EXPERIMENTAL PROCEDURE

The composition of the PCI was 5% K2CO3 and 95% Fe2O3. The reaction was carried out in a ceramic crucible under an inert atmosphere in a high-temperature furnace. The temperature was maintained at 1400 °C, and the reaction time was 3 hours. The resulting material was cooled to room temperature and then ground to a fine powder. The powder was then characterized by X-ray diffraction (XRD) and scanning electron microscopy (SEM). The results showed that the powder was composed of well-crystallized hematite (α-Fe2O3) and a small amount of goethite (γ-FeOOH). The XRD patterns and SEM images were consistent with previous reports on the preparation of hematite powders by using a high-temperature furnace. The hematite powders were used as a model system for studying their performance as catalysts in various reactions.
The SEM micrographs given in Figs. (4) through (8) provide a chance of

![Image of SEM micrographs](image-url)
REFERENCES

1400°C. Approximately 10% of the powder remains unreacted after 1 hour. The conditions of these powders were found to be quite effective in inhibiting the reaction. A small amount of the powder was found to remain unreacted even after 1 hour. The reacted powders were identified by XRD analysis of the reacted powder.

The experimental conditions and parameters of the hydrothermal synthesis of the hybrid powders were optimized to minimize the amount of unreacted powder. In conclusion, the reaction of the hybrid powders was found to be quite effective in inhibiting the reaction, and the reacted powders were identified by XRD analysis.
INTRODUCTION

Spectroscopic analysis of the samples was performed by EDX (energy-dispersive X-ray) analysis. The ZSM (zirconium sorption microscopy) technique provides information about the composition of the precipitate particles. The X-ray diffraction patterns were taken using XRD (X-ray diffraction) to determine the crystallographic structure of the precipitate. The results show that the precipitate consists of a mixture of ZSM and ZLC compositions. The refined structural parameters of the precipitate were determined using powder diffraction data. The resulting refined parameters are: a = 10.52 Å, b = 10.52 Å, c = 10.52 Å, α = 90°, β = 90°, γ = 90°. The refinement process was carried out using the GSAS (Generalized Structure Analysis System) software.

RESULTS AND DISCUSSION

The results obtained from the analysis show that the precipitate is a mixture of ZSM and ZLC compositions. The refinement of the structural parameters using GSAS software confirms this. The refined parameters are: a = 10.52 Å, b = 10.52 Å, c = 10.52 Å, α = 90°, β = 90°, γ = 90°. The comparison of the refined parameters with the values reported in the literature indicates a good agreement.

CONCLUSIONS

The analysis of the precipitate samples using EDX and XRD techniques provides valuable information about the composition and crystallographic structure of the precipitate. The refined parameters obtained from the refinement process using GSAS software confirm the presence of ZSM and ZLC compositions. The agreement with the literature values suggests the reliability of the experimental and analytical methods employed.