

# Accepted Manuscript

Short communication

Improving the property of calcium ferrite using a sonochemical method

Ruirui Wei, Xuewei Lv, Mingrui Yang, Jian Xu, Zhixiong You

PII: S1350-4177(18)30010-5

DOI: <https://doi.org/10.1016/j.ultsonch.2018.01.008>

Reference: ULTSON 4045

To appear in: *Ultrasonics Sonochemistry*

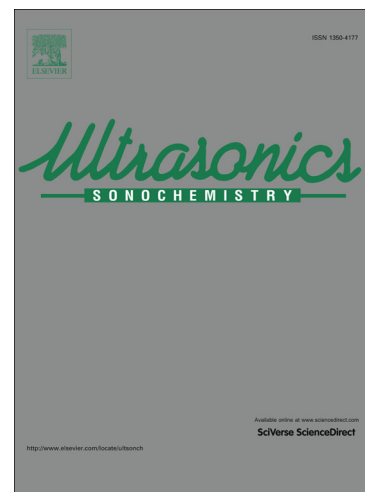
Received Date: 9 November 2017

Revised Date: 4 January 2018

Accepted Date: 5 January 2018

Please cite this article as: R. Wei, X. Lv, M. Yang, J. Xu, Z. You, Improving the property of calcium ferrite using a sonochemical method, *Ultrasonics Sonochemistry* (2018), doi: <https://doi.org/10.1016/j.ultsonch.2018.01.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Improving the property of calcium ferrite using a sonochemical method

## Ruirui Wei

E-mail: wrui1990@outlook.com

Ph.D. student in College of Materials Science and Engineering  
Chongqing University, Chongqing 400044, China

## Xuewei Lv\*, Corresponding author

E-mail: lvxuewei@163.com, Tel: +8613658335559

Professor in College of Materials Science and Engineering  
Chongqing University, Chongqing 400044, China

## Mingrui Yang

Master student in College of Materials Science and Engineering  
Chongqing University, Chongqing 400044, China

## Jian Xu

Associate professor in College of Materials Science and Engineering  
Chongqing University, Chongqing 400044, China

## Zhixiong You

Assistant professor in College of Materials Science and Engineering  
Chongqing University, Chongqing 400044, China

## Abstract

Power ultrasonic vibration was applied to the solidification of calcium ferrite (CF) melt in this study. The results indicated that power ultrasound can promote the formation of CF by accelerating the solidification process. Ultrasonic vibration greatly refined the CF grains, resulting the grain size decreased from 1893 to 437  $\mu\text{m}$ . Meanwhile, ultrasonic vibration significantly enhanced the compressive strength, reduced the reduction time and improved the reducibility of CF slags. With ultrasonic treatment, the ultimate compressive strength of samples increased from 37.5 to 67.8 MPa, and the reduction time decreased from 225 to 136 min.

**Keywords:** Sonochemistry, Calcium ferrite, Solidification, Grain refinement

## Introduction

High-basicity sinter is extensively used in blast furnace ironmaking process since

Download English Version:

<https://daneshyari.com/en/article/7702853>

Download Persian Version:

<https://daneshyari.com/article/7702853>

[Daneshyari.com](https://daneshyari.com)