



E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

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CHEMICALS AND PIGMENTS DEPARTMENT

January 25, 1983

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RESEARCH ACCOMPLISHMENTS

As indicated in the attached letter from D. S. Weir, dated January 5, 1983, Corporate R&D is assembling a library of research accomplishments. The R&D staff has selected the items on the "Proposed List of Major Research Accomplishments" for submission to this library.

By February 4, please prepare a summary in the form of a brief text and supply the information on the standardized list of specific details characterizing the work for the Research Accomplishments in your area of responsibility.

If you have any questions, please call me on 774-6327.


J. G. ISHIKAWA

JGI/pmt
Attachment

N 26957

C&P DEPARTMENT

PROPOSED LIST OF MAJOR RESEARCH ACCOMPLISHMENTS

- Threadline application of fluorochemicals to carpet fibers - FJM
- Development of Teracol® TE - DIG
- New Quinacridone pigments for high solids paint systems - PAW
- Aniline DHN process - EVB
- Formaldehyde water recycle process and formaldehyde moderators (phospites)- DIG
- Continuous hydrogenation of aromatic nitrates - SCD
- Azo free radical initiator without toxic byproducts - FK
- RPS (product composition and continuous process) - RWH
- Technology for methanol modernization including computer modeling (Beaumont) - EVB

JGIshikawa/pmt
1/25/83

N 26957.01



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cc: H. E. Simmons - CR&D
A. MacLachlan - CR&D
M. L. Sharrah - Conoco
A. J. Dahl - CR&D

January 5, 1983

CENTRAL RESEARCH & DEVELOPMENT DEPARTMENT

W. C. GOVIER	- BIOCHEMICALS
K. A. SAEGBARTH	- BIOCHEMICALS
C. G. BOTTOMLEY	- CENTRAL RESEARCH & DEVELOPMENT
J. P. GLAS	- CHEMICALS & PIGMENTS
J. C. KIRK	- CONOCO
G. B. DYER	- DU PONT OF CANADA
S. E. ISAKOFF	- ENGINEERING
R. K. QUISENBERRY	- FINISHES & FABRICATED PRODUCTS
L. GELLER	- NEW ENGLAND NUCLEAR
H. S. ELEUTERIO	- PETROCHEMICALS
F. E. KRUESI	- PETROCHEMICALS
C. H. ARRINGTON	- PHOTO PRODUCTS
C. E. LORENZ	- POLYMER PRODUCTS
R. E. FIELITZ	- REMINGTON ARMS CO.
D. B. ROGERS	- TEXTILE FIBERS

RESEARCH ACCOMPLISHMENTS

Corporate R&D Planning Division has been asked to assist Corporate Management in communicating the value and quality of Du Pont's research programs to the stockholders and the public. We have developed a three-phase plan to accomplish this task. Phase I is the development of a library of research accomplishments. This program is being implemented now and is described in this letter. Phase II will involve a system for tracking the benefits of research which will be developed during the first quarter of this year. Phase III will involve the development of communications packages to publicize important research accomplishments.

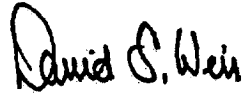
The Research Accomplishment Library will consist of a collection of summaries in the form of a brief text followed by a standardized list of specific details characterizing the work. It is proposed that responsibility for writing, approving and updating these contributions on a regular schedule will reside with the Research Director of the contributing Departments.

The system will be computerized for easy retrieval and updating. Since it will contain sensitive information, security will be maintained by restricting access, clearly defining the

security status of each item and automatically printing this status on each page retrieved from the system.

Details of system operation, examples of accomplishment items, and the form which will be used to collect the standardized information are attached.

Please arrange to have your initial contributions to A. J. Dahl, Corporate R&D Planning Division, D-6018, by February 18th. While the number of items from each Department should be determined by the quality of the accomplishments, you can judge your examples by our expectation of an initial library of 50 to 75 items.



D. S. WEIR
CORPORATE R&D PLANNING DIVISION

DSW:rsz
Attachments

**DU PONT RESEARCH ACCOMPLISHMENTS AND
MAJOR PROGRAMS STATUS**

- | | |
|-----------------------------------|--|
| SCOPE | - All Du Pont research organizations including Conoco. |
| TIME FRAME | - Research accomplishments achieved in last five years and status of Major Programs. Update every six months or individual items by request. |
| USE | - Improved communication between the research community and Corporate management. A resource list for ideas for both internal and external communication. Users would be Corporate Officers and Public Affairs. |
| DETAIL | - Enough detail to convey the idea and scope of the accomplishment. A reference person would be indicated for further detail. The statement should have three parts: 1) technical accomplishment, 2) the next step in technical development, and 3) potential business significance. |
| TYPE OF
ACCOMPLISHMENT | - New products, new processes or process components, scientific contribution, unusual new product applications, environmental quality. |
| SECURITY | - The list would be coded by the submitting department for internal or external use. Distribution would be limited. |
| MECHANICS | - List would be computerized or on a word processor for easy sorting and updating. |
| UPDATING | - Each Department's list would be circulated to its Research Director every six months for additions and deletions. A computerized historical archive would also be kept. |

N 26957.03

FLUOROELASTOMER CROSSLINKING

"Viton" fluoroelastomer has been very difficult to vulcanize, requiring toxic, expensive chemicals and prolonged treatment at high temperature. Efforts have been made over a number of years to develop a free-radical crosslinking system for "Viton".

