

# Roger Faulkner Curriculum Vitae

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**ROGER FAULKNER**

**President, Rethink Technologies, Inc.**

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## **SUMMARY**

Mr. Faulkner is an established scientist/entrepreneur who is a practical inventor with special skills and insight into the art and science of polymer systems formulation.

- Possesses an exceptional grasp of how chemistry relates to polymer processing and properties
- Created materials science patents related to cookware and fluoroelastomer technology
- Presently is pursuing a number of inventions in materials science and technology

## **EDUCATION**

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|-------|--|--|
| Ph.D. | Polymer Science<br>(1984, not completed, ABD)                                | University of Akron (1980-<br>emphasis: reactive polymer processing) |
| B. S. | Natural Science University of Akron, 1980<br>chemical engineering, chemistry |  |

## **WORK EXPERIENCE**

### **President and Founder, Rethink Technologies, Inc.**

1/2004 - present

- Recently relocated lab to Cambridge, NY, with a focus on formulation development.
- Created a factory to produce special dispersions (Kevlar pulp and exfoliated nanoclays in polymers); filed patents to protect the technology; spun off this business to Us, Unlimited
- Developed fluoropolymer-based thermoplastic vulcanizates for Daikin America, and filed three US and PCT patents for Daikin.
- Continuing consulting business solving advanced elastomer related problems.
- R&D areas: dynamic vulcanization, microballoons, natural fiber composites, and syntactic foam; numerous patent applications have been filed (status is proprietary)

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## **Research Fellow, IMMIX Technologies, LLC (Cri-Tech Division)** 12/98-1/2004

- Formulation of specialty elastomers for fuel & heat resistance; customer service; factory troubleshooting
- FKM & HNBR (Viton, Therban) formulations & development of novel ancillary rubber Chemicals
- Developed world-class understanding of FKM cure chemistry
- Filed for 9 US patents, three issued
- Supported marketing activities with technical marketing presentations

## **Technical Director, New Era Materials** 6/99-10/31/2000

Formulation of specialty plastics compounds; technical troubleshooting (New Era was a startup sister company to Immix).

- Electrically conductive formulations (fluoroplastics, nylon, PPS, PPA, PP)
- Syntactic foam (insulating tape, controlled density for floats)
- Factory problem solver/supported marketing activities/ filed for 2 US patents
- New Era went bankrupt

## **Technical Director, Erickson Materials, Inc.** (Woburn, MA) 5/97-11/98

Size reduction of elastomers to fine powders: development of patentable technology in the area of size reduction and chemical modification of elastomer powders.

- Filed for 3 US patents
- Developed quality assurance program
- Factory problem solver
- Supported marketing activities
- Erickson Materials was a startup company that did not prosper; they are currently bankrupt.

## **Group Leader of R&D, Ansell, Inc.** (Dothan, AL condom facility) 10/96-4/97

Formulation of condoms, and of condom stripping, finishing and lubricating agents. Specific achievements include:

- Identified cause of premature blistering of condoms with spermicidal lubricant
- Improved developmental polyurethane condom, advancing it towards commercialization
- Developed new improved miscible spermicidal lubricant;

## **Director of Research and Development, White Rubber Corporation** 1/95-4/96

Formulation of rubber gloves and sleeves for electrical linemen; tech service to identify cause of field problems; in charge of QC and specifying new processing equipment. Specific

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achievements include:

- Reformulation of sleeve rubber compound to improve productivity 45% (worth \$330,000 per year);
- Developed patentable technology to enhance properties and productivity of gloves
- Reformulated solvent composition to reduce entrained volatile solvent in the products by 50%
- Developed low cost fluid to replace CFC's in dielectric testing of sleeves
- Developed new GC method for solvent analysis compatible with ISO 9002 standards

White Rubber decided to cease all R&D activities as a cost-saving measure.

## **Director of Research and Development, SealMaster, Inc.**

1/93-12/94

Formulation of asphalt & coal tar pavement maintenance products; design of manufacturing equipment; formulation of tennis court and other athletic surface paints; EPA compliance officer. I also initiated and finalized an agreement with Allied-Signal to develop pavement maintenance applications for their patented low-volatility coal tar. Specific achievements include several commercial new products, including:

- MasterSeal™ II, the new flagship asphaltic pavement coating for SealMaster
- Improved, low cost synergistic preservative system to prevent storage decay of asphaltic emulsions containing cellulosic fiber
- AsPen™ AC, and AsPen™ RT deep penetrating pavement conditioners
- New improved Crack Magic™, pavement crack sealer;
- LevelMaster™ 2.0 primer/leveler for tennis courts;
- Reformulated CourtMaster tennis court paints.

I left SealMaster to be closer to my daughter and aging parents.

