NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

DEPARTMENT OF Metallurgical & Materials Engineering

REPORT

TITLE Sintering of iron ore pellets

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Title:

Sintering of iron ore pellets

Procedure:

a) Raw Material preparation

Iron ore fines, typically less than 6 mm in size are mixed with coke breeze and limestone

Purpose of these materials is to improve process by enhancing the permeability of bed and facilitating formation of stronger sinter structure

b) Pellet formation

With approx 3kg of blend mix fines, we manufactured pellets in disc pelletizer.

Green pellets are dried in air to get strength

c) Mixing and bed formation

With previously manufactured pellets and 3 kg of blend mix, we prepare sinter.

In sintering strand, return sinter was arranged in bottom to block the material flow and give access to gas flow during suction

Above return sinter layer, blend mix and previously prepared pellets was charged in layer with sufficient amount of coke into it.

A bed height of approx 7cm was made and ready

for hardening

Ignition and heating:

Sinter mix on strand is ignited with cotton, wood chips and molule oil.

The suction pump and cooling water is kept 'on' and ignition starts.

Temperature of strand reaches to 1100-1200°C

At about 15 minutes of sintering, the strand becomes red hot and this indicates the heating of mix upto bottom

Sintering:

During heating process, the iron ore mix and pellets begin to fuse together. This fusion process causes agglomeration and forms a solid coherent mass

Cooling and breaking:

After sintering is completed, the sinter bed is cooled down and broken into smaller pieces and screened to seperate it into different size range