STUDYING OF SOME FACTORS AFFECTING THE PELLETIZATION OF MILL SCALE.

A Thesis
Submitted to

CHEMISTRY DEPARTMENT
FACULTY OF SCIENCE
AIN SHAMS UNIVERSITY

For the Degree of
DOCTOR OF PHILOSOPHY
Ph. D. In Chemistry

By

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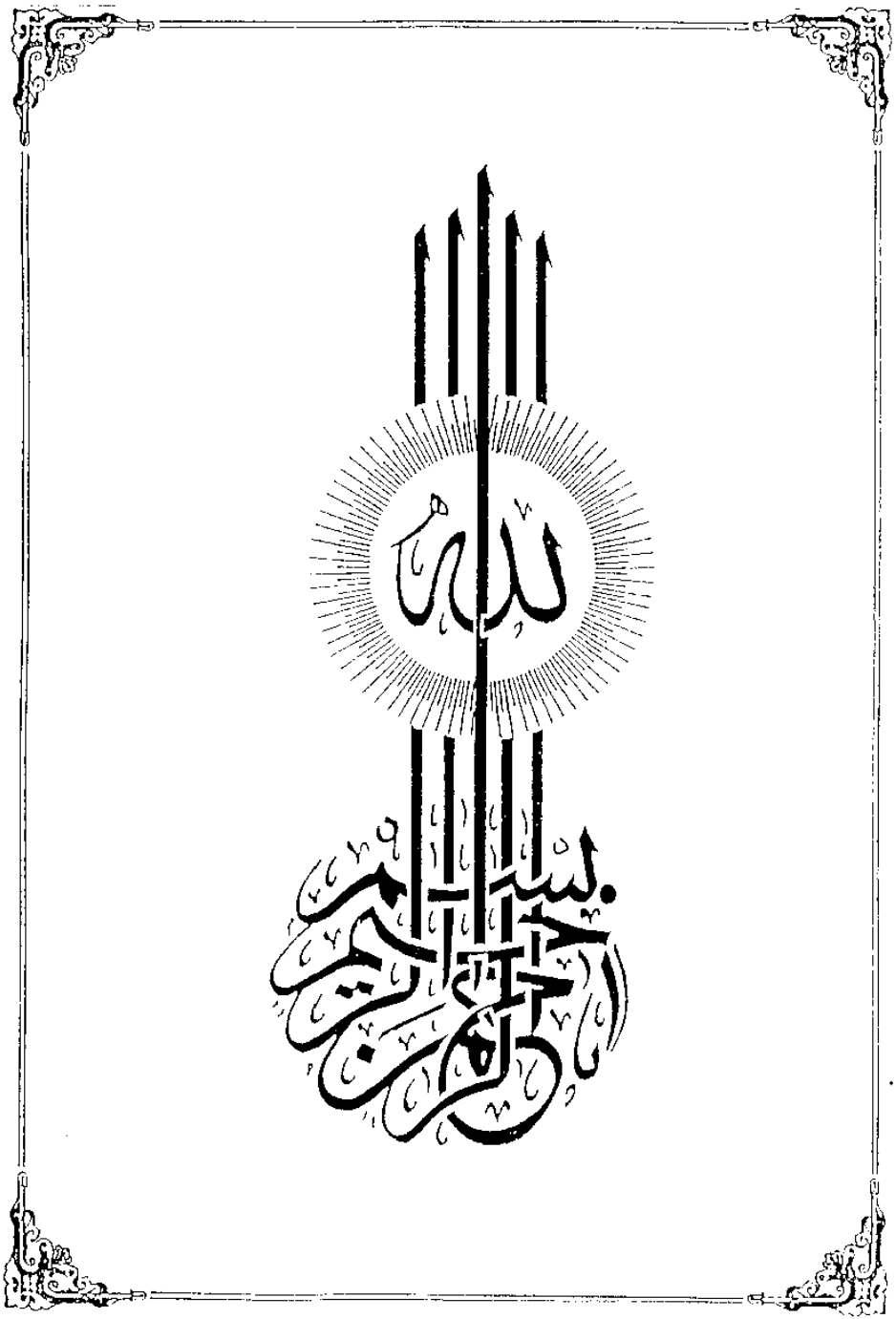
A Contribution from

