DEDICATION

To my parents, sister and brothers, and grandparents

Ross and Katherine

Anne

Keith and Adam

Pat and Tom

Bertha and Art
ACKNOWLEDGEMENTS

Both the academic and personal education that I have received here at Virginia Tech has made me grow in a way that will benefit me and hopefully those I come in contact with for the rest of my life. This would not have been possible without the people, academic classes, and environment that is present here at Virginia Tech. Thus, I must thank those who have provided me with this opportunity. First of all, I would like to express my sincere appreciation and thanks to my advisor Dr. Garth L. Wilkes for his patience, guidance, and understanding with many of my shortcomings. I can recall the first time I talked with him during my tour here in the summer of 1995. I immediately knew afterwards that Virginia Tech was the place I wanted to come so that I could work with him. During what feels like a short stay in Blacksburg, he and his wife Barb have taken the time to make me feel welcome. Whether this was through hunting, working, or spending time with them during the holidays, I truly have enjoyed every minute with them, although they may not say the same. This will hopefully continue through the years with hunting and fishing trips.

Thanks are also due to the many other instructors that I have had here at Virginia Tech as well as at other institutions. I would like to thank Dr. Richey M. Davis for teaching an excellent course, serving on my committee, and always providing friendly words of encouragement and advice. Dr. Ravi Saraf is thanked also for his kind words of encouragement, advice, and serving on my committee. I wish to thank Dr. Timothy Long for his friendly words of encouragement, helping me with my writing, and serving on my committee. I also express my gratitude towards Dr. Bill Conger for his suggestions and serving on my committee. Drs. James McGrath and Thomas Ward are also thanked for the educational classes they instructed as well as providing interesting conversation topics from the short-course banquets. Also I would like to thank those from my undergraduate school of the University of North Dakota, go Sioux! Especially, Drs. Tom Owens, Kirk Schultz, and Jim Newell for encouraging me to go to graduate school. Dr. Robert Callahan is also thanked for his encouraging help while he was at Celgard Inc. I would like to thank the Celgard Corporation and the people there that have helped me including: Shawn Hux for help with extrusion, Dr. Don Simmons, Dr. Le Shi, Dr. Kwon Cho, Cliff Delozier for the twin screw blending, Eric Penegar, Chris Cook (Bass masters is o.k.), Ken Harleson for all the help, Paige Smith, Dr. Harold Fischer, and Dayle Blackburn for the SEM work. I would also like
to express my sincere appreciation and thanks to Dr. Ashish Sukhadia of the Chevron Phillips Corporation for his support, understanding, advice, discussions, and for allowing us to work along with himself and his coworkers on the optical studies of polyethylene films.

The chemical engineering staff of Diane Cannaday, Diane Patty, Chris Moore, and Julie, I thank you all for putting up with and helping me in times of crisis. I especially value the time and effort Stephen McCartney has taken to teach me the techniques of AFM, TEM, and his friendship. Thanks Steve! Many thanks, more than can be said in a sentence or two are given to those who have worked in this lab. I would like to thank Dr. Kurt Jordens for his wit/guidance/advice/and helpful discussions regarding many topics and Chris for his friendship/guidance. I would also like to thank Bryan for his instruction, Dave for his kindness/wit/proof-reading/and understanding, Matt also for his insight/and proof-reading skills, Varun, Cheng hong (the Great/little Panda) for his kindness, Ashish for his humor/nomenclature help, Hongyi, Ta-Hua, and others that I am forgetting. Sandy Simpkins is especially thanked her help with everything!

My family, especially my mom and dad (Katherine and Ross Johnson) for their continued support in times of feast or famine; they have always been there for me to provide guidance, wisdom, and most importantly love. Also my sister Anne, brothers Keith, Adam (a.k.a. Huge), and Jason are thanked for just being my family. It certainly would be much less fun and a lot lonelier without you all! I also hope that with me moving back to the “frigid north”, we will be able to spend much more time with each other because I miss you. My grandparents, Grandmothers Pat and Bertha as well as my Grandfathers Tom and Art, I will forever be thankful to you! Also, Rob and Leta Berhens, I thank you for simply being who you are, which are my dearest friends.

Lastly but not least, I thank God my creator, savior, and guide who has carried me when I needed help, provided sustenance when I needed food, clothed me when I was cold, and cared for me when I was sick. I can simply never do enough to thank him!