Alvin W. Boese Papers.

Version 3
August 20, 2018

Form 6747-E

3M COMPANY TECHNICAL REPORT SUMMARY

DATE: January 1972

TO:
Technical Communications Center, 201-2S

Corporate Innovative LABORATORY, DEPT. NUMBER 0508

MICROFORM COPIES:

P.H. Carey
D.J. David
V.W. Marquart
H.B. Walden

Title: Fourth Quarterly Report - 1971

Project: 908731-003 908802-003 908806-002 908811-001

Project Number: | Report No (3 digits)

To: A.W. Boese

By: Burton E. Frank

Employee Number: 12365

Objective:

Notebook Reference:

No. of pages including coversheet

SECURITY

[x] Company Confidential(Open)
[ ] Special Authorization(Closed)

IF SUMMARY REPORT

Has information in this report been covered by other reports submitted to TCC?

[ ] No
[ ] Partially
[ ] Completely

Please keyword information not included in other reports and give page numbers of new material:

_____.

3M CHEMICAL REGISTRY

New chemicals reported?

[x] No [ ] Yes

KEYWORDS

Select general, specific, and 3M product terms from 3M Thesaurus. Enclose suggested terms in parentheses.

3M NBVD
Non-woven
Quarterly
Fiber
Binder
Curing
Testing
Flameproofing
Drying
Laminating
Printing

ABSTRACT and Conclusions. (System can accommodate 200-250 words)

SPECIFIC PROBLEMS remaining to reach objective.

_____ Information Scientist Initials

908731-003 Non-woven Products
(Research Items)

1. Fiber-Resin Ratio Work

Starting with 13 pound carded fiber webs of regular tenacity viscose, we padded with HA-8 solutions of various concentrations (from 2% solids to 40% solids) to obtain webs with a wide range of resin contents (from 10% to 80%). Multiple dips were necessary to build up the resin percentages over the 50% level. Actually four dips were needed to obtain 80% resin on the webs.

Subsequent testing established the fact that the strongest webs (per pound of weight) are obtained when the resin content is in the 30% to 35% range. (This confirmed the results of earlier work of the same general type).

Later, another series of webs of regular viscose were made up, this time of 26 pounds each. Again we found that at a resin content of 30% to 35% we obtained maximum strength efficiency.

Several other tests were run on these two series of webs. For example, additional tensile tests were run on the Instron tester at a gage length of 0.5 inches. (Normally a gage length of 2 inches is used). While the tensile values were somewhat higher with 0.5 inch jaw separation than with 2 inch separation, the maximum tensile strengths were again observed on the webs with between 30% and 35% resin solids.

2. Apron Webs from the Laboratory Card (Herb Walden)

Herb's objective here was to determine the maximum capacity of the laboratory card to produce "square" or random webs (crosswise strength equal to lengthwise strength). Since most of the reduction in crosswise web strength is the result of "drafting" or stretching of the fiber-web in handling (when dry, when wet during and after padding, and while being dried), the output web from the final doffer was picked up on paper, and cut into manageable lengths. Where heavier weights were desired, webs were carefully plied by hand.

Several series of webs were made up, using regular tenacity viscose rayon fiber. Series 1 webs were made from 10 g. fiber blocks. The doffer ratio was approximately 2:1 (initial doffer at 360 ipm. and final doffer at 180 ipm). Two and three ply webs were made and tested. Strength ratios on both weights were close to 81%. Series 2 webs, also from 10 g. fiber blocks, were made with a doffer ratio of 3:1 (initial - 360; final - 120). Only two ply webs were tried, and the strength ratio fell to about 61%. Series 3 webs were again made with a doffer ratio of 2:1, as on series 1. Three feed weights were tried - 8 g., 11 g., and 14 g. per block. Two ply webs from each weight were padded and tested. Strength ratios were approximately 87% for 8 g. feed, 89% for 11 g. feed, and 93% for 14 g. feed. These are the best strength ratios we have ever obtained. This work will be continued next quarter.

3. Migratory Printing (Al Boese)

Al's objective here is to use the migration properties of colored resin pad solutions, which had been observed in our work on drying fabric drapes for the Medical Products Division to obtain decorative pattern printing on non-wovens.

Starting with a solution of a given color, a matched set of suitably heated metal pattern plates, and a non-woven web, at least three widely different shades of the color can be easily obtained in the resulting patterns on the web. Vern Marquart has built some laboratory scale equipment to continue this work with Al.

(Service Items)

4. Dayco Corporation Material

The forty inch Rando web material (20 yards), made on the Bldg. 219 machine and subsequently heat bonded at Fairmont, was sent to Dayco for evaluation.

5. Webs for the Film Laboratory

Larry McTaggert is looking for a non-woven material to laminate to films for a variety of end uses. From our history file, I selected ten samples with a range of properties for them to try. Included in the ten samples was one of the all-polypropylene dusting fabric made at Fairmont on 21 Sept. 1970.

After making some trial laminations, they requested that we make PVC webs of 20 and 80 pounds per ream on the laboratory Rando Webber. The webs were made and padded with 15% Daran 220 (in water). Larry took the webs for testing.

6. Rando Webs for Electrical Products

Gay Groff called us to request that we make six webs, of about 56 pounds ream weight, from 50% three denier nylon and 50% three denier polyester binder. The fibers were blended and opened on the Rando, and the finished webs were made on a second trip thru the machine. Fiber formation was only fair. The webs were cut to 7"x18", between paper liners, and sent to Gay.

7. Picker-laps for Dave Braun

We made several simulated picker-laps on the laboratory card for Dave Braun, which are to be used as exhibits in the filing of a patent application.

(General Items)

8. Fiber Library

While we have ordered about sixty different types of fibers for our fiber library during the quarter, less than half of them have been shipped to us. Apparently there is seldom an "on the shelf" supply of standard fibers with any manufacturer, so our small orders are only honored if that particular fiber is being produced, or is available from laboratory stock, a damaged bale, etc. Periodically, we will reorder fibers that we especially want, and eventually we should find them available.

908802-003 Service to Nuclear Products

1. Blending of 60-40 Polypropylene-Cellulose Acetate

Early in the quarter we made another lot of blended fibers for dusting fabric on the Fairmont garnett, 100 pounds this time. We have a good, workable process now which gives us clean fiber of the proper blend in a minimum of machine time.

2. Rando Run - Bldg. 219

This run of 60-40 polypro-acetate dusting fabric (with Zytel binder) was made to bring together all our knowledge and experience from previous runs, with the object of producing short yardages of good material in several weights. The run was generally satisfactory. Later, the various lots were slit and/or rewound. Part of each lot was heat bonded on the Fairmont "Sasheen" bonding drum, and given to Don Yenni for testing.

908806-002 Service to Medical Products

1. Polyester Webs for Paul Hansen

Sample polyester webs were made on the laboratory card to be tested for use as "Coban" cover web and "Micropore" backing. The fibers used were FII polyester, Type 410, 1½ denier and 3 denier. The binder was B-15. All the webs were rather fuzzy on the bottom side, and those made from 3 denier staple were rather coarse in texture.

2. Tests of "Coban" and "Micropore" Backings

Jerry Gierok sent me several production samples of "Coban" cover web and "Micropore" backing which had been made on the 3K Rando at Hutchinson. My main interest was in finding the ratio of crosswise strength to lengthwise strength. The "Coban" webs, which were made from polyester, averaged about 30%, while the "Micropore" webs, made from viscose, averaged about 45%. These values indicate that considerable drafting of the webs must occur between the doffing of the fiber-webs and the wind-up of the finished product.

3. Webs for Will Carlson

Will Carlson asked us to make some webs similar to "Micropore" backing for him. He wanted two types of webs, both of about 50-50 fiber-binder ratio, 26 pound total ream weight, with B-15 as binder. One set of webs was made from Monsanto Type L polyester and the other set from FMC type 410 hi mod viscose. Carding was good on all the webs. We heat pressed small samples from several of the webs, and Will took these samples with him.

908811-001 Service to Int'l. - Face Masks

1. Meetings with Chuck Matson

International is contemplating the manufacture of molded face masks in Europe. Chuck Matson showed us two competitive masks that are available on the European market. Both are almost completely flameproof. He would like us to develop a mask which is flameproof, and also is completely unified by heat-molding alone, and needs no subsequent resin treatment.

(A production process to make the masks would have to be developed, too.) Initial work by our group would be in the nature of a feasability study.

2. Fiber Blend and Molding Work

Herb Walden started on this project late in the quarter, and has had considerable success. He has developed several promising fiber formulations, and is now working on mold release problems. We feel that feasability has been established at this point.

Work for AC & S Division 5,326,204 Dept. 2378

1. Rando Webs for Adhesive Carrier

To supplement the work done for this group last quarter, we made two new sets of fiber webs (from washed polyester and standard industrial acrylic) and also brought out webs left in our history files from the last runs (polyester and polypropylene). They supplied two bonding solutions for this run - 10% Eponol and 10% polycarbodiimide. All webs were lofty, and it appeared that most of the resin went to the center of the webs.

Burton E. Frank

Burton E. Frank

ELECTRO MOLD CORPORATION

616 INDUSTRIAL BOULEVARD • MINNEAPOLIS, MINNESOTA 55413
AREA CODE 612, PHONE 331-1014

PACKING LIST

No. 13662

3M Co

INVOICE DATE

OUR ORDER NO.

YOUR ORDER NO.

TERMS F.O.B.

SALESMAN

SHIPPED TO

SHIPPED VIA PPD. OR COLL.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	Semi sphere pattern & moldX	140.00	
	machine mold - approx	65.00	
	Mach mold - Completed 2/7 - 6¼ hrs. approx 65.00		

WE CERTIFY WE HAVE COMPLIED WITH ALL THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED.

Herb Walden

Jan - 908811 = 40 hrs.

Feb 908811 — 0
257919 20 hrs.

March 257919 40 hrs

april - 0

May - 257919 - 24

June - 257919 - 40

July - 0

august - 257919 - 16

Burt -

Jan - 908811 - 16

Interoffice Correspondence 3M

Have a Good Day

Subject: Non-Woven Committee Meeting.

cc: Dr. R. M. Adams
D. R. Guthrie

March 16, 1972

TO: J. R. ANDERSON - BS & CP ENGRG. - 21-1E
A. W. BOESE - NEW BUSINESS VENTURES - 53-5
E. W. DEZIEL - NEW BUSINESS VENTURES - 219-1
P. E. HANSEN - MEDICAL PRODUCTS DIV. - 218-3
A. E. JOHNSON - INTERNATIONAL - 42-1E

FROM: G. B. SCHNEIDER - ENGRG. RESEARCH - 42-1W

This is to remind you of our agreed upon meeting in Al Boese's Lab at 1:30 p.m. Monday, March 20; then to Ed Deziel's facility; and finally to review again our interim report.

A new rough draft is attached.

GBS/af

Interoffice Correspondence 3M COMPANY

Subject:

cc: J. R. Anderson - 21-1E
A. W. Boese - 53-5
E. W. Deziel - 219-1
P. E. Hansen - 218-3
A. E. Johnson - 42-1E

March 15, 1972

TO: DR. R. M. ADAMS - EXECUTIVE - 220-14E
D. R. GUTHRIE - EXECUTIVE - 220-14E

FROM: G. B. SCHNEIDER - ENGINEERING RESEARCH - 42-1W

The committee for the study of non-woven webs and technology has come to the point of making recommendations. As we try to resolve the identifiable problems we find that we need to involve manufacturing and the controllers department. Before proceding further we submit this interim report and will await your suggestions.

The report "Review of 3M Company's Non-woven Fabric Technology" by Ed Deziel, June 1970, supplied a very thorough background for our discussions.

3M Involvement

From Ed's report we determined that 1970 3M world wide sales of non-woven products amounted to $83,000,000. U. S. sales were $53,000,000 divided amongst the divisions as follows:

BS & CP	39%
Tape	28%
Medical	24%
Printing	5%
DM & S	4%

DM & S manufactures its own non-woven material or buys web from Kendall. They do not have laboratory or pilot plant capability.

Printing Products non-woven material is manufactured by Tape Division.

Medical Products has its own manufacturing facilities but no pilot plant or laboratory equipment.

Tape has manufacturing facilities but no pilot plant or laboratory equipment.

Both Tape and Medical Products rely on the Corporate Innovative Laboratory for lab development of non-wovens.

BS & CP has manufacturing, pilot plant, and laboratory facilities and also has fiber development and manufacturing facilities.

NBVD has pilot plant facilities but almost no technical personnel.

The Corporate Innovative Laboratory has laboratory equipment and technical personnel.

Engineering Research has an inadequately staffed and funded process research project.

Competition

Pellen, Chicopee, Johnson-Johnson, Kendall are in related non-woven products.

BS & CP has competition in non-woven floor pads from 9 manufacturers: Armour, Carborundum, Glit, Microtron, Norton, Paratex, Purex, Brillo and Bonded Fiber Div. of Wellman Industries.

