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Evaluation

Johnson & Johnson

New Brunswick, N. J.

Nov. 1, 1967

Subject:

Metropolitan Talc
Lot G 716
Preliminary Evaluation

The talc used for this evaluation was produced in the Plainfield plant and was delivered to us by Mr. Don Ferry about Oct. 1, 1967.

Perfume Retention and Aroma

The Metro talc shows greater retention for perfume than does our Vermont talc and the indications are that the rate of escape is very close to that developed with Italian talc. We ran a gravimetric rate loss test on talcs containing 1% P-5 in open dishes and find the rate loss very close to Italian talc at both 70 and 100F for the Metro and significantly faster for the Vermont. (Graphs 1 & 2)

The Metro talc does not show the chalky note under circumstances which create that aroma in Vermont talcs. Since the original problem in perfumery developed at a low dose of P-5 we elected to set up a storage test with the three talcs (Italian, Vermont, Metro) and P-5 at 0.1% incubated at 120F for three weeks. The Vermont article develops a chalky tone whereas the other two did not.

The above tests lead us to believe that the commercial dose of either P or P-5 would provide a satisfactory aroma life with Metro type talc. Our tests were limited in that we did not include the neutralizer at this point.

Chemical and Physical Properties

Except for fineness the Metro talc fits the physical characteristics which we find adequate. (Table I) The shipment on hand is slightly on the coarse side; a slightly increased grind should bring it into range.

Mineralogically the talc is predominantly platy although a large percentage of the plates are broken and lath shaped. The lath shape of some of the particles appears to have resulted from the grinding method since the cleavage of the crystals from a sample of the



rock is normal. Optically, by count, the product is at least 93% talc plus 3-5% Dolomite and 1% or less of Tremolite. The associate minerals are liberated from the talc crystals.

The talc has high slip, good flow character and is remarkably white. It is probably the whitest commercially available talc which we have observed at the 200 mesh grind level.

The carbonate Dolomite is actually calcium magnesium carbonate. This assays about 5% using the strong acid method and close to 4% using the titration method. This carbonate level requires up to 1% of sesquicarbonate to maintain our historic pH limits in the finished product. A 1% neutralizer content is prohibitively high. Sesquicarbonate in the 0.2% area brings the initial pH of the product close to neutral and there might be some merit in considering such a product but of course the effect would be to drift up to the higher alkaline ranges over the 18 hr control test we now use. (Graph 111)

Talc Source and Processing

The talc ore processed in Plainfield comes from the deposit in Madoc Ontario which we explored at depth some years ago.

The Madoc deposit has a lot in common with Italian talc from the geological and mineralogical points of view. The associate minerals in the district are very similar and the crystal habit of the talcs are also very similar to the Italian situation. Thus there would be every reason to expect the two talcs to perform about the same when their processing conditions were reasonably close.

The Madoc deposit is a relatively large source of talc but it contains several grades of ore which are given different names. The highest grade up there is the Henderson section and it is that section which is presently being worked to supply the crudes for the Plainfield plant. As far as we know the reserves at Madoc were of the 150,000 ton order for the Henderson type at the 600 foot levels.

The process used to upgrade the talc is based on electrostatic separation. This is a dry process so there would be no effects resulting from wetting or flotation reagentry.

Next Steps

Mr. Russell and I shall be visiting Mr. Ferry at the Plainfield plant in the next few days. We will get an idea of the capabilities and determine what is

involved in reducing the carbonate level and making arrangements for a couple tons of it for a large scale run.

Meanwhile we have 200 lbs of the above described Metro talc on hand here which I plan to make available to whomever would like to run some tests with it. Although I am personally impressed with the laboratory scale work Russell and I have done, a larger confirmation on a pilot plant batch could prove useful. For example this should be made up with whatever perfume levels are used in the plant today and might evaluate the holding power for the perfume in the powder puff unit also.

