

Cyprus Industrial
Minerals Company

Mistron Vapor
for the
Papermaker



Mistron Vapor: the Industry Standard for Pitch Control

Whenever a particularly effective concept comes into general use in the pulp and paper industry, there are soon many competitive materials introduced which claim to achieve the same results.

Mistron Vapor, manufactured by Cyprus Industrial Minerals Company, has been imitated. This brochure presents comparative data between Mistron Vapor and the competitive materials in terms of pitch adsorption capacity. The system used to obtain this data utilized techniques developed by Dr. L.H. Allen of the Pulp and Paper Research Institute of Canada and D.A. Hughes of Diamond International Corporation of Middletown, Ohio.

Suspensions of synthetic pitch were made up and adjusted to be equal in solids to 7000 gallons/ton of fibre and having a pitch count of 75, using the PPRIC pitch particle count technique. Increments of the adsorptive minerals were added at the rate of 0.1% by weight based on the fibre, up to a total addition level of 0.7%. Following each incremental addition, a pitch count was taken for each mineral. The most effective range for comparison was in the 4 lb. to 6 lb./

ton level of usage. The graph showing the relative effectiveness will be found on the opposite page.

As you can see, Mistron Vapor is more effective than any competitive material. In fact, Mistron Vapor is as much as twice as efficient as the Cyclosorb at a 6 lb./ton addition level. Other advantages of Mistron Vapor are its high brightness, purity and low abrasiveness.

Based upon X-ray diffraction techniques, asbestos minerals have not been detected in Mistron Vapor; Pfizer MP 1252, Veral PC and Steetley Select-A-Sorb. Using the same techniques, asbestos has been detected in Cyclosorb products manufactured from California talcs.

It should be noted that the amount of pitch adsorbed is almost directly comparable to the organophilic surface area. Mistron Vapor has a 16-18m²/g surface area while the competitive materials have surface areas of only 4.2-12m²/gm.

We would be pleased to demonstrate the use of these measurement techniques while analyzing your paper and/or pulp mill system. We will assist your staff in controlling pitch problems in your plant utilizing Mistron Vapor. We will also be pleased to teach any of your personnel the use of these methods to enable you to fine-tune your Mistron Vapor usage according to your needs during the changing seasons.

Typical Properties of Mistron Vapor

Physical Properties

G.E. Brightness % of MgO
Refractive Index
Surface Area m²/g (BET, N₂)
Valley Abrasion mg
Residue % + 325 mesh
pH of 10% slurry
Specific Gravity
Hardness Moh's
Moisture %

Mistron Vapor

85+
1.57
17
15-25
0.001
9.0-9.5
2.8
1.0
<1.0

Particle Size Distribution

% Minus 20μ M
% Minus 10μ M
% Minus 5μ M
% Minus 2μ M
% Minus 1μ M
% Minus 0.5μ M
Median Particle Size μ

