PROCESS SENSORS CORPORATION

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Applications Notes

Moisture in Sinter Mix

Moisture measurement is extremely important in sinter mix as moisture % affects pre-ignition gas permeability and other burn characteristics which in turn influences ore reduction rate and final quality

Sinter Production Process

Sinter mix comprises mainly ore (e.g. iron or zinc), limestone and coke. Other ingredients such as dolomite, manganese, and lime may be incorporated into the mix. The “recipe” for the raw mix is critical to sinter quality, thus the moisture level and weight of each ingredient is important. The ingredients are apportioned, and fed into mixing rolling drums to homogenize the mix, before it’s conveyed to the conditioner where moisture is added to its optimum % before it’s fed to the Sinter Strand.

Measurement Locations

1. On individual components e.g. limestone,
2. On the conditioner inlet (4-5%), possibility for feed forward loop
3. On the conditioner outlet (7-8%), this allows closed-loop moisture control prior to feeding the Sinter Strand.

Gauge Installation

The gauge should be positioned 6-15” from the product, and 20° C to the perpendicular if the surface appears reflective (perpendicular otherwise), this pass height tolerance allows for variations in bed depth.
Product flow should be continuous and of sufficient depth that the transporting medium isn’t seen by the gauge. If flow is discontinuous a gating option can be used to enable measurement only when product is viewed.

Measurement Performance

Measurement	Location	Target Moisture	Typical accuracy
Limestone crushed	Pre-Mixer	4-6%	0.2%
Conditioner inlet	Sinter mix	4-6%	0.3%
Sinter mix	Conditioner outlet	7-8%	0.3%

Note: in certain processes when changing to a new sinter bed, fine tuning the calibration may be required to compensate for differing sources of the iron ore.

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