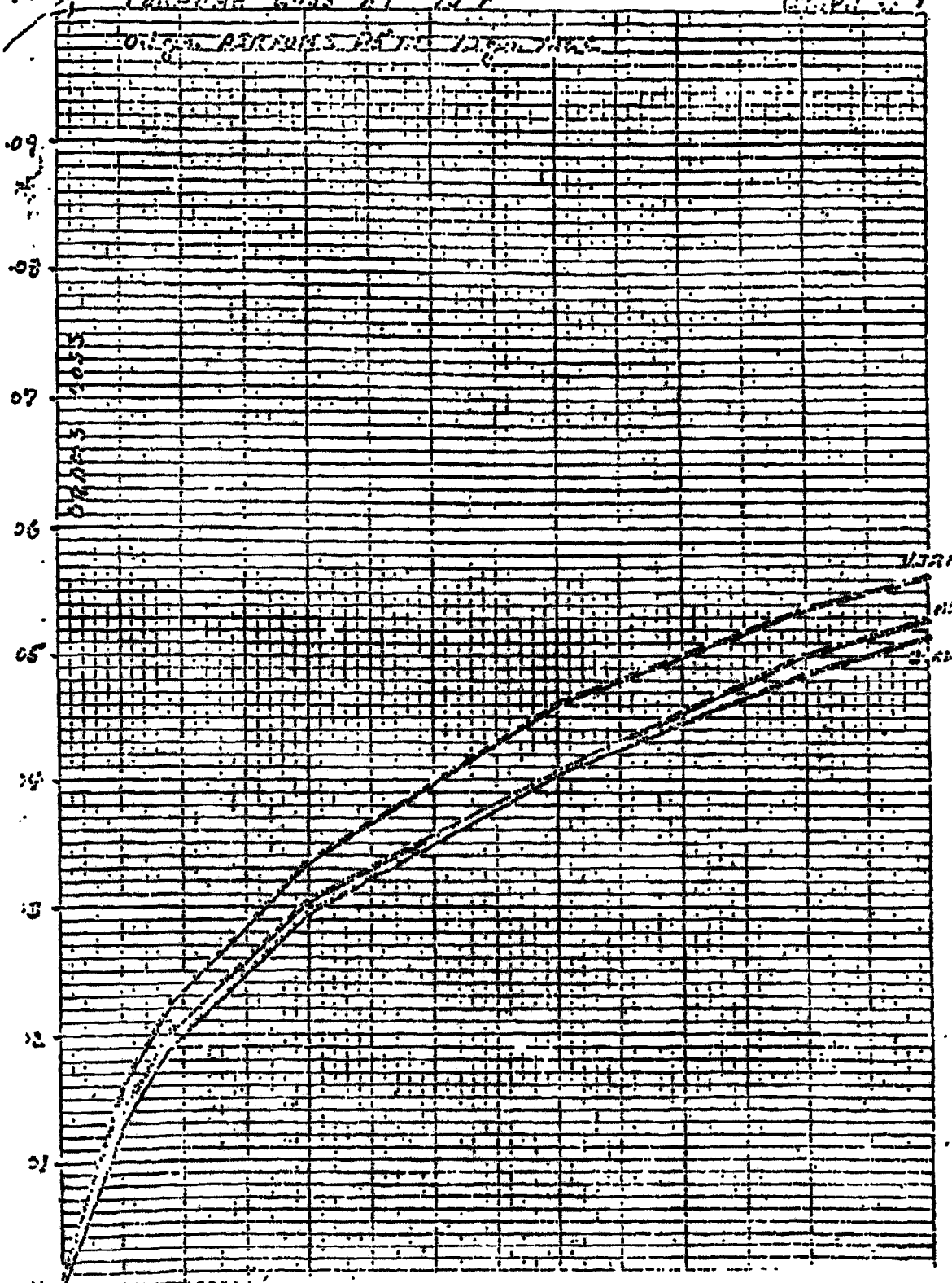
Mr. Russell prepared and arranged the attached data.

