Materials,  
Equipment  
and  
Technology

# PROCESSING COST

## SINTERING CASE STUDY

ISO 9001 CERTIFIED

Two furnaces, meeting identical customer specifications, are evaluated for cost and performance. An economic comparison is presented.



MEMBER



ISO 9001



**GASBARRE**  
PRODUCTS, INC.

SINTERITE FURNACE DIVISION

## CASE STUDY OVERVIEW

Two furnaces built to the same customer process specification, were operated side by side and evaluated for overall cost and performance. One furnace was built by Gasbarre Products, Sinterite Furnace Division, the other was constructed by another manufacturer.

<b>Furnace Configuration</b>	<b>Sinterite</b>	<b>Other</b>
<b>Belt Width (Inches)</b>	24	24
<b>Zones</b>	6	6
<b>Operating Temperature (Deg F)</b>	2,050	2050
<b>Muffle</b>	SiC	SiC

Both furnaces were operated at No Load and Full Load conditions while recording power consumption with high speed data logger. No Load was defined as having the furnace set at process levels, with no parts running. Full Load was determined by the customer at the maximum part loading that the furnace can sustain adequate sintering.

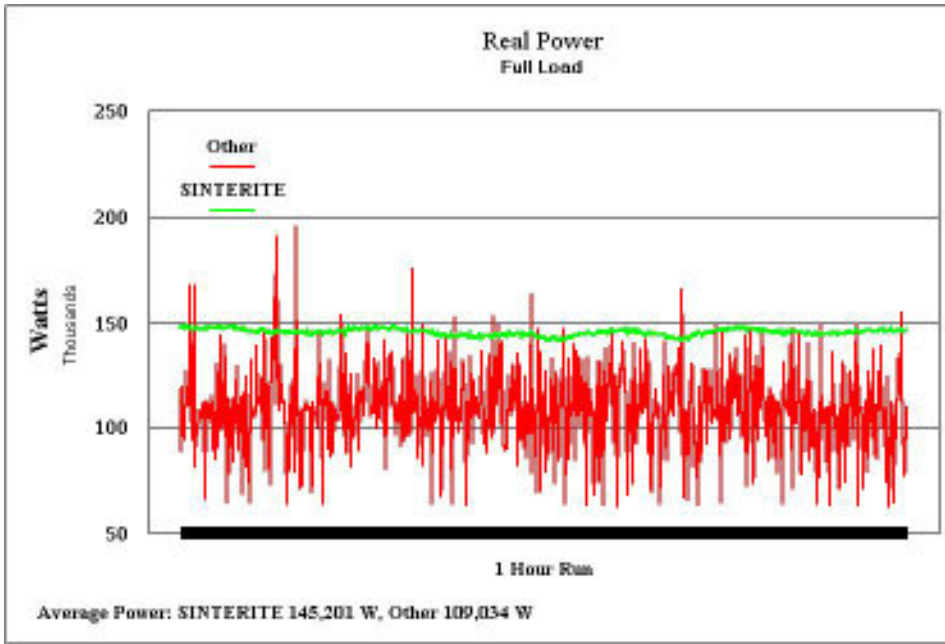
A typical, one hour recording of the power consumption is shown on the following page for both No Load and Full Load conditions. An economic analysis comparing the two furnaces can be found on the last page.