Dry-forming employing wood pulp or reclaimed paper stock is in advanced commercial development in Japan, Denmark and Russia and Kimberly Clark is reported to be a licensee of the Kroyer system.

A. D. Little is soliciting sponsors for a multi group program in dry forming.

Semi-works Proposal

A proposal for a $580,000 semi-works facility was prepared by Arnold Johnson for Tape Division Engineering in October of 1971. This was not presented to Tape Division management but it has been suggested as a corporate facility.

Problems

Quoting from Ed Deziel's report:

"Three major problems were defined:

1. More basic process and engineering knowledge in web formation and bonding is needed to translate ideas more effectively from the laboratory state to full-scale production.

2. New products and new web structures are not being generated at the rate they could be due to short-comings in the present company organization.

3. Potential labor problems exist due to the large amounts of non-woven materials produced at the 3M Center Pilot Plant in Building 219.

Recommendations

At this time we have many recommendations under consideration, however, developing a formal self-consistent set of recommendations will require information from and eventual agreement by Manufacturing and the Controllers Division. Therefore we list here our inconsistent suggestions.

1. NBVD to abandon non-woven pilot plant equipment within 1 year. Much of equipment would likely go to surplus. This 40" wide Rando-web line has served its purpose since 1-K in Hutch., Fairmont Rando-webber lines, and BS & CP Pilot Plant can do most what this NBVD equipment can do.

2. Enlarge Corporate Innovative Lab to include non-woven line of about 12" width and to eventually include pilot plant.

3. Subsidize 25% of Corporate Innovative Lab with staff funds; the remainder would be on a recharge basis to users.

4. Tape and Medical to set up their own pilot plants if they so desire. Perhaps they would patronize the Corporate Innovative Pilot Plant instead.

5. Minimize making saleable quantities of material in pilot plants.

6. Manufacturing to assume earlier responsibility on proven processes.

GBS:vp

Interoffice Correspondence 3M COMPANY

Have a good Day

Subject: SCRUB BRUSH

March 28, 1972

cc/ A. W. Boese - 53-5
D. W. Glasspoole - 218-3
J. R. Sjolander - 220-11E
W. M. Westberg - 218-3
Med. Prod. Lib.

TO: D. D. CAMPBELL - C.I.L. - BLDG. 53-5

FROM: G. W. MATSON - MEDICAL PRODUCTS LAB. - BLDG. 218-3

Thank you for the samples of soap/needle punched polyester combinations. The advantage of the high lathering action of the soap bar encased in fiber was quite evident and should find use in high soil areas such as auto repair shops; however, for hospitals, a single-use item would probably be preferable.

If you could provide us with samples of the soft soap type, omitting the soap, we will impregnate with our iodine scrub soap and evaluate as a surgical scrub. This type may be a useful addition to the SCRUBTEAM line in surgery or other areas of the hospital. The bar type will also be shown to our Marketing people.

We would also appreciate any price information and patent thoughts you may have.

GWM/lg

Interoffice Correspondence 3M COMPANY

Subject:

cc: H. L. Anderson
F. S. Copeland
R. P. Fields
C. E. Myers
J. L. Spooner
H. T. Wingfield

March 24, 1972

TO: A. W. BOESE - 53-5
R. A. BOSCHKE
P. H. CAREY - 53-5
J. D. ERDMAN - 220-7W
D. W. GLASSPOOLE
G. W. MATSON
J. W. PETRIN
J. F. SCHELBLE - 220-7W
J. R. STARKEY - 219-1
W. M. WESTBERG

FROM: P. E. HANSEN

SUBJECT: ISO-DRAPE in the Market Place: What is Good About it. What improvements would help. How it compares with competition. Messrs. Boschke, Erdman and Schelble will discuss the above for our benefit in hope that ideas may be generated to put 3M in front of this $125,000,000 market. Feel free to invite others.

TIME: 10:00 A. M.

DATE: Wednesday, March 29

PLACE: 218-3 Conference Room (319A)

Paul

PEH:bjm

Interoffice Correspondence 3M COMPANY

Subject:

Have a Good Day

April 3, 1972

cc: Those Present
H. L. Anderson
J. R. Anderson - 42-4W
E. M. Antonini - 220-7W
R. I. Byhoffer - 42-4W
P. H. Carey - 53-5
C. E. Myers - 220-7W
J. L. Spooner
H. T. Wingfield

Bert
I'll be
Verne
will be
meeting
3/5 afternoon
CB

MINUTES OF MEETING

Present: A. W. Boese, R. A. Boschke, F. S. Copeland, J. D. Erdman, D. W. Glasspoole, P. E. Hansen, J. M. Kennelly, G. W. Matson, M. A. Minatelli, C. L. Newman, J. W. Petrin, J. F. Schelble, J. R. Starkey, W. M. Westberg

Subject: ISO-DRAPE in the market-place

Mr. Boschke listed and demonstrated the following:

What's good about ISO-DRAPE--

1. Impermeability
2. Light surface absorbency
3. Lint free
4. Drapeability is better than paper drapes
5. Light weight
6. Very attractive material

What Improvements would help--

1. Reinforcement of material around aperture openings and slits to increase tear strength
2. Increase strength of material overall--so towel clips won't tear out
3. Need areas where adhesive drape could be applied without losing absorbent feature of entire drape.
4. More cloth like texture
5. Increased absorbency
6. Increase heat sealability of material for manufacturing capability

We agreed increased strength (1 and 2 above) were of the greatest significance. The strength can be increased at the maker, at converting, or possibly by the customer. Al Boese is going to make several hand samples of stronger base material for us to evaluate. Laminating in a scrim, using fiber 40, polyester fiber, polyester film to replace polyethylene film, embossing the film or fabric were several suggestions. Joe Petrin's group will gather tear and tensile strength data on our material and competitive material (which is apparently strong enough).

Engineering was quoted that reinforcement around the aperture during automatic converting would be a major project. This could be reinvestigated with engineering, pilot plant, and hand prototypes made in the lab.

On the customer end we might promote non-puncturing towel clips. Are there any other ideas?

Cost of course is of paramount concern. The projected cost of our present base material is 7-8¢/yd^2. 4K maker has capacity for $6-9MM in pack sales at a running speed of 100 fpm. Present market size is about $40MM in sales growing at 20-25%/yr.

Increasing strength is a major development program. If--as marketing is suggesting--this is a must to capture "our share" of the market we must have management consideration of adding more investment to the program. A sales forecast (and P & L) with and without the added strength feature might be in order.

Paul

PEH:bjm

Interoffice Correspondence 3M COMPANY

Subject: Non-flammable Face Mask
Dept. 0508
Project 908811

dc: R. J. Barghini - 230-BS
P. H. Carey - 53-5
B. E. Frank - 53-5
A. E. Johnson - 42-1

April 10, 1972

TO: A. W. BOESE - 53-5

FROM: H. B. WALDEN - 53-5

Object: To develop a mask construction which will be sufficiently flame retardant to satisfy sales requirements for the International Division.

Report: Work on this project was started during December, 1971 - in the direction of using a flame retardant fiber construction rather than impregnating with flame retarding chemicals.

Rhouyl, which is a thermoplastic, non-flammable P.V.C. fiber, was selected as a binder fiber and some 30 to 40 blends of this fiber in varying proportions with several other fibers indicated that a blend consisting of 70 to 80% Rhouyl and the balance either polypropylene or polyester fiber should meet flammability requirements.

In molding a mask shape with thermoplastic fibers, the major problem is removal of the shape from the mold. The fiber structure remains soft and pliable while hot and cannot be removed without serious distortion.

To overcome this problem, it was suggested that a thin metal shell which would fit closely over the mold be used to support the fiber structure while molding. It could then be removed and cooled. When cool, the fiber shape can be stripped from the metal shell and retains its shape.

Initially, a sheet of aluminum foil was shaped as well as possible over a mask mold to try out the idea. It appeared to work out quite well and at this time, the process was discussed with Mr. A. E. Johnson, International Engineerging, to determine if it might be possible to design molding equipment using this approach. Mr. Johnson was of the opinion that the idea could be worked out and at his suggestion, we had an electro-plated shell made to fit over one of the old style Mask Molds. This mold does not have the ribs as currently used, but we wanted to make the mold as simple as possible to start with.

A number of mask shapes have been molded for testing using this technique and although it is apparent that some modifications are necessary, the basic process idea appears to work out quite well.

H B Walden

HBW/ryk

Interoffice Correspondence 3M COMPANY

Subject: Water Purifier

dc: L. M. Berlin
A. W. Boese
J. R. Sjolander

May 4, 1972

Universal Water Softener Corporation
1425 West Hawthorne Lane
West Chicago, Illinois 60185
(312) 231-7170

Fred Abrahamson - Sales Manager
William Berglund - General Manager
William Gudeman - Chief Engineer

Mr. Berlin, who is interested in marketing a tap water purifier in Europe, and I had a discussion with Mr. Abrahamson on April 27, 1972.

Universal has a small, nicely designed, attractive unit that attaches to the water tap. It uses a discardable charcoal filter to remove sediment, foul taste and odor from drinking water.

Mr. Berlin would consider the sale of this product and its filter if 3M could, at a later date, produce its own filter for the unit. Mr. Abrahamson indicated this was very possible, but wanted to consider the results of his European trip the middle of May before committing a firm answer.

I visited their factory. They have about 70,000 ft.^{2} of space. They assemble home and commercial water softening equipment.

They buy molded plastic and metal components of this purifier and assemble them. They can produce 500 units per shift with six people in the crew. They leak test each unit at 100 psi. They buy the sediment and charcoal filters from my old friends at Rochester Paper Company in Michigan. The slit rolls are cut into 40 inch lengths, rolled onto a Conwed plastic tube, and covered with a Conwed netting. This is done in a negative pressure room to control the carbon dust. The ends of each tube are sealed with plastisol in a simple, but effective fusing operation. Their output is 1,000 or cartridges per shift - very labor intensive.

They had no data to give me on the life or effectiveness of the unit. They indicated Sears had tested the units.

This unit is offered by Tareyton cigarettes as a premium for $5.00. Mr. Berglund said they "lose a couple of dollars on each one", which could indicate Universal sells at $7.00. Tareyton has purchased close to 100,000 units and is continuing their program.

-con'd-

Present pricing is as follows:

Purifier with charcoal cartridge: Cost

Retail	$19.95
Dealer	$13.95 - $11.95 (less 40%)
Distributor	$10.95 - $9.50 (less 52.5%)

Cartridge - Cost each

Retail	$2.50
Dealer	$1.75 - $1.50 (less 40%)
Distributor	$1.50 - $1.10 (less 56%)

(Mr. Berglund has an objective, that he felt to be reachable, of making the purifier to retail at $7.95.)

If 3M can obtain adequate rights to the product and a market test in Europe is successful, then we could combine our fiber structure skills with Dr. Arredde's adsorbtive material and make a proprietary disposable cartridge.

Pat Carey

Patrick H. Carey
Corporate Innovative Laboratory
Building 53-3

PHC/ryk

Attachments: Jobber & Price Pages

UNIVERSAL

AQUA - GUARD

FAUCET WATER FILTERS AND FILTER CARTRIDGES

JOBBER NET PRICES

(Effective December 15, 1969)

Universal
WATER SOFTENER CORPORATION

1425 WEST HAWTHORNE LANE
WEST CHICAGO, ILLINOIS 60185

QUANTITY OF FILTERS	AQUA-GUARD FILTER MODEL #	MFR'S SUGGESTED LIST PRICE EACH	DISTRIBUTOR NET PRICE EACH
12	UAG	$19.95	$10.25
24	UAG	19.95	9.95
48 or more	UAG	19.95	9.50

NOTE: K 7 PG Special faucet adaptor for use where sink faucet has no aereator nozzle and thread or does not have standard male or female threads to attach faucet filter to. Individually boxed.

K 7 PG Faucet Adaptor		$ 1.00 ea.	$ .50 ea.

QUANTITY OF CARTRIDGES	REFILL CARTRIDGE #	MFR'S SUGGESTED LIST PRICE EACH	DISTRIBUTOR NET PRICE EACH
24	UJ-1	$ 2.50	$ 1.50
48	UJ-1	2.50	1.25
96 or more	UJ-1	2.50	1.10

SHIPPING WEIGHTS:

Master carton of 12 Faucet Water Filters----------Approx. 12 lbs.

Master carton of 24 Refill Cartridges----------Approx. 7 lbs.