CENTRAL METALLURGICAL RESEARCH
AND DEVELOPMENT INSTITUTE

CAIRO - EGYPT
1996



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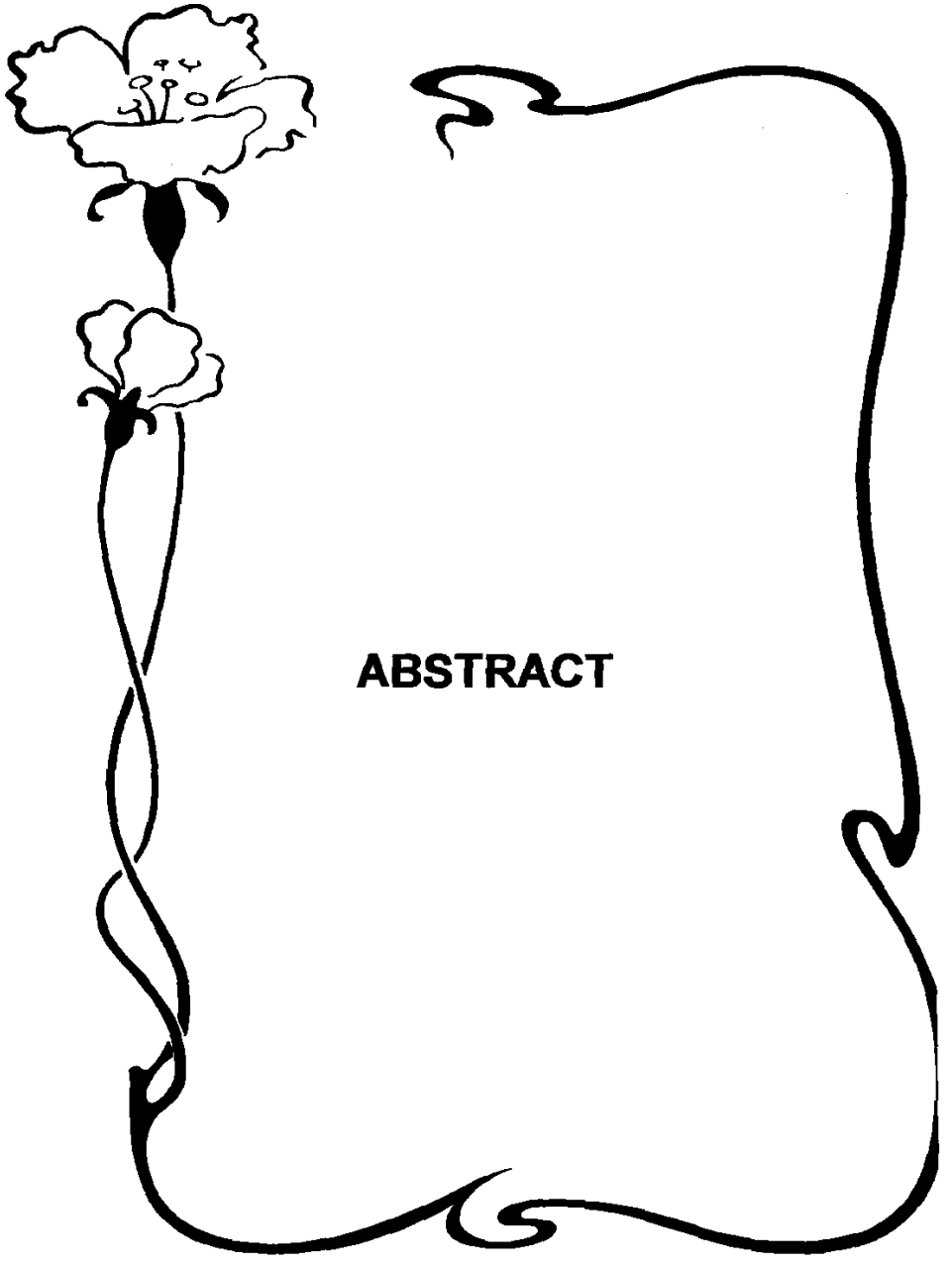

ABSTRACT

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STUDYING OF SOME FACTORS AFFECTING THE PELLETIZATION OF MILL SCALE.

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This thesis explained the results of an investigation of mill scale produced from Iron and Steel Co. Mill scale, which contains a high proportions of magnetite, wustite and metallic iron were pelletized in a disc pelletizer using water, Ca-bentonite, calcium hydroxide, water glass or cement as a binding materials. The operation and process influencing factors of green ball formation together with drying and induration processes were studied. Also the mechanism of reduction were studied.

The results obtained are summarized as follows :-

1- The optimum operation conditions for mill scale pelletization are, tilt angle of disc bottom is 55°, residence time of mill scale charge in the disc 10 min., disc rotating speed 15 rpm.