## CONCLUSION

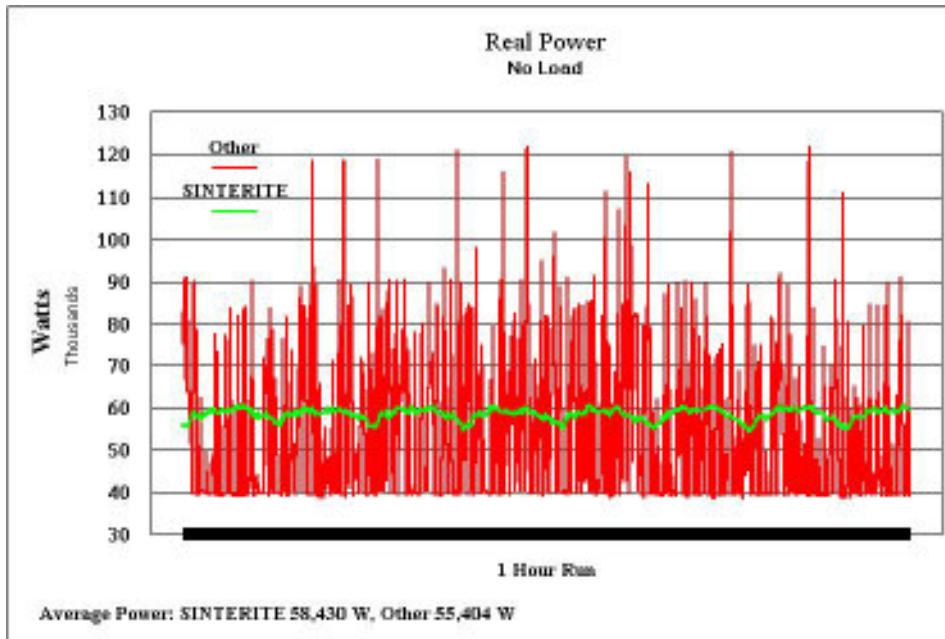
	<b>Sinterite</b>	<b>Other</b>	<b>Difference</b>
<b>Furnace Cost</b>	\$200,000	\$200,000	
<b>Total Cost/Hour</b>	\$23.07	\$20.90	
<b>Cost/Pound</b>	\$0.026	\$0.033	28%
<b>Annual Capacity (Lbs)</b>	4,590,000	3,243,600	42%

Although built to the same customer specification, the Sinterite Furnace delivers 42% more annual throughput capacity than the "Other Brand". The "Other Brand's" Total Cost is 28% more per pound than Sinterite's Total Cost per pound.

[Contact Sinterite Furnace for more information concerning this study.](#)



Power consumption plots of typical, one hour runs. Data was collected by a high speed, three phase power data logger.



Power consumption plots of typical, one hour runs. Data was collected by a high speed, three phase power data logger.

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	Sinterite	Other
<b>CAPITAL COST</b>		
Furnace Cost	\$ 200,000	\$ 200,000 (Estimated)
Salvage Value	-	-
Life	7	7
Utilization	85%	85%
Shifts/Day	3	3
Days/Week	5	5
Weeks/Year	50	50
Hours/Year	5,100	5,100
Hours/Life	35,700	35,700

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<b>Depr Cost/Hour</b>	\$5.60	\$5.60
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#### UTILITIES

Electricity

\$/kw-hr	\$0.0598	\$0.0598
Full Load kw	145.2	109

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<b>Electric Cost/Hour</b>	\$8.68	\$6.52
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Atmosphere

Nitrogen \$/cfh	\$0.25	\$0.25
Hydrogen \$/cfh	0.90	0.90
% Nitrogen	90%	90%
% Hydrogen	10%	10%
Total Flow	1,200	1,200

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<b>Atmosphere Cost</b>	\$3.78	\$3.78
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#### LABOR

Cost/Hr	\$15.00	\$15.00
Furnace/Operator	3	3

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<b>Labor Cost/Hour</b>	\$5.00	\$5.00
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#### POUNDS/HOUR

<b>900</b>	<b>636</b>
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#### DIRECT COST SUMMARY

<b>Depr cost/Hour</b>	\$5.60	\$5.60
<b>Electric Cost/Hour</b>	8.68	6.52
<b>Atmosphere Cost</b>	3.78	3.78
<b>Labor Cost/Hour</b>	5.00	5.00

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TOTAL COST/HOUR	\$23.07	\$20.90
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<b>Cost/Pound</b>	<b>\$0.026</b>	<b>\$0.033</b>	<b>28%</b>
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#### ANNUAL CAPACITY

<b>Pounds/Year</b>	<b>4,590,000</b>	<b>3,243,600</b>	<b>42%</b>
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■ How do these results impact my capital spending as business grows?

■ What happens when my energy costs increase?

■ How can this give me a competitive advantage?

For answers to these and any other questions contact:

Sinterite Furnace Division  
310 State Road  
St. Marys, PA 15857

Phone: 814-834-2200  
Fax: 814-834-9335

Email: furnace\_sales@gasbarre.com