MINIMUM JOBBER ORDER

12 Faucet Water Filters and/or 24 Refill Cartridges

ALL QUANTITIES OF FILTERS AND REFILL CARTRIDGES ARE F.O.B. OUR PLANT - WEST CHICAGO, ILLINOIS 60185

Prices Subject to Change Without Notice

Terms: 2%-10 Days
Net 30 Days

UNIVERSAL

AQUA - GUARD

FAUCET WATER FILTERS AND FILTER CARTRIDGES

DEALER NET PRICES

(Effective December 15, 1969)

Universal
WATER SOFTENER CORPORATION

1425 WEST HAWTHORNE LANE
WEST CHICAGO, ILLINOIS 60185

QUANTITY OF FILTERS	AQUA-GUARD FILTER MODEL #	MFR'S SUGGESTED LIST PRICE EACH	DEALER NET PRICE EACH
4	UAG	$19.95	$13.95
8	UAG	19.95	12.95
12	UAG	19.95	11.95

NOTE: K 7 PG Special Faucet adaptor for use where sink faucet has no aereator nozzle and thread or does not have standard male or female threads to attach filter to. Individually boxed.

K 7 PG Faucet Adaptor		$1.00 ea.	$ .65 ea.

QUANTITY OF CARTRIDGES	REFILL CARTRIDGE #	MFR'S SUGGESTED LIST PRICE EACH	DEALER NET PRICE EACH
12	UJ-1	$2.50	$1.75
24	UJ-1	2.50	1.50

SHIPPING WEIGHTS: Aqua Guard Faucet Filters----------Approx. 1 lb. each

Refill Cartridges----------Approx. 6 oz. each

MINIMUM DEALER ORDER FROM FACTORY:

4 Faucet Water Filters and/or 12 Refill Cartridges

ALL QUANTITIES OF FILTERS AND REFILL CARTRIDGES ARE F.O.B. EITHER JOBBER'S STOCK OR OUR FACTORY, WEST CHICAGO, ILLINOIS 60185

Prices Subject to Change Without Notice

Terms: - 2%-10 Days
Net -30 Days

Interoffice Correspondence 3M COMPANY

Have a Good Day

Subject: 3M Laboratory Productivity

May 5, 1972

c-
A.W.Boese NBV--53-5
B.L.Clark Dupl.Prod.-235-3F
W.L.Flanagan Med.Prod.-218-3
C.S.Miller Graphic Systems-235-3F
H.G.Sowman Cen.Res.-201-2E
G.V.D.Tiers Cen.Res.-201-2S

TO: R. M. ADAMS - EXECUTIVE - 220-14E

FROM: S. SMITH - CHEMICAL DIVISION - 236-1

Following the luncheon meeting that we had with you on January 7, the research associates met again to consider a response to the challenge which you presented to us. I regret to say that we do not have any original ideas to offer concerning a laboratory campaign equivalent of the +2 and -1 programs. For whatever they are worth, however, we would like to transmit those ideas and feelings which are more or less mutually shared by us. Please forgive the long delay in our response. The delay merely reflects on the fact that research associates, along with elephants, suffer intolerably long gestation periods.

1. Motivation of the Technical Man

Proper motivation can, of course, make the difference between indifferent and spectacular performance on an assignment. We do not have a formula for "proper motivation". However, many elements enter into it and these seem to deserve comment.

a) The man should be encouraged to come forward with ideas for new programs and every effort should be made to clear the way for him to undertake serious work on these, if his supervisor senses possible merit in the idea. If the new program is judged to be "incompatible" in that particular laboratory then the supervisor should personally help that man sell that program (and possibly the man along with it) to a more suitable host laboratory. New ideas and programs are fragile and many of us allow them to die if they are greeted by indifference, let alone hostility, from our supervisors.

b) Invite the man's participation in all aspects of the early formulation, as well as the conduct, of any program in which he is to play a key role. Most of us have been force-fed assignments which our supervisor has not allowed us to regurgitate. Some of these have been sound programs in which a man's willing cooperation and best efforts could have been secured if that man's supervisor had consulted with him and sought his views before putting the wheels in motion.

c) Recognition is the name of the motivation game. It might seem that a man's own set of performance standards and his willingness to accept a 3M paycheck ought to guarantee his best efforts in getting the job done. Of course, that is not the case - it is vital that he feel that he is an important cog in 3M's machine, that his efforts can matter to 3M, and, finally, that noteworthy industry and ingenuity on his part will receive special attention from his superiors.

We feel that special awards and rewards are only a part of this recognition problem and we would prefer not to expand on this particular aspect. Many other important elements enter into it. He ought to receive continuing encouragement and special commendation from his superiors, including his general manager, when his work really merits it. Such things as periodic reviews with his supervisor's bosses, participation in- or at least attendance at - audits of his program, solicitation of advice by his superiors on programs in which he is involved are all very helpful both in bestowing recognition for the part he is playing and in demonstrating that what he does and thinks is important.

2. Inter-laboratory Cooperation

We believe that many times a laboratory may solve their own problem and generate general information and understanding that would be of enormous help to another laboratory, if that knowledge were more widely available. For example, about 10 years ago Industrial Minerals solved the problem of the unattractive loss of appearance by partial encapsulation of roofing granules due to asphalt creep. Independently, Reflective Products solved the problem of glass bead flotation on alkyd resins. Both problems were related and the common solution involved the pretreatment of the solids with fluorochemicals. Recently, Ralph James exposed me to the problem of can we make a superior coated abrasive by preserving the high degree of orientation of mineral particles that electrocoating of abrasives produces. (Phenolic creep during drying is known to induce at least partial collapse of mineral orientation.) Birger Johannessen in our laboratory looked into the problem and found that phenolic climb on the mineral could be prevented either by precoating the mineral with 10 ppm. of an FC-surfactant or by including 0.05% of the same FC in the resin formulation. (Abrasives is now evaluating these approaches.)

It is obvious that productivity could be substantially improved, if one laboratory can apply information that another laboratory has generated to the solution of its own problems. Certainly, the institution of the Information Scientist system has been beneficial in this direction. We wonder whether considerably more can be done.

For example, we might have a special Tech Forum Event in which the laboratories display and be prepared to discuss the major technical problems that they are trying to solve. There need not be any description of the market areas at which these technical problems and activities were aimed. It would be desirable to define the

problems in as technical a fashion as possible. For exampe, "Preserve mineral orientation during a resin cure"; or "Prevent phenolic creep around obtruding particles", instead of "make a sharper (or more efficient) coated abrasive". We would hope, of course, that a number of proposed solutions would be forthcoming from the large pool of Tech Forum members.

We would also like to suggest that divisions advertise those products or technologies that they have generated where they suspect these might also find congenial homes in other laboratories. Again, the same kind of Tech Forum Event may be an appropriate vehicle for this. I am sure that we can each think of several candidate products and technologies in this category.

We hope that you may find useful at least some of the thoughts expressed here. Again, we regret our inability to rise to the specific challenge that you presented to us, but we are grateful for your invitation to respond on this subject.

Sam Smith

S. Smith
/ah

(1) IRC → A.E. Johnson → C.E. Matson, W. H. O'Brien, J. R. Anderson

cc A.W. Breese 53-5 (2) 270.2

H.B. Wistrand 53-5

3M COMPANY
MINNESOTA MINING AND MANUFACTURING COMPANY
GENERAL OFFICES • P. O. BOX 33800 • SAINT PAUL, MINNESOTA 55133, U.S.A. • TEL. (612) 733-1110

International Division

INTEROFFICE CORRESPONDENCE

cc: G. Evans 42-1E

SUBJECT: Non-Flammable Molded Mask

May 26, 1972

RECEIVED

MAY 30 1972

INT'L ENGRG

TO: ~~J. HEIDE~~ 42-1E

FROM: G. K. WILLE 220-5E

You pointed out in a telephone conversation after a meeting in Mr. H. B. Wistrand's office that there had been a considerable amount of activity on a non-flammable molded mask and that I might not be entirely up to date on it. I have talked to a number of people since then to get more familiar with this subject.

I believe that you felt it was important before Engineering proceeded with much additional work to know what the demands were for this type of mask in Europe. In looking through some of the past correspondence, I note that during 1972 it is anticipated that 20 million masks will be sold in Europe at a sales price of $3 million. There is a substantial amount of interest in Europe in the development of a non-flammable mask. Marketing is on record that if we cannot come up with a non-flammable mask we can anticipate losing 10 - 15% of our business. I think the above is a sufficient commitment, to indicate that we should proceed to determine the feasibility of production of these masks and projected costs. It was pointed out that in A. Johnson's letter of May 23 that this would require a project to modify the Fairmont 40" face mask line to obtain the information we need. I believe that A. Johnson has recognized this as a top priority project as he stated in his letter. In discussing this with Mr. J. E. Corbin, he has indicated to me that he feels that a satisfactory product has been developed and that there only remains engineering work to determine feasibility of manufacture and projected cost. I just wanted to put the above down so that we are in agreement on the need for proceeding, since the major interest in the non-flammable mask is with International rather than the U.S. divisions.

G. K. Wille

/ldp

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International Division

INTEROFFICE CORRESPONDENCE

SUBJECT: Meeting Notice

cc: G. C. Fisher 220-5E
W. H. O'Brien 230-1S
G. K. Wille 220-5E

June 16, 1972.

TO:

R. J. BARGHINI	230-B-33
A. W. BOESE	53-5
R. F. CLAYTON	230-B-33
H. J. HEIDE	42-1
A. E. JOHNSON	42-1
H. B. WALDEN	53-5

FROM: C. E. MATSON 230-1-3A

You are requested to attend a meeting at 8:15 A.M. on Wednesday, June 21, 1972, in meeting room S-166, Bldg. 230-1.

The purpose of the meeting will be to discuss the progress made to date on the heat molded flame resistant mask and to determine future plans.

C. E. M.

C. E. Matson

/imh

3M COMPANY

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International Division

INTEROFFICE CORRESPONDENCE

SUBJECT: Face Mask Materials
3M Mexico

cc:	G. F. Cramolini	3M Mexico
	J. M. Gutierrez	3M Mexico
	A. W. Boese	53-5
	R. J. Barghini	230-B-33

June 16, 1972.

TO: H. B. WALDEN 53-5

FROM: C. E. MATSON 230-1-3A

Enclosed are samples of polyester and rayon fiber as well as some samples of webs made using these fibers. The web samples are composed of one made in Mexico and one made in Brazil. Both use 50% rayon and 50% polyester fiber. The sample of the Mexican web was made with the Mexican fiber which was opened and mixed in the Cardine machine and the web was made on the Rando Feeder and the Rando Webber. The Brazilian sample was made utilizing Brazilian fiber on a Cardine machine. The fiber samples are both 1.5 Denier.

Could you look at the fibers and do any testing required to determine if they would be suitable materials to be used in making #8500 filter mask. I would also like to ask for your comments concerning the webs made on the Brazilian and Mexican equipment.

Regards,

C. E. M.

C. E. Matson

/imh

P.S. The envelopes containing the webs say they were made on a Cardine machine. However, I am quite certain there is a mistake in terminology, and that they really mean a Carding machine.

Interoffice Correspondence 3M COMPANY

Have a good Day

Subject: MEETING NOTICE
PLANNING MEETING

cc: J. Severance
D. C. Johnson
D. F. Todd
E. W. Ulrich

June 21, 1972

TO: A. W. BOESE
G. C. HARRISON
L. J. HESSBURG
J. E. JOHNSTON
G. W. KOTTONG
W. G. PATERSON
H. H. SCHROEDER
O. M. WISTE

FROM: D. J. BARRY

NOTICE OF MEETING

The Planning Meeting of NBVD regarding requests to Chemical Division will be held Monday, July 10, 1972, at 1:00 P.M. in Dave Johnson's office, Bldg. 224-5E.

Any inquiries regarding your specific requests should be submitted to Don Barry or John Severance.

D. J. Barry
Production Control

ais

cc BOESE
WALDEN
FRANK
MARGHARDT
CARLSON 2363

JRW TO CHEM DIV
908731 (Non Woven Projects)
7-11-72

Objectives:

1) To compare physical properties of 2016 polyester web, resin bonded with LP 10, LP 20X, HA 8, oven dried and heat set
2) To compare physical properties of 2016 polyester web, resin bonded with LP 20X and Wyandotte X-1033 and X-1042
3) To determine the effect of the addition of a F.C. fluorochemical to the saturating bath of LP 10 and LP 20X upon the resin bonded 2016 polyester web

Method:

1) prepare 2016 spunlace web between paper (5 WEBS EACH SET)
2) cut to 8" x 18" size (FIBER WEIGHT ~ 3.15 GRAMS)
3) prepare 20% T.S. Solutions using deionized water only.
4) Saturate to give 30-35% resin content in finished web
5) oven dry on screen at 225°F - 5 min
6) Tenter frame and heat set at 350°F - 60 sec
7) Measure physical properties (T, E, RW, TEAR, STIFFNESS)

Experimental Design:

			Drying		Heat Set	
SET.	FIBER	LATEX	°F	MIN	°F	SEC
1	RM 16777	LP 10	225	5	350	60
2	"	X 1033	"	"	"	"
3	"	LP 20X F.C.	"	"	"	"
4	"	LP 10 FC	"	"	"	"
5	"	X 1042	"	"	"	"
6	"	LP 20X	"	"	"	"
7	"	HA-8	225	5	350	60

P. Carey 7-11-72

7/21/72

- Heat bonded webs

Treat with various resins

222 8822

Interoffice Correspondence 3M COMPANY

Have a Good Day

Subject: Soap Pads

dc: A. W. Boese - 53-5
G. E. Gurr - 230-2S
R. W. Lundbohm - 230-1S
W. J. Peterson - 220-8W
G. M. Rambosek - 209-BS
H. J. Revoir - 230-2S
J. R. Sjolander - 220-11E
D. S. Walker - 219-1

July 17, 1972

TO: JOHN WEHLING - COMMERCIAL TAPE DIVISION - 230-2S

FROM: DOUG CAMPBELL - CORPORATE INNOVATION LABORATORY - 53-5

Thanks for the information you phoned me the other day that you are still interested and testing the subject soap pads; we of this laboratory are duly pleased.

