



INTRA-ORGANIZATION

MEMORANDUM

PLAINTIFF'S EXHIBIT

BOND-360

FROM Julius Nemeth

Always provide address to which reply is to be sent

TO Doug Wood

DATE October 24, 1974

SUBJECT

Please use a separate sheet for each subject treated

Dear Doug:

Harshaw Chemical continues to get good publicity on their special material for de-dusting powdery materials--ad attached hereto the most recent example.

What if any further developments do we have to indicate this might be of help to us in the plant?

Cordially yours,


... Julius

JKN/tw

October 30, 1974

Dear Julius:

I suppose I should have been more specific as to why we could not use the Harshaw Chemical material "Teflon K". Returning your article with the paragraph blocked in that indicates the reason why; and, that is, of course, because we cannot bring our mixing temperature up to 100 degrees. The sample of our product Bondex was sent to Harshaw and they could indeed de-dust it but only at higher temperatures than we are able to obtain. ~~if~~

Best regards,

DW/bp
enc

$100^{\circ}\text{C} = 212^{\circ}\text{F}$



BON - 00935

Powdery Materials "De-Dusted"

By Microscopic Fibers

POWDERY materials become essentially dustless when treated with a new process developed by Harshaw Chemical Co., Division of Kewanee Oil Co., Cleveland, Ohio. Experiments have proven the technology successful when applied to more than 150 types of powdery material, including dry colorants, powdered metals, toxic powders and other organic and inorganic dusty powders.

The process is unique in that it neither coats the product nor does it add such reactive materials as oils, humectants or surfactants. Most importantly, the process does not generally change the physical or chemical properties of treated material.

The technology is quite simple and adaptable to most powders and plant processes. It offers a method to make saleable products out of materials that previously have had to be discarded as unusable fines.

The process is full of surprises. Example: The dust is held by a web that is formed within the powder from sub-microscopic fibers of unsintered polytetrafluoroethylene (PTFE). Some dust is held within the web as if caged, and other particles adhere to the web itself, even though PTFE is generally considered slippery.

Specially Developed

Not all PTFE will work, so Du Pont has developed "Teflon K" particle control additives specifically for this process. Commercial availability of the new family of materials has been announced.

With proper treatment, powders are loosely held in the fiber-web. Vigorous handling can cause powders to be made dusty again, but it is this weak agglomeration that makes the de-dusted powders dispersible and otherwise normally useful.

Another surprise is the small quantity of "Teflon K" commonly required: only 0.1 per cent down to perhaps 0.005 per cent. These small quantities would range from two pounds to one-tenth of a pound of additive in a ton of powder.

More must be done, however, than to simply add Teflon K to the dusty powder; the mixture must be "worked" to make the web of fibers. This working step applies a compressive shear to the mixture while it is heated. "Working" at the laboratory level is a troweling or smearing action, such as by a spatula or a gentle mortar-pestle action. In the plant, mulders, ball mills, slow-turning mixers or blenders, screw conveyors, spray driers and many more devices will do some or all of the fibrillation.

The mixture must be at least warm, and generally it is best to start the first tests at 100°C. At this temperature, the Teflon K in most mixtures will fibrillate in a few minutes, or perhaps only a few seconds, if the concentration of Teflon K is sufficient and the working action is correct.

The process has been granted broad patent coverage and patents will be published and available shortly. Therefore, Harshaw now offers Harshaw Dustless Process technology for license.

The process is entirely Harshaw's. In much of the world, however, Du Pont is licensing the technology on behalf of Harshaw. Harshaw is licensing the process in the United States and Canada. Both Harshaw and Du Pont have people trained to assist those working on applications of the process.

In addition to decreasing dust content, or eliminating dust from products, the process offers other potential benefits including: lower yield loss; prevention of cross contamination of dusty products; improvement of in-plant atmosphere, which in turn minimizes inhalation, fire and explosion hazards; lower costs through reduction of clean-up time, clean-up cost and handling loss; increased profits from the sale of dustless products that are worth more to potential customers.



A scanning electron micrograph shows alpha alumina dust particles being held together by a fiber-web of Teflon K to prevent dusting.