W.Ashton

PAPERNO LOSS AT 72°F

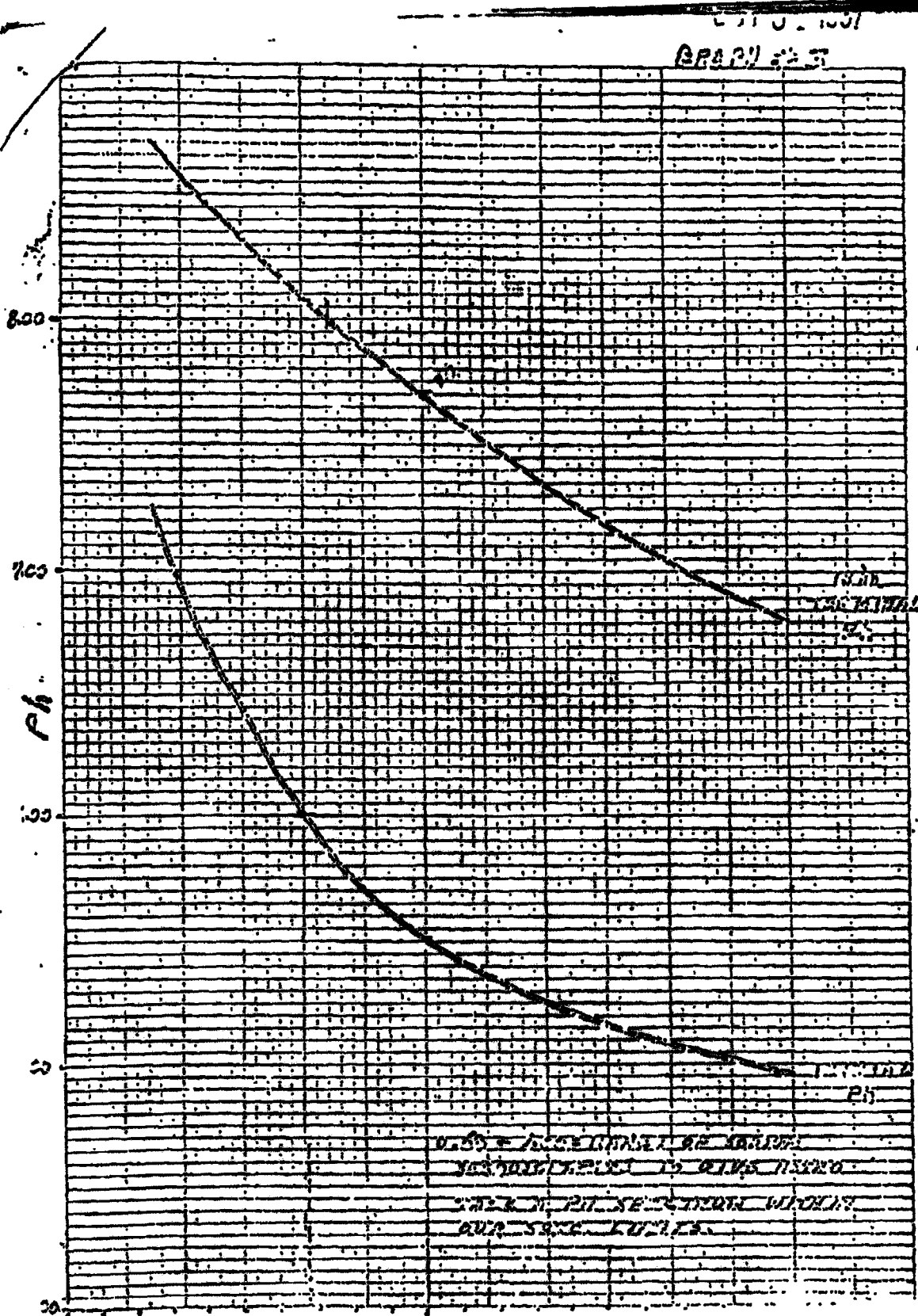
GRAPH 3.1

ORIGINAL PAPERNO LOSS RATE



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TABLE I

Physical & Chemical Data

<u>t</u>	<u>Metro #1</u>	<u>Vermont S4-23</u>	<u>Ital. 42771E</u>
sture %	0.09	0.07	0.01
. in Acid %	5.08	1.50	3.00
ration %	4.08	0.80	1.50
c Dens. lb/ft ³	24.7	25.4	23.4
or	White	Off White Grey-Green cast	White with creamy cast
ness %			
-80	100%	100%	100%
than -100	98.98%	99.90%	100%
-200	98.85%	99.0%	99.7%
y Metals ppm	less than 10	less than 10	less than 10
ic ppm	0.3	less than 2 ppm	0.7
Soluble Iron	passes	passes	passes
ction (2 oz) max.	130 cc	125 cc	137 cc
nco TAPPED) min.	72 cc	73 cc	72 cc

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TABLE II
Microscopic Mineralogical Assay

	<u>Metro #1</u>	<u>Vermont Talc</u> <u>S4-23</u>	<u>Batch 994*</u>	<u>Italian</u> <u>Talc</u>
Total Talc	93%	99%	94%	93 - 98%
Platy	90%	96%	86%	88 - 90%
Nonplaty	3%	3%	8%	5 - 9%
Carbonates	5	1	1-2	1-3
Remolite	1	trace	trace	1-2
Serpentine	trace	trace	4	none
Opaques	< 1	trace	trace	trace

*Produced August 21, 1967 at West Windsor

R.S. Russell

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