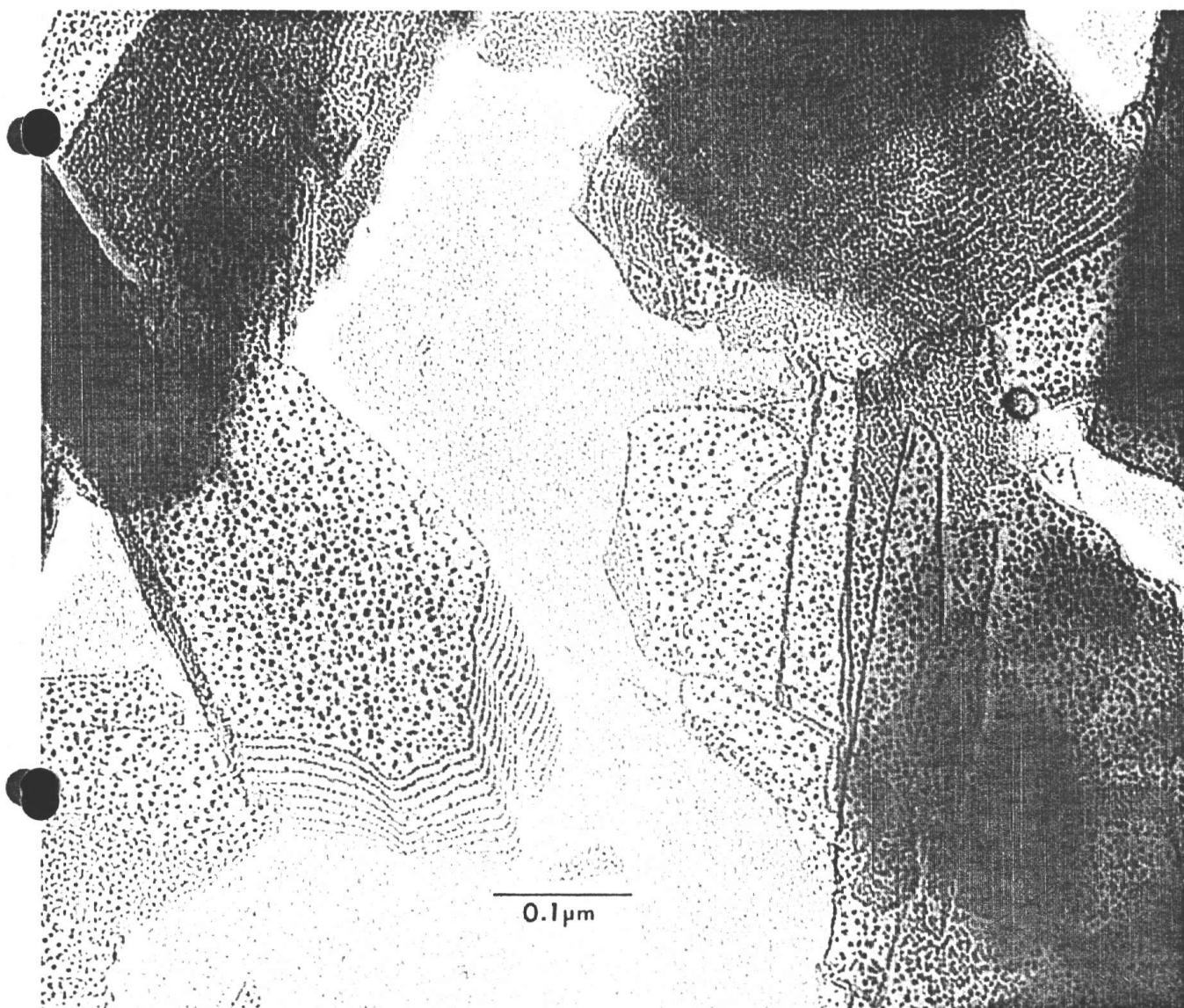
100
97
92
65
30
7
1.5

Data presented are representative of most recent testing and are

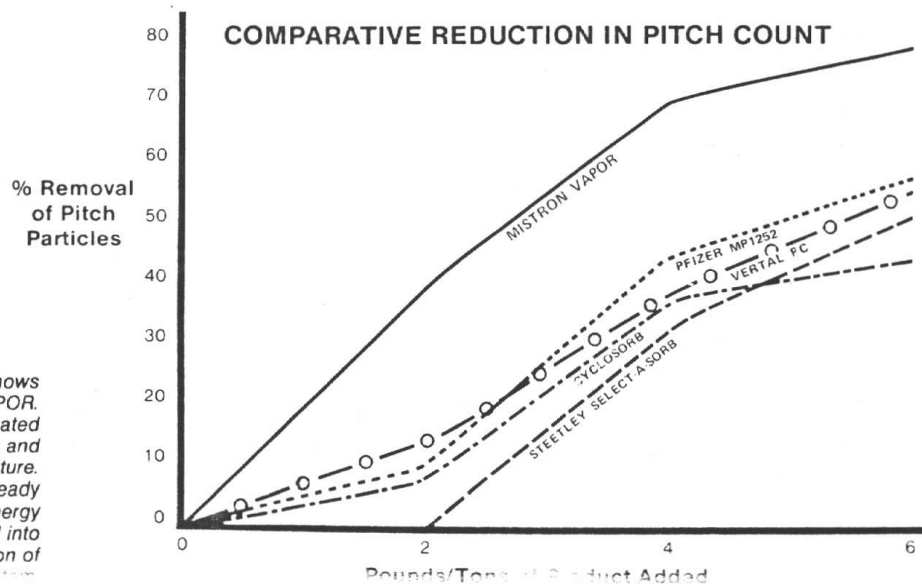
Mineral Analyses

Both MISTRON VAPOR FORMS

Talc 3MgO, 4SiO ₂ , H ₂ O	98%
Dolomite (Ca, Mg) CO ₃	2
Quartz SiO ₂	<1
Chlorite 5MgO, Al ₂ O ₃ , 3SiO ₂ , 4H ₂ O	0
Magnesite MgCO ₃	0—Trace
Asbestos Minerals	None Detected*



Talc magnified 250,000 times



This electron photomicrograph shows the layer structure of MISTRON VAPOR.

The individual layers are delaminated as shown by the platelets to the right and of the booklet in the center of the picture.