I enclose two each of the two kinds of pads manufactured 7/13/72 having the highest soap content I've achieved so far, which you are invited to add to your testing because the high soap content seems like what would please the customer most. These were made by felting the staple fibers around a ball of flexible soap, and then flattening the composite. Each pad was given 3.0 minutes of jabbing with 4 barbed needles using the side stroke to give predominantly tangential fiber entanglement and at a rate of about 3 jabs per second.

The two varieties of pads, marked #1 and #2, are made with 5.0 gm. 3M polyester 50 denier x 4" staple fiber and 50.00 gm. of flexible soap made from National Purity Soap Company materials as follows:

#1 Corn & Cotton

40.00 gm. NPS #147A low filter soap powder
@ 92% soap (including glycerin)
10.0 gm. NPS #591 corn and cotton oil
grease soap (used to adhere the powder and make it flexible)
@ 65% soap (including glycerin)

This soap pad then delivers 43.4 gm. soap (including glycerin).

#2 Coconut

40.0 gm. NPS #147A
10.0 gm. experimental coconut oil grease
soap @ 55% soap (including glycerin)

This soap pad then delivers 42.4 gm. soap (including glycerin).

-con'd-

Fred Deiner of National Purity Soap Company told me that this soap powder is the sodium soap of the same corn and cotton oils used for their NPS #591, which is the potassium soap. In both articles, no glycerin is removed. The experimental coconut oil soap is the potassium soap of coconut oil, again with all the glycerin left in. I anticipate we'll find these soaps to be the most environmentally desirable detergents possible.

You asked how I was getting on toward writing a Record of Invention. We of this laboratory do not write these documents, but in their stead, write Patent Proposals with the aid of our Patent Liaison man, George Rambosek, and the concurrence and encouragement of the Divisional Manager, Jack Sjolander. We have initiated the first novelty search necessary to do this. We have not yet received any prior art patents to examine and attempt to circumvent.

DDC/ryk

Interoffice Correspondence 3M

Subject:

cc - J. F. Ramey, 220-8W
J. G. Wirsig, 220-7W
~~A.~~ W. Boese, 53-5

August 16, 1972

TO: J. V. ERWIN, 230-2S

FROM: E. B. MOFFET, JR., 220-8W [redacted]
37662

Two or three months ago, I got a call from Al Boese in which he invited me to stop down and visit his laboratory. I think it would be well if you, Joe, John, and I accepted the invitation at some time in the near future. Certainly, a good deal of the product of our Division is dependent on non-woven technology, and we should be aware of Al's activity. It just might be also that we could pick up a new product idea.

Would you please contact Al to see if such a meeting could be arranged. We certainly wouldn't want any kind of formal review, but just an opportunity to chat with Al and some of his people in an informal manner on what they are doing.

I'd welcome the opportunity to renew my acquaintance with the "old goat," and some of the newer members of our Division would probably enjoy meeting or renewing acquaintance with a guy who has contributed as much as Al has to our Division.

EBM/hm

Interoffice Correspondence 3M COMPANY

Subject:

cc - J. V. Erwin, 230-2S
J. G. Wirsig, 220-7W
J. F. Ramey, 220-8W
J. E. Corbin, 230-2S

September 13, 1972

TO: ~~LA.~~ W. BOESE, 53-5

FROM: E. B. MOFFET, JR., 220-8W

It was a great pleasure to visit with you and your group yesterday. Certainly, we found the subject matter of great interest to the C.T.&G.W. Division, and we appreciated the cordial, helpful atmosphere that existed with your people.

I am sure, Al, that you will be hearing from us through various areas of technical, manufacturing, and marketing in the future.

EBM/hm

12/6/72

Pattern Bonding
350°F drying temp

1. Dry web on rando cylinder covered with krapl. paper

2 Cover with mylar felon

Fibers
Visc.
F. Ker 40
acrylic
Nylon
Polyester
Polypro.
Modacrylic

Resin conc.

5% - 10% - 15% - 20% HA8

Vary resins

denier variations

pattern variations

Closed drum with pattern on legs

Open drum ie pattern formed onto drum

wt variation of webs

Carded versus rando webs

over

Interoffice Correspondence 3M

Subject:

cc: D. T. Gibbons
G. J. England
J. J. Houngon
J. L. Erickson
G. G. Johnson
R. A. Mitsch
J. M. Pitblado
D. E. Reid
W. J. Roberts
R. E. Roeder
G. G. Shaw
M. K. Schultz
T. Voulgares

January 10, 1973

TO: R. J. ADAMS * 235-B
D. W. KELLER * 235-B
R. A. MATTHEWS * 235-B
J. G. SIMON * 235-B

FROM: C. R. CROWELL * 224-56

A special showing of the multi-media presentation "FUTURE SHOCK" has been scheduled for your personnel on Friday, January 18, 1974, 12:30 p.m. in the European Room, Building 224.

The show, including product demonstrations, takes about 40 minutes. It was prepared for our recently completed National Sales Meetings and reviews the impact our division's products have - and will have - within our market place. Emphasis is placed on product development, and the significant contributions new products have made, and will continue to make on the growth of the division.

Please inform your people of the showing and extend our invitation to attend.

Regards,

Carl

CRC:caa

Baese
Matthews

Mgrs
See to it that all of your employees are invited to this showing of Future Shock - It's a great presentation!

Ron Mitsch

cc: Petrisko
Kwiatelski

Tony la
Please invite us all
Thx
Al

Interoffice Correspondence 3M COMPANY

Subject:

December 13, 1972

CC: S.M. ABDALLAH - 42-4E
A.W. BOESE - 53-5
R.L. ABLER - 235-BC
J.V. ERWIN - 230-2
G.E. GURR - 220-8W
R.A. MATTHEWS - 235-BS
R.J. OFFORD - 42-1E
J.R. SJOLANDER - 220-11E
C.A. STERLING - 230-2-28
D.S. WALKER - 42-3E

TO: C. I. HAUSE - B.S. & C.P.D. - 235-1N

FROM: D. D. CAMPBELL - 53-5

I am pleased to hear from Roger Abler that your division is interested in my multidirectionally needled soap pads to the point of being willing to fund the making of a first machine to make them. Speaking for Jack Sjolander and myself, we accept with deep appreciation.

Jim Erwin's Commercial Tape Division is also interested in these washing instruments and they informed me via Craig Sterling's November 11 letter (copy attached) of their support to $2,000.

Here's what has happened so far in the direction of making a first machine to replace hand manufacturing. Dean Walker and Dick Offord, of N.B.V.D. (& CIL) Engineering, have visualized a machine and estimated it at $1,500. Dick's drawing of it is enclosed. It seems good to me. I gave my copy to Sherif Abdallah of Commercial Tape Engineering. He is making this machine and as of December 12 estimates ten weeks until we can run it.

I will remain in close contact with Rog Abler and be at his service in all ways. We of the Corporate Innovative Laboratory invite cooperation; that's our charter.

Doug Campbell

DDC:dmg

Attachment

Interoffice Correspondence 3M

Subject: Soap Pads

cc: ~~D. B. Campbell~~ 219-1 53-5
J. V. Erwin
G. E. Gurr 220-8W
H. J. Revoir
J. R. Sjolander 220-11E
J. E. Wehling

November 11, 1972

TO: G. M. RAMDSEK * NEW BUSINESS VENTURES * 219-1

FROM: C. A. STERLING * CT & GW NEW PRODUCTS * 230-2-28

Attached are the fifteen patents from your preliminary prior art search on soap and/or detergent pads and the comments made on each by Doug Campbell. Also attached are brief comments from Graham Gurr in Consumer Products Division, as well as H. J. Revoir and myself. It is our opinion that if these patents constitute the prior art, then Campbell's idea is patentable and in a manner that would provide protection to 3M.

It is possible that a fairly effective pad could be developed wherein two needled pads or resin bonded webs are sewn together around a soap ball. This approach would likely be outside Campbell's idea of fibers needled into the soap. However, based on Campbell's comments, this approach would not be as aesthetically pleasing as Campbell's, and in the case of the resin bonded web, much harsher to the skin. These are important concerns from a marketing viewpoint and therefore we wish to proceed as rapidly as possible on the needled soap pad concept.

To support this we are proposing a $2,000 engineering investment to build a prototype manufacturing unit for needling soap balls continuously. This will allow us to more accurately estimate manufacturing costs for Consumer Products proposed concept study.

C. A. Sterling
/smc

REPORT 62099-D05 FIXED ASSET RECORDS LISTING FOR DEPARTMENT 508 OF 3M PARENT 1/01/73 PAGE 2,976

DEPT	BLDG	ASSET TYPE	ASSET UNIT	ASSET NUMBER	SUF-FIX	DESCRIPTION	ACQ DATE	INV YR	JOB #	ACCOUNT	DEPR RATE	NORMAL DEPREC	EXCESS DEPREC
508	53	2		F23049-001		DESK ART M	1/51	71	15010	816001	6.00		
508	53	2		F26943-001		FILE 4 DR	1/52	71	52010	816001	6.00		
508	53	2		F32589-001		CHAIR SW A	1/53	71	52010	816001	6.00		
508	53	2		F35994-001		FILE GRAY	1/54	72	52010	816001	6.00		
508	53	4		R85354-051		PUMPS 4	6/72	72	9205238	310001	20.00	77	47 *
508	53	2		056038-001		DESK STENO	1/54	71	102450	816001	6.00		
508	53	5		059011-001		MICROSCOPE	1/55	72	159880	646001	6.00		
508	53	5		082891-001		MIXER 3 SP	1/56	72	192830	646001	6.00		
508	53	2		084206-001		CHAIR ALUM	1/56	72	52010	816001	6.00		
508	53	4		100786-001		OVEN IND G	1/57	71	221860	786001	6.00		
508	53	2		134498-001		DESK RHP	1/60	71	52010	626001	6.00	8	2-*
508	53	2		174462-001		DESK MALE	1/61	72	990670	626001	6.00	10	3-*
508	53	5		175866-001		LAB OVEN	1/61	71	457380	641001	10.00		
508	53	5		175866-002		OVEN CONVE	1/61	71	457380	641001	10.00		
508	53	2		183722-001		FILE 5 DWR	1/61	72	52010	626001	6.00	6	1-*
508	53	2		201430-001		CHAIR GUES	1/62	71	52010	626001	6.00	3	1-*
508	53	2		201431-001		CHAIR GUES	1/62	71	52010	626001	6.00	3	1-*
508	53	2		201432-001		CHAIR GUES	1/62	71	52010	626001	6.00	3	1-*
508	53	2		201465-001		TABLE	1/62	71	52010	626001	6.00	8	3-*
508	53	2		201467-001		DESK EXEC	1/62	71	52010	626001	6.00	14	4-*
508	53	2		203669-001		TABLE	1/62	71	992100	626001	6.00	6	2-*
508	53	5		224418-001		MIXER RSN	1/63	71	27247000	641001	10.00		
508	53	5		224418-002		MIXER RESN	1/63	71	27247000	641001	10.00		
508	53	5		224418-003		LABOR ADDL	1/64	71	27247000	641001	10.00	57	22-*
												57	22-
508	53	5		227146-001		CART	1/62	71		646001	6.00	6	1-*
508	53	5		227147-001		CART	1/62	71		646001	6.00	6	1-*
508	53	2		229018-001		CHAIR SWIV	1/63	71	10180000	626001	6.00	6	2-*
508	53	2		229019-001		DESK MALE	1/63	71	10180000	626001	6.00	10	3-*

