TECHNICAL REPORT NO. 167
Investigation No. 1 - Progress Report No. 2

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cc: Joint System Plant Managers

Issued by: Tigard Lab

Division: Gypsum

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## COMPETITIVE SURVEY
## READY MIX JOINT CEMENT PRODUCTS

Objective:

To evaluate the ready mix products being marketed by our competitors in order to assess the competitive position of Georgia-Pacific ready mix products.

Procedure:

Samples of our strongest competitors in each sales area were shipped to Tigard by plant personnel. Upon their arrival, each sample was placed in an unmarked numbered container to assure objectivity of the tester involved. The samples were then subjected to a series of 19 quantitative tests in order to test performance as thoroughly as possible.

Number values were used as much as possible in an effort to describe performance.

## CONCLUSIONS

The G-P products tested were generally equal to or better than most of the competitive products. A conclusion on each property tested follows:

Viscosities: Our current shipping viscosity of 580 $\pm$ 20 for hand mix is close to ideal.

Bonds: This property appears to be quite satisfactory. Noted is an improvement in several competitors' cold bond, since the last competitive survey was completed.

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Sanding: Sanding properties are probably adequate at all plants. Improvements could probably be made at some plants. However, this could result in bond deterioration and loss of water resistance.

Cracking: Room cracking appears to be competitive. Fan cracking needs improvement.

Open Time: This property appears to be satisfactory. One Milford sample had an unusually long open time. This variation and other abnormalities would indicate a possible double loading of water retention agent in this batch.

Water Resistance: No need for improvement was noted.

Reflection: (brightness) Our products show an average performance that would require additional cost to improve.

Wet Density/% Solids: Our products would appear to be acceptable. Generally, these two properties are fairly complicated. All the products tested were in the same general range and being proportional to the viscosity.

Contains Asbestos: Five of the 28 products did not contain asbestos. These are regarded as inferior to the asbestos products because of poorer working properties and unstable viscosity.

Filler Type: Four U.S.G. samples contain a blend of gypsum and limestor Perhaps economics and/or performance has required this switch. Also, three of the "Blends" are asbestos free.

Adhesive System: Although only one sample contained starch, it is known that several other small companies are presently using starch and/or a starch-vinyl combination.

Boric Acid: This is the only property in which we are not competitive. However, the important thing is that we now recognize this deficiency.

