Data analysis

INFLUENCE OF TEMPARATURE AND TIME ON MAGNETITE REDUCIBILITY

Group 1:
Đỗ Chiến
Đoàn Quân

1 Introduction

Mill scale, often shortened to just scale, is the flaky surface of hot rolled steel, consisting of the mixed iron oxides iron (II) oxide (FeO), iron (III) oxide (Fe_2O_3), and iron (II, III) oxide (Fe_3O_4, magnetite).
In this presentation, we're going to investigate the reduction degree of iron from mill scale patterns that we have.
Linear regression is used for show the data. Some test is also utilized to make sure the hypothesis available or not.

1.1 Reduction Degree

$$\%R = \frac{m_i - m_f}{\sum m_o} \times 100\%$$

Where:
%R: reduction degree
m_i:$initial\ mass$
m_f:$final\ mass$
$\sum m_o$:$total\ mass\ of\ oxigen$

1.2 Compute the reduction degree

Time: 15min 30min 45min 60min 90min 120min
Each time we have 3 trials
Temperature: 1100^{o}C, 1150^{o}C, 1200^{o}C
With the binder percentage: 5%