Brammer Standard Company, Inc.

Certificate of Analysis

B.S. 104A

Iron Ore Sinter

Expressed as oxide		**Expressed as total element**	
CaO	10.4	Ca	7.4
MnO	1.05	Mn	0.81
SiO_2	7.96	Si	3.72
Al_2O_3	1.04	Al	0.55
MgO	1.3	Mg	0.8
TiO_2	0.10	Ti	0.06
P_2O_5	0.10	P	0.044
Na_2O	0.03	Na	0.02
K_2O	0.14	K	0.12
		Fe, total	54.6
		C	0.22
		S	0.014

(analysis listed as percent by weight)

Note: The iron is not expressed as an oxide since some metallic iron may be present.

See reverse side for more information.

Certificate Number 104A-042092

Brammer Standard Company, Inc., 14603 Benfer Road, Houston, TX 77069
Telephone (281) 440-9396 Fax (281) 440-4432

Some of the co-operating laboratories were:

Andrew S. McCreath & Son, Inc., Harrisburg, Pennsylvania
Brammer Standard Co., Inc., Houston, Texas
J. Dirats and Co., Inc., Westfield, Massachusetts
Hoesch Stahl AG, Dortmund, Germany
SKODA concern, Plzen, Czechoslovakia
TCR Engineering Service Pvt. Ltd., Bombay, India
VHG Laboratories, Inc., Manchester, New Hampshire

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Analysis	CaO	MnO	SiO_2	Al_2O_3	MgO	TiO_2	P_2O_5
1	10.29	1.02	7.93	1.00	1.20	0.09	0.082
2	10.34	1.05	7.94	1.00	1.22	0.093	0.086
3	10.51	1.05	7.96	1.03	1.385	0.10	0.097
4	10.63	1.05	7.964	1.04	1.42	0.112	0.097
5		1.08	7.98	1.05	1.44	0.114	0.109
6			8.00	1.07		0.12	0.11
7				1.08			
Average	10.443	1.050	7.962	1.039	1.333	0.105	0.097
Std Dev	0.156	0.021	0.026	0.031	0.114	0.012	0.011
Certified	10.4	1.05	7.96	1.04	1.3	0.10	0.10

Analysis	Fe	C	S	Na	K
1	54.11	0.21	0.009	0.016	0.11
2	54.37	0.217	0.0126	0.0233	0.113
3	54.80	0.22	0.013	0.025	0.123
4	54.82	0.22	0.015	0.035	0.139
5	54.84	0.22	0.0154		0.14
6	54.95	0.227	0.017		
Average	54.648	0.219	0.0137	0.025	0.125
Std Dev	0.331	0.006	0.0028	0.008	0.014
Certified	54.6	0.22	0.014	0.02	0.12

Chemical analyses were made on bulk powder material. The individual values listed above are the average of each analyst's results.

Methods of analysis used were a combination of classical "wet" methods plus additional ICP, and AA spectrometric methods. The following Certified Reference Materials were used to validate the analytical data listed above: NIST SRM 692; ECRM 683-1

This Reference Material was tested for homogeneity and found acceptable. The material has been processed to pass a number 100 mesh sieve. If the material is stored for a prolonged period of time, it is recommended that the material be dried at 105° C for 1 hour.

A Material Safety Data Sheet (MSDS) is not available for this material. This material will not release or otherwise result in exposure to a hazardous chemical, in the quantity supplied under normal conditions of use. Inquiries concerning this Reference Material should be directed to:

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Houston, Texas 77069-2895 USA

Phone: (281) 440-9396
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Certified by: _____ on April 20, 1992.
G. R. Brammer