# QUICK REFERENCE COMPARISON CHART

REFER TO GLOSSARY FOR EXPLANATION

| CODE | MFG. AREA OBTAINED | "A" VISCOSITY | "B" VISCOSITY | ROOM BOND | COLD BOND | HUMID BOND | CORNER BEAD BOND | "A" SANDING | "B" SANDING | CRACKING ROOM | CRACKING FAN | OPEN TIME | WATER RESISTANCE | REFLECTION | DENSITY | SOLIDS | CONTAINS ASBESTOS | FILLER TYPE | ADHESIVE SYSTEM | BORIC ACID STABILITY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | G.P. MARIETTA | 715 | 480 | 100 | 100 | 100 | fair | 49 | 43 | 1 | 4 | 25 | good | 82 | 13.54 | 64.3 | yes | L.S. | V | POOR |
| 2 | NATIONAL-GRAND RAPIDS | 480 | 250 | 100 | 90 | 100 | good | 25 | 26 | 2 | 4 | 25 | good | 76 | 13.39 | 63.7 | yes | L.S. | V | EXCL. |
| 3 | RAPID- GRAND RAPIDS | 960 | 610 | 100 | 75 | 100 | Excl | 50 | 60 | 2 | 6 | 20 | Fair | 78 | 13.92 | 66.9 | yes | L.S. | V | Excl |
| 4 | U.S.G. - GRAND RAPIDS | 580 | 360 | 100 | 100 | 90 | Fair | 33 | 33 | 1 | 2 | 28 | Poor | 64 | 13.28 | 63.7 | yes | * * | V | Excel |
| 5 | FLINTKOTE - WILM. | 985 | 500 | 100 | 100 | 100 | Fair | 33 | 38 | 2 | 3 | 26 | Good | 79 | 14.02 | 66.9 | yes | L.S. | V | FAIR |
| 6 | G.P. - MILFORD | 695 | 410 | 100 | 100 | 100 | Fair | 56 | 48 | 1 | 5 | 24 | Good | 73 | 14.22 | 67.9 | yes | L.S. | V | POOR |
| 7 | NATIONAL - BLUE RAPIDS | 710 | 410 | 100 | 70 | 100 | Good | 22 | 23 | 2 | 6 | 26 | Excl | 76 | 13.74 | 65.2 | yes | L.S. | V | Excl |
| 8 | BLUE CHIP - ACME | 715 | 400 | 100 | 100 | 70 | Good | 17 | 14 | 2 | 2 | 27 | Poor | 73 | 13.45 | 63.4 | yes | L.S. | * | Excl |
| 9 | WEL-COTE - ACME | 470 | 255 | 100 | 100 | 100 | Good | 14 | 30 | 5 | 6 | 30 | Excl | 75 | 13.65 | 66.2 | yes | L.S. | V | Excl |
| 10 | KAISER - WILM. | 560 | 290 | 100 | 100 | 100 | Excl | 27 | 33 | 1 | 2 | 28 | Excl | 79 | 12.47 | 59.9 | yes | L.S. | V | Excl |
| 11 | QUALITY - WILM. | 660 | 260 | 100 | 85 | 90 | Fair | 40 | 43 | 2 | 2 | 24 | Good | 82 | 13.71 | 67.2 | yes | L.S. | V | Good |
| 12 | HI-BOND - SIGURD | 760 | 460 | 100 | 20 | 100 | Excl | 42 | 18 | 4 | 5 | 24 | Excl | 73 | 13.30 | 64.6 | yes | L.S. | V | Excl |
| 13 | NATIONAL - BUCHANAN | 580 | 480 | 100 | 10 | 100 | Good | 38 | 44 | 2 | 5 | 25 | Good | 83 | 13.55 | 66.1 | yes | L.S. | V | Good |
| 14 | G.P. - ACME | 500 | 293 | 100 | 100 | 100 | Good | 21 | 22 | 1 | 1 | 25 | Excl | 73 | 12.59 | 65.3 | yes | GYP. | V | Poor |
| 15 | NATIONAL - WILM. | 600 | 280 | 100 | 30 | 100 | Excl | 43 | 40 | 3 | 4 | 30 | Good | 83 | 13.67 | 66.4 | yes | L.S. | V | Excl |
| 16 | G.P. MILFORD - WILM. | 490 | 330 | 100 | 80 | 100 | Good | 44 | 28 | 4 | 6 | 55 | Fair | 77 | 12.86 | 58.4 | yes | L.S. | V | Poor |
| 17 | U.S.G. - WILM | 540 | 310 | 100 | 100 | 100 | Fair | 21 | 30 | 1 | 4 | 24 | Excl | 76 | 13.55 | 66.9 | NO | * * | V | Fair |
| 18 | SUPRO - SIGURD | 500 | 290 | 100 | 5 | 95 | Excl | 39 | 36 | 1 | 2 | 30 | Good | 80 | 13.77 | 66.2 | NO | L.S. | V | Excl |
| 19 | G.P. - ACME | 550 | 370 | 100 | 100 | 100 | Good | 19 | 28 | 3 | 2 | 24 | Fair | 74 | 12.65 | 63.4 | yes | GYP. | V | Excl |
| 20 | U.S.G. - BUCHANAN | 610 | 250 | 100 | 30 | 100 | Fair | 23 | 23 | 2 | 4 | 24 | Excl | 76 | 13.44 | 67.4 | NO | * * | V | Fair |
| 21 | U.S.G. - BRUNSWICK | 620 | 345 | 100 | 80 | 100 | Good | 24 | 24 | 2 | 3 | 28 | Excl | 76 | 14.00 | 67.5 | yes | L.S. | V | Excl |
| 22 | SUPRO TOPPING - SIGURD | 660 | 290 | 100 | 0 | 75 | Good | 58 | 51 | 1 | 1 | 15 | Excl | 83 | 13.75 | 69.9 | NO | L.S. | V | Good |
| 23 | G.P. TOPPING - ACME | 540 | 360 | 100 | 0 | 50 | Fair | 32 | 38 | 2 | 1 | 24 | Good | 73 | 12.71 | 62.4 | yes | GYP. | V | Poor |
| 24 | U.S.G. - CHICAGO | 800 | 510 | 100 | 100 | 100 | Good | 22 | 30 | 4 | 6 | 32 | Fair | 75 | 13.21 | 62.9 | yes | L.S. | V | Excl |
| 25 | G.P. - CHICAGO | 670 | 500 | 100 | 100 | 100 | Good | 27 | 30 | 4 | 5 | 26 | Excl | 77 | 13.61 | 65.2 | yes | L.S. | V | POOR |
| 26 | RAPID - SAGINAW | 815 | 505 | 100 | 10 | 100 | Excl | 66 | 67 | 4 | 3 | 26 | Fair | 76 | 13.99 | 67.5 | yes | L.S. | V | Excl |
| 27 | U.S.G. - BALTIMORE | 640 | 260 | 100 | 0 | 100 | Good | 24 | 32 | 1 | 1 | 22 | Excl | 76 | 13.66 | 68.7 | NO | * * | V | Poor |
| 28 | G.P. - AKRON | 660 | 470 | 100 | 100 | 95 | Good | 19 | 28 | 2 | 6 | 29 | Excl | 77 | 13.37 | 64.3 | yes | L.S. | V | Poor |