REPORT 62099-D05 FIXED ASSET RECORDS LISTING FOR DEPARTMENT 508 OF 3M PARENT 1/01/73 PAGE 2,977

DEPT	BLDG	ASSET TYPE	UNIT	ASSET NUMBER	SUF-FIX	DESCRIPTION	ACQ DATE	INV YR	JOB #	ACCOUNT	DEPR RATE	NORMAL DEPREC	EXCESS DEPREC
508	53	4		233788-001		SAW 10 IM	1/64	71		696001	6.00		
508	53	4		243315-001		SAW BAND	1/64	71	18950320	691001	10.00	76	29-*
508	53	4		259118-001		REFRIG FRZ	1/65	71	18950510	696001	6.00		
508	53	2		290553-001		DESK KEY P	1/66	71	10180000	626001	6.00	5	
508	53	4		313649-001		VARIDRV 1/6 HP	6/72	72	9205238	310001	20.00	47	29 *
508	53	2		315068-001		CHAIR SWIV	1/67	71	10181620	626001	6.00	6	
508	53	2		315071-001		FILE 5 DWR	1/67	71	10181620	626001	6.00	6	
508	53	4		316448-001		MACH SEW	1/67	72	26307000	692001	12.00	156	54-*
508	53	4		329366-001		CABINET	1/68	71	21180000	924001	25.00		
508	53	2		380826-001		FILE 5 DWR LOCK	10/71	72	10180008	326001	6.00	9	7 *
508	53	2		380827-001		FILE 5 DRAWER	10/71	72	10180008	326001	6.00	9	5 *
508	53	2		380828-001		CHAIR SWVL ARM	10/71	72	10180008	326001	6.00	7	5 *
508	53	4		380972-001		POWER SAW 63/4	1/72	72		691001	10.00		
508	53	4		403452-001		CONCRETE MIXER	4/71	71	21180005	314001	25.00	32	5-*
508	53	4		407837-001		VARIDRV 1/6 HP	6/72	72	9205238	310001	20.00	47	29 *
508	219	4		271266-001		CAMERA	1/68	71	42387000	691006	10.00	161	42-*
508	219	4		271266-002		CAMERA PRO	1/68	71	42387000	691006	10.00	9	2-*
												170	44-
508	219	4		271268-001		PROJECTOR	1/68	71	20530000	924006	25.00		
										DEPARTMENT TOTAL		793	
										TAX EXCESS * ITEMS			57-

Interoffice Correspondence 3M COMPANY

Subject: Fixed Asset Listing

March 27, 1973

TO: A. W. Boese

FROM: R. L. CHRISTOPHER - CONTROLLER'S DIVISION - 224-40

The following descriptions are provided to assist you in defining the information provided on the computer tabulation:

1. ASSET TYPE CODE: This code is used to identify the type of asset.

Code	Asset
02	FURNITURE AND FIXTURES
03	OFFICE MACHINES
04	MACHINERY AND EQUIPMENT
05	LAB EQUIPMENT
08	AMORTIZABLE ASSETS
09	RENTAL
10	TOOLS AND DIE

2. ASSET NUMBER: The new system identifies the numbers for untagged assets by prefixing them with an alphabetic digit.

Prefix	Type of Asset Number
C	CLOSED JOBS. This number including the asset number suffix is the C & R job number.
D	DUMMY ASSET NOT YET TAGGED. A non-significant number.
E	UNTAGGED CAPITALIZED ASSETS NOT WRITTEN OFF AS EXPENSE. A computer assigned sequential number.
M	MICA ASSETS. This is an exception as Mica tags do have a M prefix.
R	REFERENCE NUMBERS. This number identifies the location and type of asset.

Prefix	Type of Asset Number
T	TRUCKS. This number is the last five (5) digits of the trucks serial number.
V	VENDOR SERIAL NUMBER. This number is the last five (5) digits of the vendors serial number.

3. ASSET NUMBER SUFFIX: This number is a permanent computer generated suffix to the asset number. This suffix is used to identify individual records when an asset has more than one record. Any reference to an asset number without a suffix will be assumed to be a reference to all records with that asset number.

Also, please note that the listing is furnished in Operating Department sequence. The location of the asset may be determined by using the last two (2) digits of the account number. The attached listing will provide domestic locations.

Please review the attached Fixed Asset Listing and indicate in letter form to the writer any changes which should be made. Your letters should advise the equipment numbers, description, present location (from the Fixed Asset Listing) and the new location (department and building numbers).

Please be reminded that the asset valuations are utilized to determine depreciation, taxes and insurance. Therefore, your audit will determine your costs for your department. Your attention and response to this audit is solicited.

RLC

RLC:lmk

Attachment

DOMESTIC LOCATION LISTING

Number	Location
001	St. Paul
005	Bristol
006	3M Center, St. Paul
010	Hutchinson
012	Bedford Park
015	Rochester
016	Cleveland
017	Honeoye
018	Montpelier
019	Weatherford
021	Medford
022	Los Angeles plant
023	Wayne
024	Grove City
025	Ames
027	Rutland
028	Schenectady
029	Prehler
030	Wausau
031	Little Rock
032	Corona
035	Belle Mead
039	Cincinnati
040	Cumberland
042	Freehold
043	Monrovia
044	Camarillo
045	Newark
050	Chemolite
051	Fairmont
052	New Ulm
053	Prairie Du Chien
054	Cordova
055	Brookings
056	Cynthiana
057	Columbia
061	Guin
062	Hartford City
064	Cambridge
065	Middleway
067	Chicago - Mincom
068	Warren
069	Derby
070	Copley
071	Decatur
072	Brownwood
075	Pine City
076	Springfield
077	New York
079	Honolulu
081	Atlanta
082	Alexandria
083	Cleveland Branch
084	Boston Branch
085	High Point Branch
086	Ridgefield Branch
087	Philadelphia Branch
088	Buffalo Branch
089	Nevada Branch
090	Cincinnati Branch
091	Chicago Branch
092	Elk Grove Branch
093	St. Louis Branch
094	Dallas Branch
095	San Francisco Branch
096	Los Angeles Branch
097	Seattle Branch
098	Detroit Branch
099	St. Paul Branch

Interoffice Correspondence 3M COMPANY

Subject: FACSIMILE SERVICE
(3M VRC)

OB U2
A. W. Boese
New Business Ventures

53-5

April 6, 1973

TO: STAFF OFFICERS AND EXECUTIVES
ST. PAUL OFFICE, LABORATORY AND ENGINEERING DEPT. HEADS

FROM: JACK A. BUNDE - TELECOMMUNICATIONS DEPT. - 220-B

Conducting business in today's competitive market place is often accompanied by a demand to get documents quickly in the hands of an individual across the country. Some of these documents, such as diagrams, contracts, authorizations, and even pictures cannot be effectively handled by conventional teletype methods. However, the use of facsimile transmission, such as 3M's VRC, meets the need for conveying these specialized documents quickly and is often a service that is available.

To meet this need, effective immediately, the Wire Room in Building 220-BE is offering to provide facsimile transmission service for all St. Paul personnel. This means an 8-1/2" x 11" document can be transmitted within minutes to anyone in the U.S. who has a compatible facsimile machine available. The cost for handling, approximately $2.00 per 8-1/2" x 11" page, will be recharged to the sending department.

If you have the need for an urgent document transmission that may be handled via facsimile, please contact the Wire Room in Building 220-BE on 3-1144 for assistance.

It would speed up the handling of these transmissions if the telephone facsimile number of the individual to receive the document is known in advance.

Jack

JAB:od

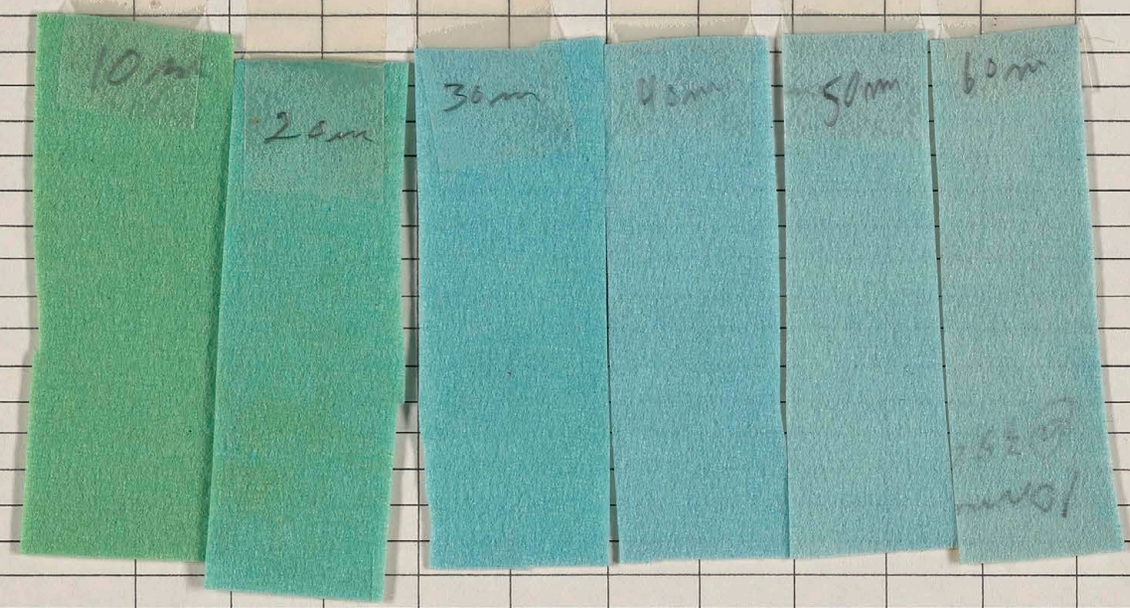
FILE

SEC.

DATE 4/6/73 SHEET NO.

ANALYSIS FORM 1038A

Poly.



FILE

SEC.

DATE 4/6/73 SHEET NO.

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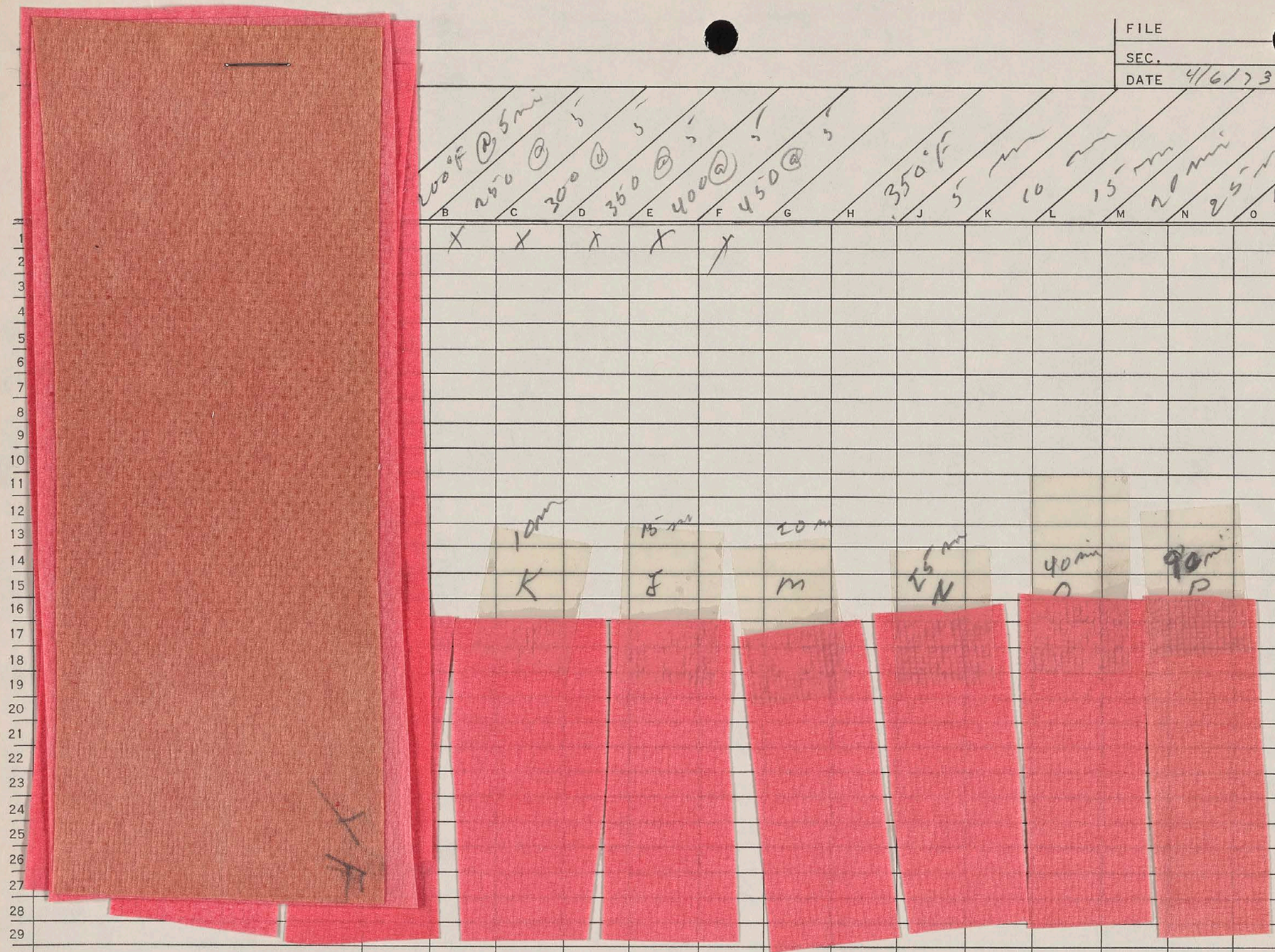

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DATE 4/6/73 SHEET NO.

