

# PART Consulting LLC

Conroe, Texas.

# Who is PART Consulting

- ▶ PART Consulting LLC is a small firm providing technical and marketing services to clients on thermosetting chemistry for numerous applications.
- ▶ PART Consulting has been in business over 7 years. [ 2015]
- ▶ We have also worked with thermoplastic materials for several applications

# Who is PART Consulting

## ▶ Services and Projects completed include:

- Technical support for R&D
- Production support for scale up of products
  - Assist in scale up of new products from lab to pilot and then production
- Technical Marketing support and direction
  - How can clients expand their business with existing products?
  - What do they need to get into new markets?

## ▶ Other PART Services

- EHS
  - Material Safety Data Sheet generation
- Training
  - Testing and evaluations
  - ISO Compliance
- New plant start up

## ▶ PART Resources

- 2 full time partners
  - Technicians and other professionals
- Office and lab facility
- University collaboration for projects
- Network of professionals to support PART Consulting
  - Technical [ Chemistry and Engineering]
  - Marketing [ Technical and Business]

# Philip Anderson



## Formulator:

US Polymeric (Fiberite)  
BMI / Polyimide / Polyurethane

## Resin Manufacturing

Batch Chemical  
Manufacturing  
Process Development  
Regulatory / EHS

- ▶ Retired Chemist/Manager with more than 30 years of experience in
  - Production
  - Process development
  - Quality assurance, Product management
  - EHS
  - Regulatory compliance, Auditing
  - Product registrations
  
- ▶ Solid background in production and development scale-up of:
  - epoxies, amines, benzoxazine, cyanate esters,
  - bismaleimides, and polyimides.
  
- ▶ Previous Experience at:
  - Dow
  - US Polymeric (Fiberite)
  - Ciba-Geigy/Vantico/Huntsman

# Roger Tietze



- ▶ **Retired Laboratory Manager**
  - Multiwire [electronics – Printed Circuit Board composites]
  - Ciba Geigy / Vantico / Huntsman
- ▶ **More than 30 years of experience with**
  - Research and Development
  - Application Consulting
  - Manufacturing and Production
- ▶ **Chemist/Lab Manager with a solid background in**
  - Epoxy, polyurethane, bismaleimides, benzoxazines, and other thermosets
- ▶ **Chemist with**
  - over 20 published papers
  - Over 12 patents

# Laboratory Services

- ▶ PART Consulting laboratory offer the following services to clients
  - Laboratory evaluations of thermosetting building blocks
    - From A stage material to B stage and C stage evaluation
    - Testing of A stage and B stage properties of materials
      - Gel Time, liquid viscosity, DSC analysis, stability, reactivity, melt viscosity, other
    - C Stage Testing
      - Thermal, mechanical, Chemical Resistance, Flammability, Electrical, etc.
- ▶ PART Consulting is experienced with all the major thermosetting chemistries
  - Epoxy, polyurethane, benzoxazine, bismaleimide, cyanate ester, polyimide, polyester

# Laboratory Capabilities

- ▶ Reaction Processes
  - Adduct reactions
  - Formulation Blends
  - Synthesis reactions (limited)
  
- ▶ Sample preparation of application specimens
  - Castings of formulated resin products
  - Prepregs [fiberglass & carbon fiber]
  - Neat Resin Castings
  - Laminate Composites
  - Adhesives / Coatings

# Lab equipment

- ▶ Laboratory Hood 6' x 4' / ventilated
  - Reaction Glassware
    - 1 liter to 3 liters
- ▶ Kilo Lab Reaction Vessel and Support accessories
  - 5 – 20 liters / oil heat
- ▶ Wet analysis
  - Epoxy Equivalent Weight/Total Chloride Analyses
  - Viscosity/
- ▶ Brookfield Melt Viscometer/Rheometers
- ▶ Metal Molds for Neat Resin Castings
  - 10" x 10 size
  - Variable thicknesses



# Technical Partner

- ▶ PART Consulting has a technical arrangement with the Texas A&M University [TAMU]
- ▶ Chemical analyses
  - FTIR, GPC, GC, other
- ▶ Testing and equipment access
  - Thermal Analysis [TA Instruments]
    - DSC, TGA, DMA, ARES Rheometer
  - Mechanical Testing
    - Instron and MTS / Tensile, toughness and other tests
    - Room temperature or elevated temperature

# PART Consulting

## Contact Information

- ▶ Roger Tietze
  - [rtietze@partconsulting.com](mailto:rtietze@partconsulting.com)
  - 936-337-3321 [office]
  - 281-798-3475 [direct]
- ▶ Philip Anderson
  - [panderson@partconsulting.com](mailto:panderson@partconsulting.com)
  - 936-337-3321 [office]
  - 713-454-9092 [direct]

5/15/2023

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