

Inland Steel Solves Laboratory Dust Problem

PULVERIZING equipment normally used to prepare samples from iron ore, limestone and a variety of raw and scrap materials presents a dust problem. Dust not only contaminates samples, but also requires major housekeeping effort.

Inland Steel Co.'s engineers solved the problem by designing a dust-proof cabinet around the machinery in its new quality control center at Indiana Harbor works.

The new facility required new machinery which was supplied by Sturtevant Mill Co., Boston, Mass. Equipment included two 2 x 6-in. open door laboratory roll jaw crushers and an 8 x 5 in. laboratory crushing roll.

Sliding doors on front and in back of the 24 ft long x 5 ft deep x 6 ft high enclosure provide quick and easy access to any area in the cabinet. Equipment was supplied mounted on channels. The channels were bolted to wood blocks mounted on shoes, absorbent pads. Starter controls are on front and outside the dust hood, while motor protective circuits are in back and also outside the cabinet.

An air chamber runs the length of the unit pulling the dust to a hopper outside the building. During equipment operations, doors to the cabinet are closed and all dust is collected outdoors. Actual material samples fall to a drawer beneath every machine.

Inland uses one of the new crushers for slags, ferroalloys and refractory materials. The other is used for ores, sinters and pellets. The roll crusher is used for an output of predetermined size or for ton materials.

The facility also uses a Sturtevant automatic coal crusher and sampler



Pulverizing machinery is enclosed in a dustproof cabinet to minimize the possibility of sample contamination and provide for better housekeeping.

to sample coal for power and steam applications. Because this equipment is used only intermittently, and is not considered to be a dust producer, it was not placed in the cabinet.

In operation only a short time, the new quality control center is the hub of all quality control activity at the steel mill. It contains the metallurgical, chemical and technical service departments, which are charged with making certain that steel produced by Inland meets the customer's specifications.

The 102,000-sq-ft center is equipped with a battery of sophisticated testing instruments. It is manned by about 175 employees, one fourth of the total number of persons concerned with quality at the mill.

The center consists of two

sections: a shop area where steel samples are prepared and tested and an adjacent two-story office and laboratory area. The building is completely air conditioned, and its air is filtered to provide a controlled environment for delicate testing equipment. A flexible building joint between the shop and laboratory areas prevent vibration from affecting instrument readings.

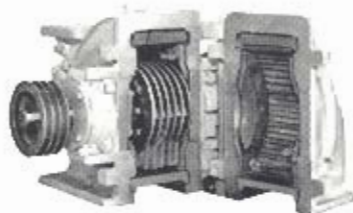
Linking the center with the rest of the steel mill complex is a communications system consisting of a five-mile network of pneumatic tubes and a teletype system. Four networks of tubes convey specimens of iron and steel to the center to be analyzed. A fifth runs between the shop and laboratory wings and a sixth links the center with the new basic oxygen steelmaking shop. ▲

Sturtevant Lab Crushers Reduce Fast, Accurately

Built to the same standards as full-scale Sturtevant production models, "Laboratory Series" machines feature

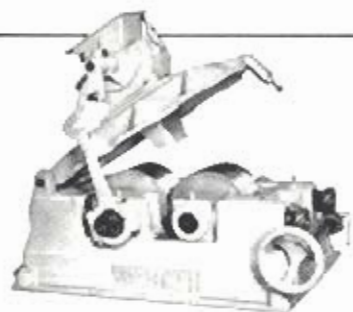
"Open-Door" Construction* for complete sample return, provide precise extrapolation for lab and pilot plant.

Hammer Mills effectively shred and pulverize soft to moderately hard material. Alloy steel hammers are standard; special alloy hammers, knives and gratings are available for hard-use applications. Hinged-Hammer pulverizer (12" x 12") is ideal for softer material; Swing-Sledge mill (5" x 6") features manganese steel liners for heavy-duty reduction of moderately hard material.



Two models give 1" to 50 mesh fines from 3" cubes; capacities to 4 tons/hr. Choice of gratings, hammers, knives.

Crushing Rolls crush hard, tough material to small sizes. Wear of finely balanced rolls is reduced by shock-absorbing pedestal springs. Car-box bearings allow quick removal of shafts and rolls, simplify maintenance. Product size control permits instant, accurate adjustment while machine is operating.



Feed openings 8" x 5" or 12" x 12" give product sizes 1/2" to 20 mesh, output to 7 tons/hour. V belt or chain drives.

Jaw Crushers reduce hard material to coarse or intermediate sizes from any feed which will fit into jaw openings. Overhead eccentric design gives effective crushing action without noise or jar. "Open-Door" Construction gives fast access to interiors. Manganese steel jaw plates and liners give rugged operation.



2" x 6" and 4" x 8" models provide output capacities to 6,000 pounds/hour. Crushed product range is 3/8" to 1".

For full information on Sturtevant "Laboratory Series" Crushers and other dry process equipment, write, phone or wire Sturtevant Mill Com-

pany, 103 Sturtevant Street, Boston, Massachusetts 02122. Phone (617) 825-6500. Cable EMERYSTONE Boston.

* "OPEN-DOOR" CONSTRUCTION

Interiors of Sturtevant machines are accessible "By One Man in One Minute" for fast, easy inspection, clean-out, adjustment and maintenance.

Sturtevant

dry process equipment

Sturtevant makes a full line of dry process equipment for reducing/classifying/blending air separators, fluid energy mills, impact mills, blenders and mixers, conveyors, crushers and grinders.