## **US Senate Candidate (Wisconsin Republican Primary)**

2/92-9/92

- Obtained 20% of the Republican primary vote (47,254 votes) using minimal funds, against a sitting senator (Bob Kasten, who was defeated in the general election)
- Ran as a "Green Republican" to show that free markets can be environmentally responsible.

## **Public Intervener, Public Service Commission of Wisconsin**

9/91-2/92

- Authored more testimony than any other public intervener in the Advance Plan 6 electric utility regulatory hearings
- Worked effectively with PSC staff, utility representatives, and environmental activists

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## **Research Specialist, UW Madison, Department of Forestry**

4/90-8/92

- Led research on polymer/wood composites, including advanced epoxy-based impregnation systems and polymeric preservatives
- Studied silicate impregnation/preservative systems based on sodium polysilicates

Professors Ray Young and Roger Rowell (USDA Forest Products Laboratory) were sponsors.

## **Independent Inventor**

1989/1990

Worked on two ideas concurrently, promotion of a new polymer (MIIR, Maleic Anhydride Grafted Butyl Rubber) developed while at Monsanto (for which I had obtained a release of claims from Monsanto), and development of novel ceramic-coated cookware. Although I was not successful, I did achieve several things that were significant for my learning curve as an entrepreneur:

- Filed US patent on MIIR
- Made presentation to Venture capital forum on MIIR business;
- Conducted high level meetings with Polysar executives about MIIR;
- Prepared sample of ceramic-coated cookware with Westbend Industries;
- Filed patent on cookware
- Made a deal with All-Clad on the "The Gold Standard" bakeware based on this work

## **Research Specialist, Monsanto Rubber Chemicals Division**

1986-1989

Responsible for reactive polymer processing to develop new, chemically modified elastomers. Also engaged in synthetic organic chemistry research.

Specific accomplishments include:

- Discovered a new hybrid crosslinking system for conventional elastomers;
- Discovered a new class of zwitterionic dithiocarbamate "ultra accelerators;"
- Developed synthesis for maleic anhydride-grafted EPDM and butyl rubber;
- Discovered miscible polymer blends of graft-modified elastomers;
- Filed 80 invention disclosures during my tenure;
- Served as local Chairman of TCM (Technical Community of Monsanto).

## **Supervisor of Formulation Development, West Company**

1984-1986

Responsible for the formulation of proprietary thermoplastic elastomers (TPE's) and injection moldable thermo sets for medical/pharmaceutical applications;

- Improved strength, processability, bio-compatibility, and stability of TPE's
- Evaluated processing equipment

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- Modified injection mold and compounding equipment designs
- Developed radiation-cured TPE's for improved creep resistance

## **Tire Engineer, B.F. Goodrich Tire Division**

1979-1981

- Invented a new low cost silica-rubber coupling agent based on "blocked isocyanates"
- Developed useful mathematical model of air permeation in tires
- Completed intensive training program on tire technology

## **Chemist, Smithers Scientific Service**

1978-1979

- Performed ASTM and other standard chemical analyses
- Developed improved pyrolysis/IR method for analysis of rubber blends

## **Research Technician, B.F. GOODRICH R&D**

1976-1977

- Developed significant understanding of the technology of in situ toughening
- Developed a commercial epoxy-based room temperature curing adhesive

## **QC Technician, Polson Rubber Company**

1976-1977

- Developed significant understanding of the technology of in situ toughening
- Developed a commercial epoxy-based room temperature curing adhesive

I have worked my way up in the polymer industry. The fact that I have worked on so many different types of formulation has given me special skills at dealing with any type of formulated polymer-based system., both in regard to ultimate properties and processing.

## **PUBLICATIONS**

- Rubber Division ACS paper #30, Cincinnati, October, 2006, "Partially Exfoliated NBR/Nanoclay Composites"
- SPE paper #1058, ANTEC 1994 in Chicago: "Development of a stiff, void-free, low density wood replacement"
- US Patent 6,737,479: "Dynamically Cured Fluoroelastomer Blends;" this patent covers the "FKX" product line of Cri-Tech; these are fluoroelastomers that can be cured at atmospheric pressure without blistering.
- US Patent 6,538,069: "Polymer blends of PVDF thermoplastics blended with FKM fluoroelastomers"

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- US Patent 6,486,247: "Scorch inhibitors for bisphenol-cured fluoroelastomers"
- US Patent 6,197,438: "Foodware with ceramic food-contacting surface"
- "Maleinized Butyl Rubber: Effect of Production Method on Properties", American Chemical Society Rubber Division Technical Conference, October 17-20, 1989, paper #90.
- "Reaction Wave Polymerization: Applicability to Reactive Polymer Processing", Polymer Process Engineering 3, 113-126, 1985.
- "Reactive Drawing of Elastomeric Ionomers", Second International Conference on Reactive Processing of Polymers, Pittsburgh, PA (11/82).