

CHAPTER V

CONCLUSIONS

The product of the reduction can be classified into three types of phase separation: (1) Complete separation; the iron ore is reduced completely, the iron nugget and the slag are separated from each other; (2) Partial separation, the metal and the slag separate partially; and (3) Direct reduction, the reduction of the iron ore is not complete, the metal and the slag is not separated.

The drop test results show the suitable condition for making a pellet. The condition for making the pellet, with a 4 cm in diameter and 2 cm in height, is at the molar ratio of Bentonite/Fe = 0.035.

The experiments show the suitable conditions for making iron nugget from a low grade iron ore are at the mixture molar ratios of the mixture as C/Fe = 1.6, Limestone/Al₂O₃+SiO₂ = 0.65, the reduction temperature of 1300 °C, and the reduction time of 60 minutes.