NIT-D

Name: Deep Narayan

Roll: 20MM8051 Reg.: 2041079

MMS753

Ferrous Process Metallurgy Lab

Observation Book

26-7-2023

Experiment - 1

Effect of lance height and diameter of the crater on 1/30th geometrical .....

Lance height	Crater height	Crater diameter
4	4	3
6	4	3.5
10	3	4
15	3	3.8
18	2	3.5

velocity : 55 L/min
Nozzle diameter : 4 mm

Effect of change in volume on crater depth and diameter of 1/30th geometrical scale of

Velocity	Crater depth	Crater diameter
65	2.5	4
70	4	4.5
75	3.5	4.5
80	5	4.8
85	4.5	4.5

lance height : 12 cm
nozzle diameter : 4 m

effect of change in nozzle diameter on crater depth and height of 1/30th geometrical scale of

Diameter	Crater Depth	Crater Diameter
4	5.5	5.6
2	5.8	3.5
1	6	4.3

Effect of multihole nozzle on crater depth and height of 1/30th geometrical scale of

single hole : dia = 2 mm
3 hole : dia = 1 mm
6 hole : dia = 1 mm

No. of holes	Crater height	Crater Diameter
1	7	4.2
3	4	4.5
6	3	4.3

lance height : 3 cm
velocity : 90 L/min

Sintering

4kg

Top:

side 1: 32cm

side 2: 32cm

Bottom:

side 1: 20cm

side 2: 20cm

Height:

22.5cm, 17cm

Bed height → 55cm

Start Time: ~~2:45pm~~ 2:42pm

End Time: 2:53pm

group - 4: observations

Sample 1:

air + water 34.35g

Sample 2:

56.06g

Initial mass of sinter = 2100g

30-8-2023

Pelletization:

28 RPM

Iron ore → 150g

2% Bentonite (3g)

Pellet diameter:

①	②	③
15.6 mm	13.1 mm	13.2 mm
15.5 mm	14.2 mm	13.3 mm
14.6 mm	13.5 mm	15.8 mm
14.1 mm	14.3 mm	15.0 mm
14.0 mm	14.1 mm	16.2 mm
15.1 mm	13.5 mm	14.3 mm

weight:

W_1	W_2	W_3
3.47	4.80	3.61

Initial vol.	200 ml	400 ml	200 ml
Final vol.	2300 ml	2400 ml	2000 ml
Net vol.	2100 ml	2000 ml	1800 ml
	= 2.1 kg	= 2 kg	= 1.8 kg

volume

	1	2	3
Initial vol.	200 ml	400 ml	200 ml
Final vol.	2300 ml	2400 ml	2000 ml
Net vol.	2100 ml	2000 ml	1800 ml
	= 2.1 kg	= 2 kg	= 1.8 kg