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FILE

SEC.

DATE 4/6/73 SHEET NO.

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	200°F @ 5 min	250 @ 5'	300 @ 5'	350 @ 5'	400 @ 5'	450 @ 5'	350°F	5'	10'	15'	20 min	25'	30 min		
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FILE

SEC.

DATE 4/6/73 SHEET NO.

B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
200°F @ 5 min	250 @ 5'	300 @ 5'	350 @ 5'	400 @ 5'	450 @ 5'	350°F	5'	10	15'	20 min	25'	30 min		
X	X	X	X	X										

10 min K

15 min J

20 min M

25 min N

40 min O

90 min P

FILE

SEC.

DATE 4/6/73 SHEET NO.

	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
	200°F @ 5 min	250 @ 5	300 @ 5	350 @ 5	400 @ 5	450 @ 5	350°F	5 min	10 min	15 min	20 min	25 min	30 min		
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12															
13		10 min		15 min		20 min									
14								25 min		40 min		90 min			
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DATE 4/6/73 SHEET NO.

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	200°F @ 5 min	250 @ 5	300 @ 5	350 @ 5	400 @ 5	450 @ 5	350°F	5	10	15	20 min	25	30 min		
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FILE

SEC.

DATE 4/6/73 SHEET NO.

	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
	200°F @ 5 min	250 @ 5'	300 @ 5'	350 @ 5'	400 @ 5'	450 @ 5'		350°F	5'	10	15	20 min	25 min	30 min		
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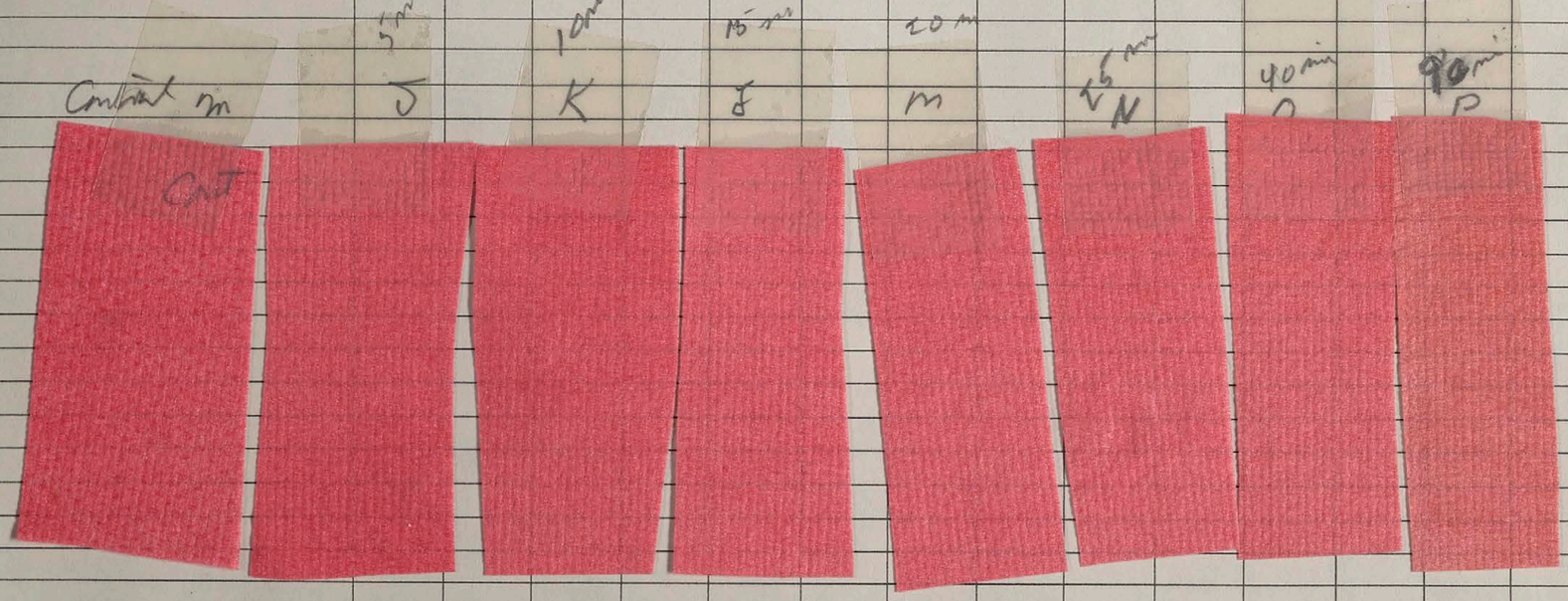
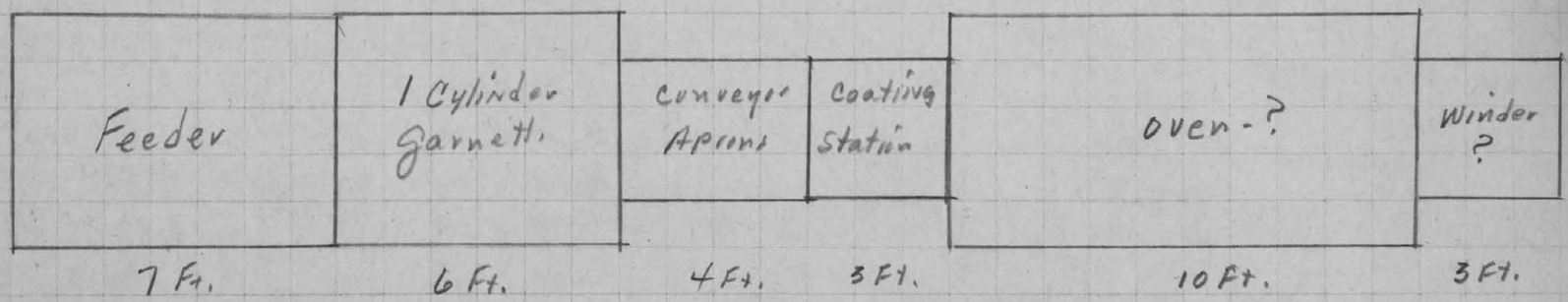


1/4" = 1 Ft.


Feeder
1 Cylinder Garnett
Conveyor Aprons
Coating Station
oven - ?
Winder ?
7 Ft.
6 Ft.
4 Ft.
3 Ft.
10 Ft.
3 Ft.

Interoffice Correspondence 3M COMPANY

Subject:

May 9, 1973

ANNOUNCEMENT

Effective immediately, Dr. J. T. Elder is appointed to the position of General Manager, New Business Ventures Division, replacing Dr. M. R. Hatfield who has accepted another position within 3M Company.

Tait Elder is a graduate of the University of North Carolina and was awarded a Ph.D. in physics in 1952 by Johns Hopkins University. He came to 3M in 1959 with industrial experience in the metals and minerals industry.

After several years in 3M's Central Research Laboratories, Physical Sciences, Tait joined the New Business Ventures Division in 1968 where he initiated the business which has become our Detection Systems Project.

Your cooperation and support will be greatly appreciated in helping Tait Elder continue the fine record established by the New Business Ventures Division.

R. M. Adams

Robert M. Adams
Vice President
Research and Development

275°F Acrylic

7/19/73

ITA8 - Himod Vinc

5	"	min	no	color
10	"		"	"
15	"		"	"
20	"		"	"
25	"		"	"
30	"		"	"
35	"		"	"
40	"		"	"
45	"		"	"
50	"		"	"
55	"		"	"
1 hr 10 min	60		"	"
	70	"	"	"
	80	"	"	"
	90	"	"	"
	100	"	"	"
	110	"	"	"
15	125	"	"	" Silver Tan Samples
	140	"	"	"
	155	"	"	"
	180	"	"	"
	185	"	"	"

Out of oven

10	50	
11	05	no shrink
12	15	" "
12	45	Very sl. color
1	55	Very lt color no shrinkage

275°F

7/20/73

8° clock
Web

Jabez

	8° clock	Light Brown	Uncolored
	20"	no change	no color
	40"	"	"
	60	"	"
	80	"	"
	90	"	"
360°	110	Brown	Very Lt Brown Tint
	130	"	"

7/23/73

Fiber wt. Dow Badische Acrylic 3den - 2"

	Ishers	HA8 Dalton
	Orig wt 1.5 grams	3.1 grams
500°F	"	
10 min	Lt Brown	Lt Brown
(10% to equilibr 30 min	DK " to Black 1.5 wt	DK " 3.0 wt
(60"	Black 1.5	deep brown 3.0
90"	Black 1.5	Black brown again 3.0
120"	Black no wt	Black no wt — still plastic - sticky
150"	Black 1.5	Black 3.0 — same
180"	Black no wt	Black no wt — same
220°	Black ~~Black~~ ~~[illegible]~~ 3.0 good strength	again Black

7/24/73

3 den DB acrylic 500°F 8/27/73

Black @ 20 min Burns @ 20 min Flame Color

8 o'clock ~~Burns readily sustains flame~~ ~~Black~~

9 " Burns readily sustains flame Black
1½ hrs flash when fiber does not dis integral

10 " Burns not as readily does not sustain flame – black

11 " Pile of fiber matted friable weak packed together

12 " ~~F~~riable very little fiber identification

1 OC Friable weak not fibrous

2 OC

Large mass of fiber
lost fiber characteristic
& matted semi strong

3 hrs DB Acrylic
300°F
no overhead

5 grams fiber

8/28/73

11 15

1 hr 12 15 Blackish brown Burns loose fiber

2 hr 1 15 Black " "

3 hrs 2 15 Black " 1 blurs

8/29/73

7 45

8 45

9 45 Blank will not burn last about 4 grams ash

Interoffice Correspondence 3M COMPANY

Subject: Looking at Non-Wovens For Use in Disposable Products

dc:
A. W. Boese 53-5
A. F. Grignon 230-1-5A
D. M. Kielb 230-1-5A
J. K. Lindgren 230-1-5A
L. H. Mickschl 230-1-5A
W. H. O'Brien 230-1-5
L. R. Pehrson 230-1-5A
C. B. Witzke 230-1-5A

August 29, 1973

TO: N. L. MUELLER

FROM: S. T. RICHARDS

Al Boese from Corporate Innovative Services has agreed to talk to our group concerning aspects of non-woven technology which might concern us in developing new disposable products.

The meeting will be held at 9:00 A.M., September 10 in Building 230, Conference Room S-114.

S. T. Richards

S. T. Richards

STR:jre

9/7/73

Fiber lab

9 o'clock 9/11/73

Non wovens -

Cards 12c

Rando.

