

Wayne A. Gifford
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EXPERIENCE

DIEFLOW, Chippewa Falls, WI, President, (www.dieflow.com)

1999-Present

- Design and optimization of extrusion equipment including flat dies for film, sheet and coating processes, annular dies for tube and sheet applications, flat and annular dies for foam applications and profile dies as well as multi-manifold and single manifold dies and feed-blocks for coextrusion processes. Applications include polymer, glass and metal extrusion processes and equipment.
- Troubleshooting services, vendor and equipment evaluation, on-site training programs in various areas of extrusion and expert witness.
- Marketing of fully 3-D die design software custom written to the customer's unique needs.

EXTRUSION DIES, INC., Chippewa Falls, WI , Project Scientist

1995-1999

- Created and developed tools that led to the design and production of three new products lines.
- Created and developed state-of-the-art 3-D CFD tools used routinely in the design of extrusion dies and coextrusion feedblocks for extrusion of flat sheets, films and coatings.
- Created and developed design tools which for the first time couple the 3-D flow in the die to the 3-D deflection of the surrounding die body. Implemented into friendly software so that design engineers can analyze and design deflecting dies on a routine basis.

DOW CHEMICAL RESEARCH CENTER, Granville, OH, Senior Engineer

1987-1994

- Leading authority for the design and optimization of extrusion dies for the Dow Chemical Company.
- Implemented conversion of polystyrene foam to one using only environmentally acceptable blowing agents. Required taking project from concept stage through pilot plant trials and on into production.
- Designed and guided installation a new generation of dies used for extruding polystyrene foam sheet.
- Developed 3-D finite element algorithms for solving temperature and shear dependent flow problems. Used as a tool in designing and optimizing polymer processing and extrusion equipment (dies, mixers and coolers) resulting in a great savings in equipment construction and experimentation.
- Developed methods to determine accurate viscosity correlations for highly temperature and shear rate dependent fluid. Guided experiments to determine the necessary parameters.

OWENS-CORNING SCIENCE AND TECHNOLOGY CENTER, Granville, OH

1979-1986

- Demonstrated and developed two new processes which led to new products for the company. Both required process development from the concept stage through pilot plant trials and on into production.
- Developed general purpose 2-D and 3-D finite element program for solving temperature dependent flow problems. Used extensively in the design of liquid applicators and dies resulting in substantial savings in development costs. Also used to determine the important parameters affecting fiber forming enabling substantial improvements in process efficiency.

EDUCATION

UNIVERSITY OF MINNESOTA, Minneapolis, MN

Ph.D. Chemical Engineering Thesis advisor: L.E. Scriven

1979

M.S. Chemical Engineering

CLARKSON UNIVERSITY, Potsdam, NY

B.S. Chemical Engineering

Continuing Education

Management Essentials, Quality Performance Improvement Workshop, Kepner Tregoe Decision Making, Design of Experiments, Statistical Process Control, Deming Workshop, Building High Performance Work Teams, Polymer Extrusion and Blending Workshop, other misc. industrial and professional short courses.

PUBLICATIONS

Over forty papers and publications on the efficient application of 3-D computational fluid dynamics and finite element methods to design extrusion and coextrusion equipment including the solution of 3-D co-extrusion and free-surface flow problems. (List available upon request).

PROFESSIONAL ASSOCIATIONS

Member of the Board of Directors of the Society of Plastics Engineers (Extrusion Division).

Listed in *Who's Who in Plastics & Polymers*, *Who's Who in Technology*, *Who's Who in Science and Engineering*, *American Men and Women of Science* and *2000 Outstanding Intellectuals of the 21st Century*.

Invited speaker at universities, professional societies and industry including the University of Wisconsin, the University of Minnesota, Ohio State University, U C Davis, TAPPI, ANTEC, Gordon Research Conference and numerous plastics conferences. Member of the Society of Plastics Engineers, the Society of Rheology, the American Institute of Chemical Engineers and the American Society of Mechanical Engineers.

OTHER ACTIVITIES

Engineering Duty Officer (Lt. Com.) in the U.S. Naval Reserve (also former active duty nuclear power officer). Top-secret security clearance. Vietnam era veteran. Sailing. Reading. Sunday school teacher.