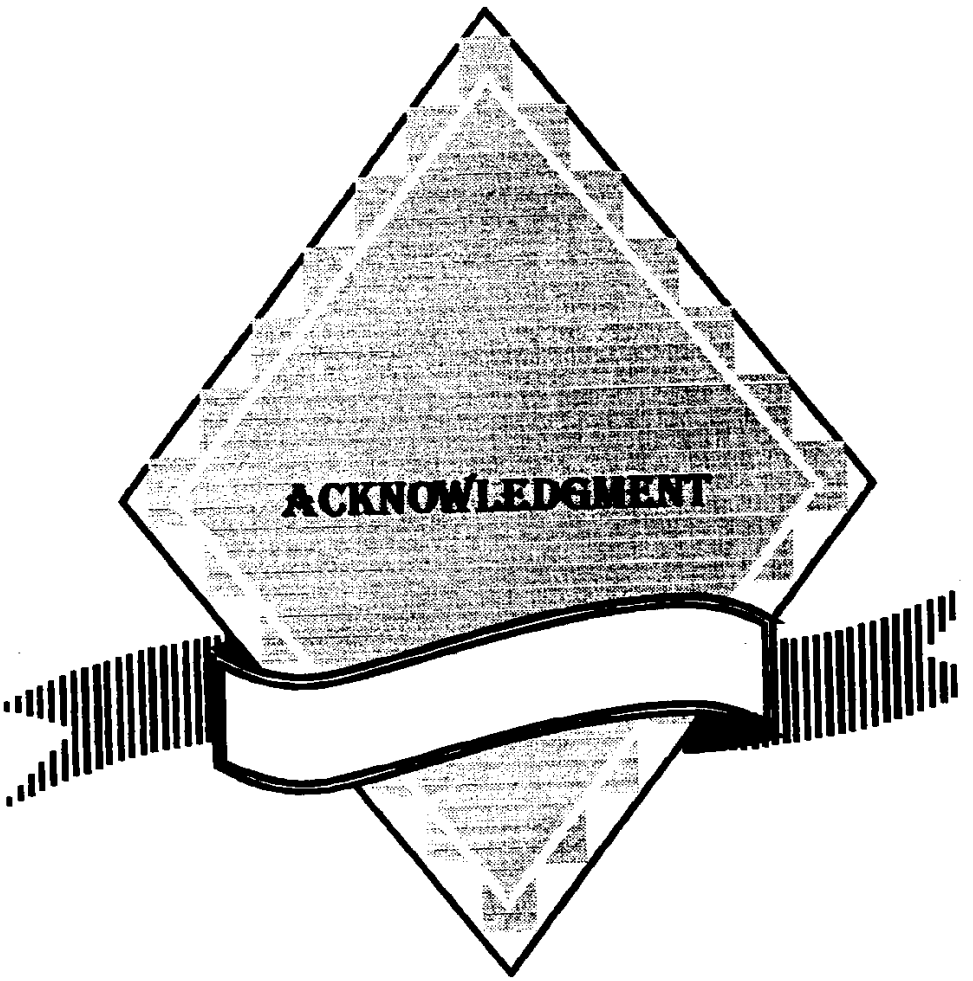
2- The compressive strength of indurated mill scale pellets depends upon the type of binder used.

3- The mechanism of reduction depends upon the type of binder used and induration temperature.

4- The use of cement as a binding material is quite sufficient to produce pellets hardened for 28 days and directly used in submerged arc furnace.

Keywords

Pelletization, Agglomeration, Reduction, , kinetics of reduction, Compressive strength, Cement, Ca-Bentonite, Water Glass.

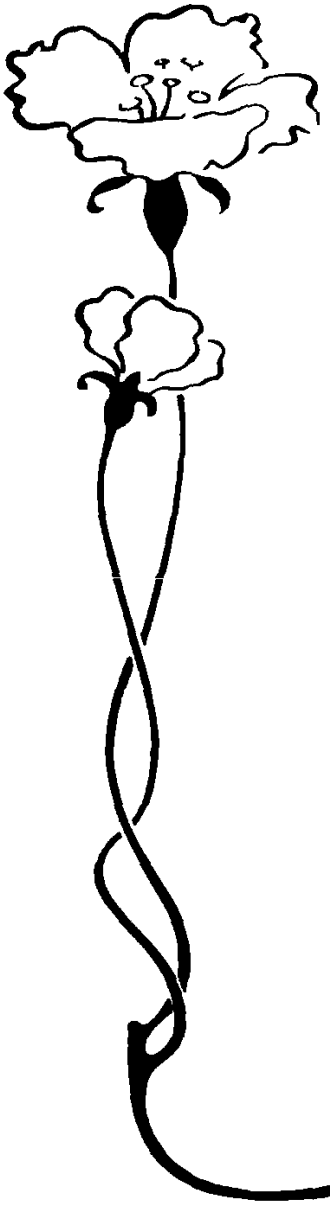


ACKNOWLEDGMENT

The author would like to express his gratitude to prof. Dr. Sayed S. Abd-Elrehim Professor of Physical Chemistry, Faculty of Science, Ain Shams University, Prof. Dr. M. E. H. Shalabi Prof. And Vice Dean of Ore Evaluation, Ore Benfeciation and Ore Agglomeration Department, CMRDI, El-Tabbin, Cairo, Prof. Dr. O. A. Mohamed Prof. And Head of Ore Agglomeration Department, CMRDI, El-Tabbin, Cairo and Dr. M. H. Khedr lecturer of Iron Making Department, CMRDI, El-Tabbin, Cairo for their sponsorship, Constructive guidance and deep concern in this work.

I also offer my thanks and appreciation to Prof. Dr. T. A. El-Bassyouni, Head of Heat Treatment department, CMRDI, for his help and conclusions.

Thanks should be forwarded to all those who helped me in implementing, the experimental work and the preparation of the thesis.



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