Du Pont has found that fluorocarbon free-radicals are readily generated by the action of silyl or phosphonyl radicals on fluorocarbon bromides and, in turn, that phosphonyl radicals are readily generated by the action of organic peroxides on dialkyl phosphites. The discovery resulted in new types of fluoroelastomers not achieved earlier. They permit new, more cost effective fabrication and processing procedures not possible earlier and for the first time, permits blending and co-curing with other peroxide curable polymers.

The discovery has resulted in the development of the "Viton" G series first introduced in 1977. The unique amine and aqueous resistance characteristics of peroxide cures open up, for the first time, the use of "Viton" vulcanization in down-hole, oil well applications.

LABORATORY ANIMAL TEST FOR COMMON COLD

Although rhinoviruses cause millions of common colds each year, progress in development of antivirals to combat them has been slow. A major limitation is a lack of a low cost laboratory animal susceptible to rhinovirus infection in which to test potential drugs.

Du Pont was the first to develop a procedure to grow Type 2 rhinoviruses in mouse cells. The adapted virus showed good growth in nose tissue and lungs of a specific strain of mice. These studies were extended to adapt Type 1A. Previous work has shown that an antiviral that is effective against these two types of rhinoviruses is also effective on the remaining 90 rhinoviruses that are known to exist.

Tests of known experimental human antiviral agents in the infected mice show the desired decreases in rhinovirus population with increasing dose amounts. This confirms that the adapted virus responds like normal human rhinoviruses. Screening is in progress of other experimental compounds which we can now optimize before undertaking expensive human clinical evaluation.

GROUP TRANSFER POLYMERIZATION

Polymerization reactions which occur through addition or chain reaction mechanisms have been traditionally classified as free-radical, cationic, anionic or coordination polymerizations. Anionic polymerization is rarely used because of the low temperature required although it is particularly attractive because of excellent molecular weight, molecular weight distribution, monomer sequence, and end group type control.

Du Pont has now discovered a new type of polymerization, called group transfer polymerization, which duplicates the advantages of anionic polymerization without the requirement of low temperature. The new silicon based catalyst gives a large variety of "living" polymers and block copolymers with acrylate and methacrylate monomers. Different pendant and end groups, useful for subsequent post-polymerization reactions are easily included. Many of these polymers are difficult or impossible to make by other polymerization routes.

Finishes and Fabricated Products Department has assigned two scientists to explore this new type of polymerization for applications in finishes and electronic end uses. Evaluation of polymers prepared by this new technique is planned for applications such as air dry enamels, pigment dispersants, anti-soil fiber finishes, thermoplastic elastomers, and polymer for positive-working photoresists.

RESEARCH ACCOMPLISHMENTS AND MAJOR PROGRAMS STATUS

Year of Accomplishment or Date of Last Revision _____

Department _____

Technology Area

_____ Chemical Process

_____ Electronics

_____ Life Sciences

_____ Polymers

_____ Petroleum

_____ Coal

_____ Other

Accomplishment Classification

_____ New Product

_____ New Process

_____ New Product Application

_____ Scientific Contribution

_____ Environmental Quality

Related Major Businesses (up to three)

Contact for Further Detail

(Name)

(Location)

(Phone)

Timing of Business Significance

_____ 2 Years

_____ 2-5 Years

_____ 5 Years

Significance:

Outstanding

Important

Useful

Little

Scientific

Business

Patent Status

☐ Granted
☐ Filed
☐ No Application

Inventors Named on Application

Publication Status

☐ Published
☐ Submitted
☐ Being Written
☐ Not Appropriate
☐ Secret

Authors on Papers

Information Restriction

☐ Du Pont only
☐ Open

CORPORATE RESEARCH ACCOMPLISHMENTS

N 26957.04

DUP050146113

PURPOSE

- COMMUNICATE TO THE PUBLIC AND STOCKHOLDERS THE
VALUE OF DU PONT'S RESEARCH PROGRAM
- DEMONSTRATE THE VALUE AND QUALITY OF DU PONT
RESEARCH

SCOPE

PHASE I

DEVELOP LIBRARY OF ACCOMPLISHMENTS.
BEGIN JANUARY 1983

PHASE II

ESTABLISH CONTRIBUTION TO SALES AND PROFITS.
DEFINE SYSTEM IQ83

PHASE III

DEVELOP COMMUNICATIONS PACKAGES TO PUBLICIZE
IMPORTANT RESEARCH ACCOMPLISHMENTS.
IIQ83 WITH PUBLIC AFFAIRS

ACCOMPLISHMENT LIBRARY

SCOPE ● ALL DU PONT RESEARCH ORGANIZATIONS

PERIOD ● FIVE YEARS IN ACTIVE FILE
 ● UPDATED REGULARLY

DETAIL ● ABOUT ONE-HALF TO ONE PAGE OF TEXT
 ● STANDARDIZED CLASSIFICATION FORM

EMPHASIS ● TECHNOLOGY
 ● BUSINESS SIGNIFICANCE

ACCOMPLISHMENT LIBRARY

TYPE OF ACCOMPLISHMENT

- NEW PRODUCTS
- NEW PROCESSES
- UNUSUAL PRODUCT APPLICATION
- SCIENTIFIC CONTRIBUTION
- ENVIRONMENTAL QUALITY

SECURITY

- LIMITED ACCESS
- CODED BY DEPARTMENT FOR USE

RESPONSIBILITY

- INPUT - R&D DIRECTORS
- SYSTEM - CORPORATE R&D PLANNING