You will note that the booklet is already displaced in position by the fluid energy milling and will thus be dispersed into individual platelets by the action of

Mistron Vapor:

In addition to being marketed as a fine powder, **Mistron Vapor** is available in a compacted form. Both forms are made from the same high purity ore and ground to the same particle size. The compaction of **Mistron Vapor** is merely an additional step in the process. Both materials disperse and retain in the sheet at the same particle size. Compacted **Mistron Vapor** has about 60% less bulk and is designed to promote easier, more dust-free handling.

Packaging:

Mistron Vapor is packaged in 50 lb. bags. The standard package is unbleached kraft multiwall bags; however, white repulpable bags are available for those who wish to add the **Mistron Vapor** directly to the hydropulper.

Compacted **Mistron Vapor** is also available in bulk and semi-bulk bags. The semi-bulk bags contain approximately 1 ton. This packaging method is especially adaptable to continuous dispersion and application systems.

The bags of **Mistron Vapor** are assembled on fiberboard pallets for easy handling at no extra cost. Wooden pallets are available at an additional cost. A variety of pallet sizes and stack heights are also available to fit individual shipping needs. Whenever possible, a movable dunnage freight car is used for shipping. **Mistron Vapor** is also available unpalletized, according to receiving needs of the individual customer.

Cyprus Industrial Minerals Company

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TYPICAL DATA SHEET

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MISTRON VAPOR

MISTRON VAPOR is a high purity, asbestos-free, natural magnesium silicate pigment. The surfaces of its ultra-fine, platy particles have a strong affinity for many types of organic molecules and, conversely, a strong hydrophobicity. However, in aqueous systems excellent wetting may be achieved by use of proper surface active agents.

Major uses of MISTRON VAPOR are as a white reinforcing filler and processing aid in elastomers and plastics, as a rheological control agent in liquid resins, plastisols, adhesives, and as a scavenger of unwanted organic matter from water slurries, for example the control of undesirable pitch build-up during paper production.

CHEMICAL ANALYSIS

Percent	Parts Per Million
MgO 31	Pb not detected
SiO ₂ 62	Sb not detected
CaO 1	As not detected
Al ₂ O ₃ trace	Cd 0.5
K ₂ O —	Hg 0.02
Fe ₂ O ₃ 1	Se 4
TiO ₂ —	Ba (water soluble) 1.5
Loss on Ignition:	
CO ₂ } Chemically	
H ₂ O } Combined 5½	

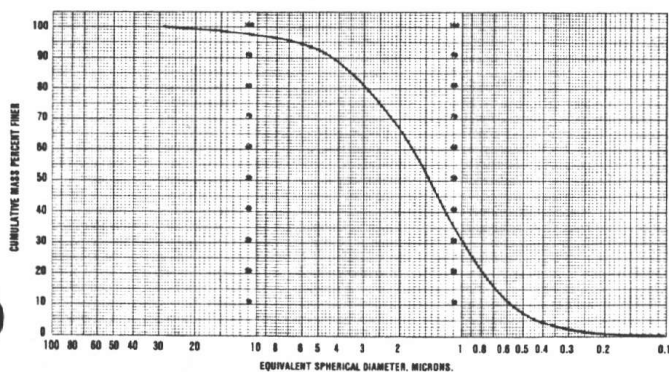
MINERAL ANALYSIS

Percent
Talc (3MgO-4SiO ₂ -H ₂ O) 98
Chlorite (5MgO-Al ₂ O ₃ -3SiO ₂ -4H ₂ O) —
Dolomite ([CaMg] CO ₃) 2
Quartz 1
Asbestos-type minerals not detected

PHYSICAL PROPERTIES

Brightness, % (relative to MgO):	Oil absorption, g/100g talc:
General Electric 85+	Spatula rub-out ASTM D281 46
Luminous (green filter) 88+	Gardner-Coleman ASTM D1483 80
Apparent Density, lb/ft ³ :	Surface area, m ² /g (N ₂ BET) 17
Loose (Scott Volumeter) 6	Hegman fineness of grind 5½-6
Tapped (Numinco) 13	Absorbed moisture, % 0.2
COMPACTED 50	pH (1:5 dilution) 9
Specific gravity 2.8	Refractive index 1.6
Acid Solubles, % (as CaO) 1	Valley abrasion, mg max. 20

PARTICLE SIZE DISTRIBUTION



% minus 200 mesh, 74 μm	100
% minus 325 mesh, 44 μm	100
% minus 20 μm	100
% minus 10 μm	97
% minus 5 μm	92
% minus 2 μm	65
% minus 1 μm	30
% minus 0.5 μm	7
Median particle size, μm	1½