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Georgia Institute of Technology
Office of Contract Administration
PROJECT CLOSEOUT - NOTICE

02-FEB-1998 09:35

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Closeout Notice Date 02-FEB-1998

Project Number E-19-W32

Doch Id 47120

Center Number 10/24-6-R0182-0A0

Project Director SCHORK, FRANCIS

Project Unit CHEM ENGR

Sponsor BAYER CORPORATION/SPRINGFIELD, MA

Division Id 12400

Contract Number AGMT DTD. 11/6/96

Contract Entity GTRC

Prime Contract Number

Title CONTROL OF GRAFT MORPHOLOGY IN A SEEDED CONTINOUS COPPLYMERIZATION SYSTEM

Effective Completion Date 12-DEC-1997 (Performance) 12-DEC-1997 (Reports)

Closeout Action:	Y/N	Date Submitted
Final Invoice or Copy of Final Invoice	Y	
Final Report of Inventions and/or Subcontracts	Y	
Government Property Inventory and Related Certificate	N	
Classified Material Certificate	N	
Release and Assignment	N	
Other	N	

Comments

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Distribution Required:

Project Director/Principal Investigator	Y
Research Administrative Network	Y
Accounting	Y
Research Security Department	N
Reports Coordinator	Y
Research Property Team	Y
Supply Services Department/Procurement	Y
Georgia Tech Research Corporation	Y
Project File	Y

NOTE: Final Patent Questionnaire sent to PDPI

E-19-W32
#1
(New)

Winter Quarter Status Report
Project E19 W32
Bayer Corporation

Graduate Student: Henry Hipps
Advisors: F. Joseph Schork, Gary Poehlein
School Chemical Engineering
Project: Continuous Polybutadiene/SAN Graft Polymerization

Several delays prevented the Continuous Polybutadiene/SAN Graft Polymerization project from realizing significant progress during the winter quarter. Laboratory renovation necessary for the project was scheduled for the beginning of the quarter. Unexpected problems pushed the renovation back several times before the work was actually completed over a quarter later then originally planned. Delays in obtaining raw materials from the Bayer facility also contributed to the slow progress of the project.

New equipment and research materials have been ordered to furnish the laboratory for the continuous graft project. Once these additions to the lab are installed work on the project will continue. The time lost last quarter will be regained by the addition of an undergraduate research assistant to the group. This added resource, providing both reaction and analytical support, is expected to significantly increase the progress of the project over the summer.

E-19-W32 Del. # 2

Status Report
Project E19 W32
Bayer Corporation
Feb. 1 - April 30, 1997

Graduate Student: Henry Hipps
Advisors: F. Joseph Schork, Gary Poehlein
School Chemical Engineering
Project: Continuous Polybutadiene/SAN Graft Polymerization

Much progress has been made in the Continuous Polybutadiene/SAN Graft Polymerization project sponsored by Bayer Corporation.

Experiments are planned at different reaction temperatures and residence times for each reactor with varying initiator and solids levels. These preliminary results will prove helpful in defining the design for the pending experimental approach. The factors to be varied are the initiator level, monomer feed split and the residence times and temperature in each reactor. Analysis will be done to determine conversion, graft level and efficiency, and particle size. Structural data and physical property data will be obtained by microscopy and impact testing, respectively.

E-19-032
#3

Status Report
Project E19 W32
Bayer Corporation
May 1- July 31, 1997

Graduate Student: Henry Hipps
Advisors: F. Joseph Schork, Gary Poehlein
School Chemical Engineering
Project: Continuous Polybutadiene/SAN Graft Polymerization

Much progress has been made in the Continuous Polybutadiene/SAN Graft Polymerization project sponsored by Bayer Corporation.

Experiments are planned at different reaction temperatures and residence times for each reactor with varying initiator and solids levels. These preliminary results will prove helpful in defining the design for the pending experimental approach. The factors to be varied are the initiator level, monomer feed split and the residence times and temperature in each reactor. Analysis will be done to determine conversion, graft level and efficiency, and particle size. Structural data and physical property data will be obtained by microscopy and impact testing, respectively.

E-19-W32
#4

Quarterly Report to Bayer Corporation

12/4/97

Graduate Student: Henry Hipps
Advisors: F. Joseph Schork, Gary Poehlein
Department: Chemical Engineering
Project: Continuous Polybutadiene/SAN Graft Polymerization

Much progress has been made in the Continuous Polybutadiene/SAN Graft Polymerization project sponsored by Bayer Corporation. Laboratory renovations and fumehood upgrades were finally completed allowing the reactor rig to be completely assembled. The current rig includes two CSTR's in series with the ability to split the reaction feed between the two reactors, R1 and R2. Preliminary investigations were carried out to ensure that the reactor assembly was able to perform within the specifications of the project. The focus of the research then shifted to seed latex stability which has been the primary cause for system failure in the past. Dilution of the seed latex and a decrease in the target solids level of the final latex resulted in relatively smooth runs with few process upsets due to coagulum formation. This was accomplished without adding surfactant, thus keeping the experiment similar to the current plant batch process and minimizing the opportunity for secondary nucleation.

Experiments were conducted at different reaction temperatures and residence times for each reactor with varying initiator and solids levels. Analysis of these runs shows overall conversions in the 80-90%+ range. In the case in which steady state was achieved, it was reached in roughly 3.5 residence times. These preliminary results are promising and are helpful in defining the design for the pending experimental approach. The factors to be varied are the initiator level, monomer feed split and the residence times and temperature in each reactor. Analysis will be done to determine conversion, graft level and efficiency, and particle size. Structural data and physical property data will be obtained by microscopy and impact testing, respectively.