Shifting the limits of nut coke use in the iron making blast furnace

Research activities:

Nut coke mixing with ferrous burden enhances the physicochemical behaviour of the bed by lowering the bed contraction and by improving the gas permeability. Therefore, nut coke mixing has the ability to improve the blast furnace productivity.

The iron carburisation drives the bulk melting of the pellet bed. Nut coke by direct contact with the reduced iron enhances the carburisation. Therefore, in the absence of nut coke, layer-wise melting happens, whereas in the presence of nut coke simultaneous melt occurs.

When mixed charged nut coke gets preferentially utilised in place of the regular coke. Hence, nut coke utilisation has shown the ability to lower the coke consumption.

Key publications:

- D. J. Gavel; A review on nut coke utilization in the iron making blast furnaces, Materials Science and Technology, 2017, 33(4), 381-387.