Bonding systems

Heat bonding - fiber fusion

Resin bonding

Needling

Secondary
3 dimensional forming

Fibers

strength

bulk

Resins - Thermo setting Thermo plastic

10/31/73

Min		
0	513°F	white
5	500°F	Med Brown
10	480°F	Med Brown
13	475°F	Med Brown
20	465°F	Brown
25	450°F	Med Dk Brown
30	440°F	"
35	425°F	Dk Brown
40	400°F	"
45	470°	~~Dk B~~ Darker Brown
50	500°F	Black Brown
55	505°F	Black Brown
60	500°F	Brown Black
65	505°F	Black
70	500°F	Black
75	505°F	Black
80	505°F	Black
85	525°F	Black
90	520°F	Black
95	525°F	Black
100"	525°F	Black
105"	525°F	Black
110"	525°F	Black
115"	525°F	Black
120"	545°F	Black
125"	590°F	Black
130"	555°F	Black
135"	555°F	Black
140"	600°F	Black
145"	600°F	Black
150"	600°F	Black
155"	605°F	Black
160"	600°F	Black
165"	600°F	Black

will not burn - glows

HA 8 film   11/16/73

1P18 - 3 1/2   Orig WT 8.1 grams

	Time	Temp	Width & L	WT	Color
	Orig	0			
min	10	200°F	Orig	Orig	none
to 250	20	"	orig	Orig	none
	30	250°F	orig	Orig	none
to 300	40	~~250~~	orig	orig	none
	50	300	Orig	Orig	Lt Brn
to 350	60	300	Lost 1/16" L+W	Orig	Darker
	70	350	"	"	Darker
to 400	80	350°	Orig orig	Orig	Darker
	90	400	1/16 L same narrow	Orig	Darker
to 450	100	400	orig	7.9+	Darker
	110	450	—	—	~~Darker~~
	120	450	1/16 down L+W	7.9-	Darker Sl opaque
	130	450	—	—	—
to 500	140	450	same	7.80	Darker "
	150	500	same	7.80	Darker Opaque
	160	500	pruned	7.80	Black opaque
to 550°	170	500	—	—	—
0	180	550	—	—	—
	190	550	"	7.60	Black opaque lower elasticity
	200	550	"	7.50	Stiffer dull black
	210	550	"	7.50	Stiffer "
	220	550	"	7.50	Lt surface cracks
	230	550	—	—	—
	240	550	1 3/4 - 3 5/16	7.40	surface cracks stiff

Slightly cooled every 10 min

WT 6.4 gram

11/19/73

HAB film

Heated 500°F

(Margin note, circled: 4.5g Bl Brown Fibre Creation; came Bl at 75 min; small hard core 20 min)

Min		WT	Color
0	500	6.4 grams	
10	500	6.3	Brown
20	500	6.3	Dk Brown
30	500	6.3	Bl Brown
40	510	6.2	Bl Brown
50	500	6.2	Bl semi opaque
60	500	6.2	Bl opaque
70	500	6.2	Bl opaque - sl stiff
80	500	6.2	Bl sl stiff slight cracks [illegible]
90	500	6.2	Bl stiff sl cracks back very fine on top
100	500	6.2	Cracks develope both sides on extention slow recovery
110	500	6.2 –	cracks as above
120	500	—	— — —
130	500	6.1	stiff completely opaque seems to have contracted
140	500	—	— — — —
150	500	6.1	same
160	500	—	— — —
170	500	6.1	same slightly stiffer
180	500	—	— — — —
190	500	6.1 –	same
200	500	—	— — — —
210	500	—	— — — — —
220	500	—	— — — —
230	500	—	— — — —
240	500	6.05	— — —

12/2/23

Roll hanging in oven

Min		
0 –	100°	
10 –	275° F	core slipped out reheating wand/web
23 –	400	
30 –	450	Lt Brown
40 –	450	Med Brown
50 –	450	Brown
60 –	450	Brown
76 –	450	Dk Brown
80 –	450	Dk Brown
90 –	450	Dk Brown
floor web 110 –		Bl Brown
120		Bl Brown
150 min	450	Black
180"	450	Black Fibers burn at this point on time
240	450	4 hrs at 450°, still burns

Interoffice Correspondence 3M COMPANY

Subject: Benz Bldg. Residence

irc: A.W. Boese - 53-5S
G.A. Jungkunz - 42-3W
R.A. Matthews - 235-C-84
R.A. Mitsch - 235-1N
P.W. Trott - 21-BW
Security - 53-1

January 14, 1974

TO: P.A. ANDERSON - NBV ENGR. - 42-3W

FROM: L.W. LEGACY - BS&CP - 53-5S

The following people are in the combination BS&CP - Innovative Lab group. on the 5th floor of the Benz Building:

A.W. Boese	3-0075
P.H. Carey	3-4075
D.D. Campbell	3-4075
B.E. Frank	3-5297
L.W. Legacy	3-0371
V.W. Marquart	3-5297
D.S. Walker	3-5297

LWL:tmw
1/15/74

Baise

Interoffice Correspondence 3M COMPANY

Subject: "Every-Other-Thursday" Seminars

cc: J. M. Pitblado
G. G. Shaw

January 15, 1974

TO: ALL TECHNICAL BS&CP LABORATORY PERSONNEL

FROM: R. A. MITSCH

The following seminar schedule has been established for the year 1974. The meetings will be held in Conference Room 235-D-14, and will begin promptly at 8:15 a.m.

Date	Speaker	Subject
January 24	D. H. Hogle	Keywords
February 7	J. F. Feldhaus	Nuclear Power
February 21	J E. Davis	Griddle Cleaning
March 7	R. C. Fitzer	Swimming Pool Products
March 21	R. R. Goeppinger	Medium Grade Resilient SAFETY-WALK
April 11	E. R. Hauser	Microfiber Research
April 25	R. F. Heine	NOMAD
May 9	R. T. Gadbois	Test Method Development
May 23	F. H. Bland	Improved Slim-Line for Europe
June 6	R. F. Heyer	SAFETY-WALK
June 20	G. W. Anderson	Fiber Finishes
July 11	R. C. Kyle	Mat Systems
July 25	R. C. Jacques	Color
August 8	G. J. Klecker	Retail Hand Pads

Date	Speaker	Subject
August 22	A. G. Wilde	Formulating Cleaners
September 5	L. E. Nelson	Needle Tacking
September 19	L. J. Mann	Cut and Polish Unitized Wheels
October 3	C. Reich	New, Cut and Polish Industrial Products
October 17	D. W Hegdahl	Basic Studies Program
October 31	J. E. Thielen	To be announced
November 14	R. O. Zemke	Precompressed Brushes
December 12	J. W. Currier	Engineering Assistance to Lab
December 26	G. A. Gardner	Coordinating Lab Services and Marketing

Ronald A. Mitsch

/gt

1974 BS&CP LABORATORY EMERGENCY CALL LIST

Name	Address	Telephone	In emergency, notify
Roger L. Abler	1982 Rishworth Lane White Bear Lake, Minn. 55110	429-5539	Wife - Margaret Same
Roger J. Adams	210 Helen Street North Hudson, Wisconsin 54016	715--386-9385	Wife - Suzanne Same
G. Winston Anderson	2231 Mapleview Avenue St. Paul, Minnesota 55109	777-3185	Wife - Kay Same
James A. Andreas	3924 Homewood Avenue White Bear Lake, Minn. 55110	429-7101	Wife - Marie 222-4260-Ext. 353
Clifford A. Baker	12 Birchview Court St. Paul, Minnesota 55119	735-6232	Wife - Hazel Same
Lani Bankers	3194 Collingwood Lane Apartment #3 St. Paul, Minnesota 55119	739-3464	Husband - Gerald 3M -- 3-7024
Peter C. Banning	Rt. #2 Hudson, Wisconsin 54016	715--549-6517	Wife - Charlene Same
John H. Birse	2529 E. Poplar Avenue St. Paul, Minnesota 55109	777-1178	Wife - Marion Same
Fred H. Bland	9657 75th Street North Stillwater, Minnesota 55082	429-6410	Wife - Vivian Same
Alvin W. Boese	803 Lincoln Avenue St. Paul, Minnesota 55105	222-6706	Wife - Irene Same
Douglas D. Campbell	4917 Russell South Minneapolis, Minnesota 55410	922-7542	Wife - Betty Same
Patrick H. Carey, Jr.	9516 Oakland Avenue South Minneapolis, Minnesota 55420	881-0328	Wife - Leone Same
Gerald H. Carufel	1701 E. Idaho St. Paul, Minnesota 55106	771-2059	Wife - Helen Same
Curtis L. Chase	4800 Grenwich Way North North St. Paul, Minnesota 55109	777-8817	Wife - Julie 631-0531, Ext. 2769
Joseph J. Claus	1302 Goodrich Avenue St. Paul, Minnesota 55105	690-1261	Wife - Anne 451-1741

Name	Address	Telephone	In emergency, notify
Frank L. Cox	937 Minton Drive Rosemount, Minnesota 55068	432-5474	Wife - Muriel Same
Lance P. Crowley	2091 California St. Paul, Minnesota 55119	776-6097	Wife - Jan 3M -- 3-9807
John W. Currier	1783 Duluth Street St. Paul, Minnesota 55109	776-0779	Wife - Judith 776-1531
Jack A. Dahlstrom	8081 Hemingway Ave. South Cottage Grove, Minnesota 55016	459-3816	Wife - Yvonne Same
John E. Davis	2585 Conway, Apt. #213 St. Paul, Minnesota 55119	739-3325	Wife - Lorna Same
Ronald R. Eiden	2334 Knoll Drive St. Paul, Minnesota 55112	784-6334	Wife - Mary Jo Same
James F. Feldhaus	6081 Paris Avenue North Stillwater, Minnesota 55082	439-8981	Wife - Christine 439-5775
Robert C. Fitzer	9359 North Jane Road Lake Elmo, Minnesota 55042	777-4310	Father - Howard Fitzer 507 -- 283-8032
Burton C. Frank	971 Carlton Drive St. Paul, Minnesota 55112	484-9612	Wife - Jean 645-0667
Barbara I. Friday	9224 Ingberg Court Cottage Grove, Minnesota 55016	459-3185	Husband - James 3M -- 3-2681
Richard T. Gadbois	5709 Dale Avenue Minneapolis, Minnesota 55436	929-6801	Wife - Ceil Same
Gary A. Gardner	2141 Lydia Avenue E. St. Paul, Minnesota 55109	770-3698	Wife - Erika 224-2567
Larry T. Gast	535 Sandhurst Drive West #220 St. Paul, Minnesota 55113	489-7429	Mike Pratt Work - 935-0141
Vincent M. Gin	2585 Conway, Apt. #211 St. Paul, Minnesota 55119	739-3794	Wife - Nancy Same
Roger P. Goeppinger	2554 East Fifth Avenue North St. Paul, Minnesota 55109	777-0519	Wife - Louise Same
Glenn J. England	3240 Foxboro Lane St. Paul, Minnesota 55119	739-4373	Wife - Patricia Ann Same

Name	Address	Telephone	In emergency, notify
Raymond R. Gosselin	971 Hudson Road St. Paul, Minnesota 55106	771-5693	Wife - Sandy Same
George E. Goswitz, Jr.	1876 E. Magnolia Avenue Apartment #206 St. Paul, Minnesota 55119	739-6987	Wife - Corliss Same
Calvin C. Guthrie	550 Goodview Avenue North St. Paul, Minnesota 55119	739-9218	Father - R. F. Guthrie Same
Jerome D. Hanson	416 Johnson Street River Falls, Wisconsin 54022	715--425-6678	Wife - Sue Same
Edward R. Hauser	Route #2 Hudson, Wisconsin 54016	715--386-3774	Wife - Mary Jo Same
Duane J. Hayes	R.R. #2, Box 21 Ellsworth, Wisconsin 54011	715--273-3184	Wife - Sally Same
John R. Heering	583 Lincoln Avenue Apartment #3 St. Paul, Minnesota 55102	224-2090	Parents-Martin or Dorothy Heering 319--352-4509
David W. Hegdahl	4596 Otter Lake Road White Bear Lake, Minnesota 55110	426-5118	Wife - Shirley - Same Parents - 881-9386
Richard F. Heine	2294 Sierra Drive White Bear Lake, Minnesota 55110	429-1803	Wife - Donna 228-3541
Donald E. Hennen	8556 Ingersoll Avenue So. Cottage Grove, Minnesota 55016	459-2811	Ray Hennen 459-9810
Raymond F. Heyer	2175 Beech Street St. Paul, Minnesota 55119	739-9675	Father - Herbert Heyer 507--643-6176
Harvey H. Hoeppner	4075 - 64th Street East Inver Grove Heights, Minn. 55075	455-5929	Wife - Jacqueline Same
Alfred J. Hoerner	1456 North Albert Street St. Paul, Minnesota 55108	646-5598	Wife - Nancy Same
Donald H. Hogle	21509 Lofton Avenue No. Scandia, Minnesota 55073	777-7396	Wife - Marilyn Same

Name	Address	Telephone	In emergency, notify
Roberta C. Jacques	3691 Granada Circle St. Paul, Minnesota 55109	770-1086	Husband, James 296-4803
Manley R. Johnston	1731 Louise Avenue St. Paul, Minnesota 55106	774-5593	Wife - Marian Same
Albert R. Karras	Coulee Road Hudson, Wisconsin 54016	715--386-2778	Wife - Katherine Same
David D. Keane	9359 Jane Road North Lake Elmo, Minnesota 55042	777-4310	Larry Mann - 3-4350 Bob Fitzer - 3-1071
Verona M. Kees	6206 40th Street North Oakdale, Minnesota 55109	777-4969	Husband - Curtis 1-682-4112
Dale W. Keller	2563 Gershwin Avenue St. Paul, Minnesota 55109	777-2091	Wife - Nancy Same
Donald E. Kinney	7809 Dickson Avenue E. Inver Grove Heights, Minn. 55075	455-6576	Wife - Marlys 698-3838
Gary J. Klecker	431 E. Union River Falls, Wisconsin 54022	715--425-7674	Wife - Cynthia Same
Laurice A. Kloski	6410 Dawn Avenue E. Inver Grove Heights, Minn. 55075	451-2398	George W. Cameron 451-7957
Richard J. Kustelski	616 E. Orange Avenue St. Paul, Minnesota 55101	776-5357	Wife - Jean Same
Robert C. Kyle	3940 Oakland Avenue So. Minneapolis, Minnesota 55407	827-1554	Wife - Rita 373-8114
Lloyd W. Legacy	1906 Birch Street White Bear Lake, Minnesota 55110	429-1393	Wife - Marilyn Same
Basil L. Loudas	1976 Hilding Avenue St. Paul, Minnesota 55119	735-0981	Wife - Irene Same
William R. Lovness	361 Ruby Drive West St. Paul, Minnesota 55118	225-1110	Wife - Christine 227-0911 - Ext. 2928
Gerald L. Ludemann	900 West Arlington St. Paul, Minnesota 55117	488-6027	Wife - Catherine 733-7866

