

THIS BEATS THE DUTCH

Old Method of White Lead Making
Revolutionized by Detroit
Concern.

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So old that it is moss grown, is the saying. "It beats the Dutch," and yet the Acme White Lead & Color Works has actually done this by the perfection of a process invented by W. H. Rowley by which white lead is made a finished product in from seven to eight days including the drying as against 120 to 125 days by the old Dutch process in vogue for hundreds of years.

This meant the erection of a \$500,000 reinforced concrete building as an addition to the plant of the Acme, a separate establishment devoted entirely to this new industry with especially designed machinery and apparatus. The plant is finished and so is the experiment. At the rate of 10,000 tons of the purest of white lead a year is now being turned out, and it is not touched by a human hand from the time the pig of lead is dropped into the furnace on the top floor until the product has, in its various stages of development, dropped to the basement and been pumped again to the second floor, finished.

In the old process in vogue until this was completed, the metallic lead was cast into perforated discs. These discs were packed into earthen pots or retorts, flooded with acetic acid. About eighteen pounds of lead was put into each pot. These pots were arranged in layers piled

Everything drains into cisterns in the basement and as the same water is used over and over again, the slight metallic residue that may go to the bottom is run through the process again and fully utilized.

"All of this being under water," said Dr. C. D. Holley, the chemist of the establishment during a trip through the plant yesterday, "there is absolutely no danger of lead poisoning. Each stage of the process is under full control, the full chemical increase is obtained and the process produces a uniform article without impurities of any kind. This process requires no acids, tan bark, or parts and takes but two or three days before it goes to the driers where it remains five days, as against from 90 to 120 days by the old Dutch process, exclusive of the drying which of course is five days. In the Dutch process only double refined lead can be used. In this process any good grade of lead is used. After melting, the lead is atomized into an impalpable powder, and this atomized lead, is, as you see, distributed by pumps and gravity."

The building is of reinforced concrete and steel, three stories in height, light, airy and sanitary, and no man engaged in the manufacture has any hard labor or heavy lifting. Thus the Acme saves immense sums in equipments, in maintenance, and in labor and gets 125 pounds of white lead for every ten pounds of metallic lead put in the furnace.

The carbon dioxide gas is made from coke. The heat furnishes the steam for the atomizing and for the running of the engine. The gas passes through a tower of coke saturated with chemical preparations so that all sulphur and impurities are removed and the gas passes to the carbonating cylinders absolutely pure.

In all its appointments the plant is modern and yet simple and easily managed. Mr. Rowley, the inventor, Dr. Holley, the chemist, and the Acme officials are naturally proud of the achievement and feel that in addition to opening

was also placed around the edges of the pots, which were allowed to remain buried in tan bark far from 90 to 120 days, while chemical action caused by the heat of the fermenting tan bark and the acid slowly converted the metallic lead into the white lead used for paint. The corrosion was never complete and anywhere from 65 to 85 per cent of the metallic lead only was converted into the finished product. Being hard and brittle it was ground and then floated and pumped to the drying pans of copper. It necessitated the employment of forty men for every stack of pots.

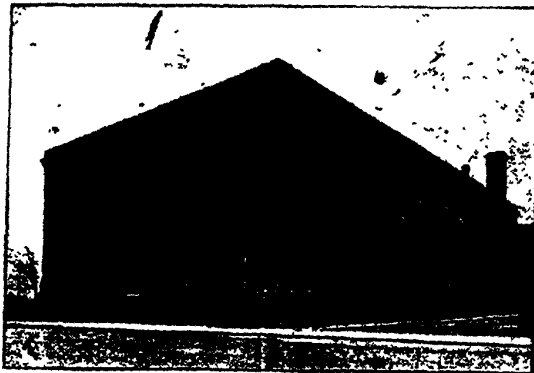
It is by force of contrast the full significance of the new or "mild process" is brought home, and it is then realized that the Detroit plant will revolutionize the manufacture of white lead the world over. To Detroit, and to the Acme interests is due the credit of making one of the greatest scientific discoveries of the age practicable.

In the new process as operated at the new Acme plant, nothing but steam, water and carbon dioxide gas are used, resulting in bringing to the drying pans, in finished product, 125 pounds of white lead for every 100 pounds of metallic lead placed in the starting furnace. During every ten hours, the plant is in operation, 100,000 pounds of metallic lead is melted, passing from the bottom of the furnace into a very hot, steam filled tank, where it becomes a soft blue substance, as thin as thin mud, and in this state very susceptible to chemical change. From there it goes to large metallic duplex cylinders where it is kept continually agitated with water in the presence of air which is forced through the cylinders at low pressure. The product is then an orange or ochre color. This part of the operation is complete in less than two days. The product is then passed through a separating system which removes any slight metallic residue and is then pumped into the carbonating cylinders, somewhat similar to the cylinders already described.

In the last cylinder the basic hydrides of lead, as they are called, in the presence of a considerable amount of water are subjected to a current of carbon dioxide gas, which in less than two hours converts the hydrides into white lead, which containing no impurities, is ready to pump into the drying pans without any washing or separating whatever. The finished product of purest white lead was seen laying in the drying beds of canvas stretched upon cots of wires with shallow pans beneath to catch the moisture that filters through. The fact of the lead being free from impurities renders the expensive copper drying pans unnecessary. The finished product never grows hard and that part destined for commercial use is passed on to the grinding mill where it is mixed with oil into the paste form seen in the can when bought from the hardware stores.

In the new process no alkalis or tan bark are required. Twelve men tend the entire plant for twenty-four hours and everything is done by gravity and machinery. In its soft condition the product is pumped everywhere, and with a minimum amount of labor is finished. Mr. Rowley not only invented the process, which is covered by broad patents, but also the machinery by which the white lead is made. No pots are used, no lumber is necessary. There is not a particle of the old

New Process of making White Lead works great change in paint industry.



The new building of the Acme White Lead & Color Works in which white lead is made by the "New Mild Process."

one upon the other with boards between each layer, and each layer resting on several inches of ground tan bark, which

an unlimited field of enterprise, they have also given Detroit something worth having.

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