Name	Address	Telephone	In emergency, notify
Larry J. Mann	9359 North Jane Road Lake Elmo, Minnesota 55042	777-4310	Brother-Donald-933-3767 Father-Bernard- 701--352-1619
Vernon W. Marquart	Box 147 Hammond, Wisconsin 54015	715--796-2722	Wife - Janice 647-4458
R. Allen Matthews	2046 Lindy St. Paul, Minnesota 55113	489-7087	Wife - Joan Same
Thomas R. McAvoy	507 W. Oak Street Stillwater, Minnesota 55082	439-2686	Wife - Grace Same
Jon P. McGurran	1156 Breen Street St. Paul, Minnesota 55106	771-8773	Wife - Miriam Same
Eugene J. Miller	1329 Pacific Street St. Paul, Minnesota 55106	771-6441	Brother - Bob 771-4849
Ronald A. Mitsch	2555 McMenemy Road St. Paul, Minnesota 55117	484-0904	Wife - Marilyn 474-2674
Leonard E. Nelson	1519 E. Magnolia Avenue St. Paul, Minnesota 55106	296-3440	Mother - Eleanor E. Nelson
Gary L. Olson	515 Gramsie Road St. Paul, Minnesota 55112	483-4929	Wife - Nancy Same
Robert L. Olson	1951 E. County Road B St. Paul, Minnesota 55109	777-3638	Wife - Hazel Same
Donald A. Parizino	834 West Montana Avenue St. Paul, Minnesota 55117	488-3846	Wife - Cathryn Same
Robert C. Peterson	1496 N. Hazel St. Paul, Minnesota 55119	771-9781	Wife - Marlene 776-2766
John D. Petrisko	9328 Neal Avenue North Stillwater, Minnesota 55082	439-4189	Wife - Mary Same
Judith A. Pritschet	559 Geneva Avenue North St. Paul, Minnesota 55119	739-3895	Parents - 771-4253 Mildred & Leo Pritschet

Name	Address	Telephone	In emergency, notify
Charles Reich	1901 Hillcrest Avenue St. Paul, Minnesota 55116	699-2707	Wife - Nancy Same
John G. Simon	2100 Greenbrier St. Paul, Minnesota 55117	771-1001	Wife - Pat Same
Roger E. Smith	8597 Hillside Trail Cottage Grove, Minnesota 55016	459-8106	Wife - Vicky Same
Dennis T. Stevens	3581 Owasso Street, Apt. 213 St. Paul, Minnesota 55112	483-2467	Wife - Page 484-2674
Gene E. Swanson	Rt. #2 New Richmond, Wisconsin 54017	248-3680	Wife - Kathy Same
Sheila A. Tesch	388 Burlington Road St. Paul, Minnesota 55119	739-4485	Husband - Lyle 771-1940
James E. Thielen	712 Forest Dale Road New Brighton, Minnesota 55112	633-5674	Wife - Jean Same
Gloria J. Thill	56 Battle Creek Place St. Paul, Minnesota 55119	735-4892	Husband - Richard 221-4141
Richard A. Tollerud	5625 Oldfield Avenue No. Stillwater, Minnesota 55082	439-8423	Wife - Catherine Same
Dean S. Walker	11390 Manning Trail No. Stillwater, Minnesota 55082	439-5450	Wife - Betty Same
Casimer W. Willard	2225 E. Larpenteur Avenue St. Paul, Minnesota 55109	777-6390	Wife - Rita 633-7911-Ext. 244
Arthur G. Wilde	588 E. Idaho St. Paul, Minnesota 55101	776-0152	Wife - Cele Same
Twyla M. Willerton	2585 Conway St. Paul, Minnesota 55119	739-4815	Mother--451-7204 Stella Willerton
Phillip M. Winter	3750 Auger Avenue White Bear Lake, Minnesota 55110	429-2766	Wife - Karen Same
Ronald O. Zemke	2299 Golf View Drive White Bear Lake, Minnesota 55110	770-1627	Wife - Joy Same

Eng
~~643-7099~~
226-3614

(1)

2/11/74

Need non corrosive fibrous tape backing

Selection of Raw materials research

study of raw materials & equipment

Paper making approach

Failure due to lack of tech feasibility

Acetate fibers lost identity in beating
and would not hydrolize
heat bonded sample

Concept of dry laid bonded web.

Problem of equipment design

Circular brush fiber separation and
gathering on screen by suction

Awareness of carding equipment (North Star)

Purchased small card

Dry formed webs and heat bonded.

Web did not possess strength
needed
Original idea of tape backing
a failure at this point

Technology developed to date showed
promise of unique webs that did not
fit catagory of a textile or paper

As equipment for fiber handling developed and a tech
of forming and bonding webs could be accomplished the
program was carried forward with a general objective of
developing unique long fibered webs that utilized textile
fibers but structured generally after paper.

As the thermoplastic qualities of cell acetate which were plasticized
offered a fibrous bonding media webs of many different ~~fibers~~ natural
fibers blended with acetate and heat bonded were tried.

Although interesting webs developed end uses still eluded us.

Our original concept was slanted towards paper like structures and of course
paper like end products.

Gradually our thoughts seemed to orient toward textiles and we
began to visualize and develope toward products that were normally
textile. This was an important change probably not realized at this
time but which led us toward our first important product which was
a gift wrap ribbon.

The tech problems of ribbon were first paper oriented as a substitute
for satin ribbon. That is we formed a paper like web structure printed
the color on. This is an example of our ribbon of 1945

The quality did not stand up to the market place
and we reoriented our tech direction to the textile field.

That consisted mainly of using textile dye systems

over

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Harold E Wilson
Alaska Mark
Marks

225598

Interoffice Correspondence 3M COMPANY

Subject:

MINUTES OF MEETING BENZ BUILDING
SAFETY COMMITTEE, APRIL 17, 1974

MEMBERS PRESENT:

L. Pritchard - 53-6
Norm Neikirk - 53-B
Henry Diamond - 53-3 (G. Turnquist)
Bob Carr - 53-6
Phil Anderson - 21-2E
Millard Loucks - 53-1
Wayne Redland - 53-6 (D. Harry)
Mel Schmidt - 53-SB

MEMBERS ABSENT:

Dr. P. W. Trott - 21-BW (24)
Greg Grass - 53-2
Fran Curran - 53-2
W. C. Hopkins - 53-B
Jim Fruehling - 21-2E
Bob Novak - 53-1
Dean Walker - 53-5

Area inspections were reviewed. The following is a summary:

FLOOR	ITEM	DATE FIRST REPORTED	STATUS
Basement	a) AP Cage (south) cluttered	2/20/74	Some progress made. Some things still stored in passage way.
First	Sprinkler line has plugs	12/19/73	2 more heads are being added. Work order written.
Second	OK		
Third	Electrical boxes by elevator are not locked.	3/20/74	Reported
Fourth	Need new safety Rep from Electro-Mech.	3/20/74	Reported
Fifth	New Group. Need new safety Rep.	3/20/74	Reported

FLOOR	ITEM	DATE FIRST REPORTED	STATUS
Sixth	Leaky Roof	11/23/73	Some are fixed. Waiting for rain to check leaks by stacks.
	Open electrical box (Pull box) has no cover	3/20/74	Reported to Phil Anderson. Work order in.
	Test machine needs guard on drive.	4/17/74	Reported
	One extinguisher needs correct mounting bracket.	4/17/74	Reported.

NEW BUSINESS

- No Smoking Areas: A No Smoking sign with ashtrays will be placed near the guards desk in the lobby. All areas should standardize smoking regulation signs.

- All empty pallets must be returned to the dock area immediately after unloading. They must not be left in hallways. No progress as of 4/17/74.

- Amine odor coming from 6th floor (CH3) 3N. Industrial Hygiene will check on effect of prolonged exposure.

NOTE: MAY MEETING WILL BE HELD ON WEDNESDAY, MAY 15, 1974 AT 1:30 P.M. IN THE FIRST FLOOR CONFERENCE ROOM.

Submitted By: R. C. NOVAK

Security Violations
March 8th to April 12, 1974

3-8-74 Two ovens left on. No "Let Run Tag". Did not turn off. Vac. tag pressured. Bldg #53-2 - 12:25 am

3-8-74 Overhead exhaust fan by fire escape door has drive belt missing. Motor running. Could not find switch. Left note for Maint. foreman. Bldg #53-3 - 12:28 am.

3-9-74 Door to Material storage area unlocked. Secured same. Bldg #53-B - 4:35 pm

3-13-74 Panel pertaining to Hydrogen equipment had three lights on and making a loud noise. Tried to contact personnel in dept. Contacted 4th person that was called. He said to keep trying Ray Cox & Ted ~~De~~ Berg~~strom~~. Neither answered. Ray Cox came in to take care of it. Bldg #53-6 - 12:15 am

3-13-74 Chromalox 9 in. hot plate on and hot. Empty glass on top of it. No "Let Run" Tag. Turned off same. Bldg #53-6 - 2:30 am.

3-15-74 Store room door unlocked. Key in lock. Locked door & took key to Security Station. Bldg #53-3 - 12:17 am

3-16-74 Pipe chase door unlocked. Secured same. Bldg #53-6 - 5:50 pm.

3-16-74 Materials storage area gate unlocked. Secured same. Bldg #53-B - 8:30 pm.

3-16-74 Fire escape lights out on 4th & 5th floors. Left note for Maint. Foreman. Bldg #53

3-18-74 N.E. pedestrian door unlocked. Secured same. Bldg #53-1 - 6 pm

3-18-74 Door to lab unlocked. Secured same. Bldg #53-2 - 6:25 pm

3-18-74 Door from Security Station to Med. Plastics, unlocked. Secured same. Bldg #53-1 - 6:30 pm

3-18-74 Four - five foot tanks of compressed gas not secured. Secured same. Bldg #53-1 - (Alarm on) Sl

3-18-74 Door to panel Cubicles unlocked. Secured same. Bldg #53-5 - 6:10 Pm

3-18-74 Door to High Voltage room unlocked. Secured same Bldg #53-1 - 6:35 Pm

3-19-74 Door to middle pilot plant unlocked. Secured same Bldg #53-1 - 6:25 Pm

3-19-74 Steam pipe leaking. Reported same Bldg #53-6 - 6:20 Pm S.W.O. 134956

3-19-74 Boiler alarms. Called Main Plant Boiler Room. Bldg #53-1 - 4:40 Pm - 5:35 Pm + 7:40 Pm

3-19-74 Hydrogen enclosure unlocked. Secured same. Bldg #53 - 8:50 Pm

3-20-74 Type 564 B Oscilloscope 3M # 341574 left on. Turned off same. Bldg #53-1 - 6:20 Pm.

3-20-74 Boiler Alarm. Called Main Plant Boiler room. Bldg #53-1 - 4:10 Pm

3-21-74 Door to panel Cubicles unlocked. Secured same. Bldg #53-5 - 12:30 Am

3-21-74 Middle Bay door unlocked. Secured same. Bldg #53-1 - 6:30 PM

3-22-74 Pipe Chase door unlocked. Secured same. Bldg #53-6 12:20 Am

3-24-74 North Air Conditioning pipe leaking. Reported same. S.W.O. 135349 Bldg #53-5 - 12:20 Am

3-25-74 Two soldering irons left on. Turned off same. Bldg #53-1 - 6:45 Pm

3-30-74 [illegible] Emp # 32131 Dept 0222 Spilled acid on his arm and wanted to know if a nurse was on duty in Bldg #220 W.20. No nurses on duty. He washed his arm and said it was O.K. + said he would see his own doctor. Refused assistance from Security Dept. Said he would report incident to his supervisor Monday. Bldg #53-6 - 4:53 Pm

4-3-74 Received call that temp. window cover had blown in, allowing snow + sleet in Bldg. Called Main Plant Maint. S.W.O 136100

4-5-74 Double door to Maint unlocked. Secured same. Bldg #53-13 - 12:30 Am

4-5-73 Vacuum pump light on Tunnel system Bldg 53-2 - 6:35 pm

4-5-73 Door to Material storage area unlocked. Secured same Bldg 53-B - 6:40 pm

4-7-73 Air leak in Boiler Room west wall, Called M.P. Boiler Room Bldg 53-B - 6:25 pm

4-11-73 Door # 212 unlocked. Secured same Bldg 53-2 - 6:20 pm.

4-11-73 Vacuum pump light on Tunnel system. Bldg 53-2 - 6:25 pm

A. W. Boese 53-5