



SOCMA Presentation

Booth 214

# Company Overview - locations



- Rotary Calcining
- High Temp Sintering
- Spray Drying
- Blending
- Milling

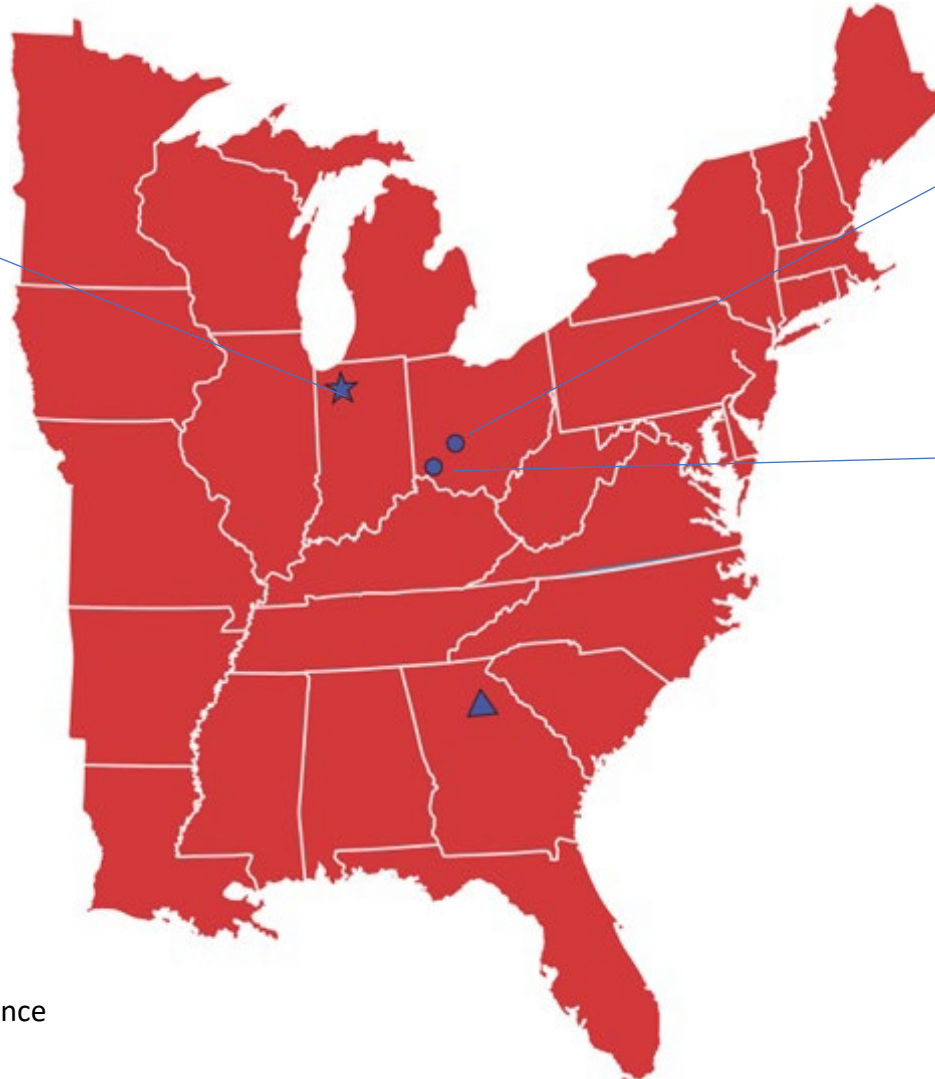


Affiliates

NAK

- Rotary Calcining Repair
- Rotary Calciner Maintenance

Sui Sun



RTprocess

advancing technologies

- Calcining
- Blending
- Milling



- Spray Drying
- Batch Reactions
- Milling
- Blending



# PPT

## COMPANY TIMELINE

POWDERTECH  
CORPORATION

**PTECH**  
POWDER

1973



INDIANA GENERAL

1988



POWDER PROCESSING  
& TECHNOLOGY

2002

PPT INSTALLS  
TRI-MER FILTER  
SYSTEM



2015



PPT FORMS INNOVATIVE  
MATERIALS CENTER

2016

PPT ACQUIRES  
CINCHEMPRO



2018



PPT ACQUIRES  
RT PROCESS

2021

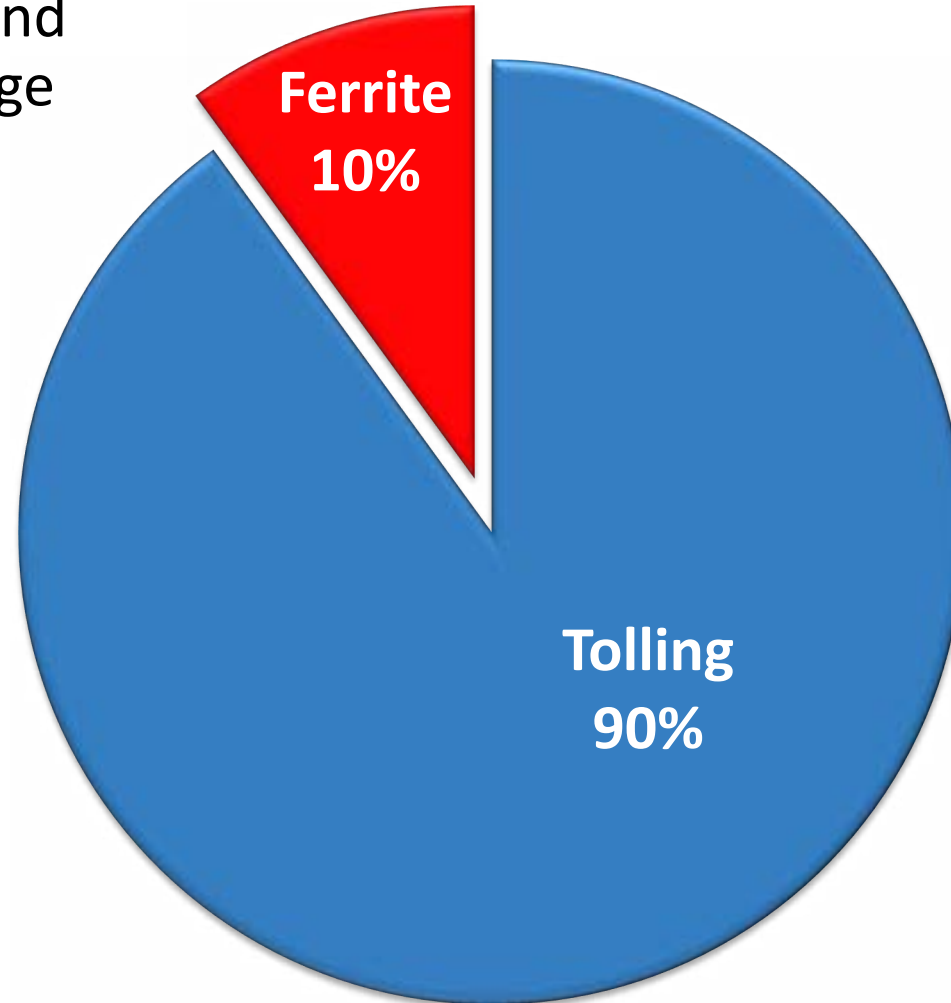
PPT INSTALLS  
ROLLER HEARTH  
KILNS



2022

# Business Make-up

- Ferrite – Applications and Development Knowledge
  - Iron Based Electronic Components
  - NiZn Ferrites



- Rotary Calcining
- High Temperature Firing
- Spray Drying
- Impregnation
- Batch Operations
- Physical Unit Operations

# Key Value Drivers

- Scale-up / Process Development
  - Personnel - Knowledge
  - Equipment – Various Scales
  - Analytical – Data Development
- Equipment Capability
  - Multiple Options on Key Unit Ops
  - Scale For Tonnage Quantities
- IP
  - 20 Year Reputation Earned with Major Companies



**PPT**  
POWDER PROCESSING & TECHNOLOGY, LLC

# Major Unit Operations – Spray Drying

- Valparaiso – Seven Production Dryers + Pilot Unit
  - 3' Pilot Unit
  - 9.5' – 20' diameter
  - Nozzle and Disc Atomizer Capability
- Cinchempro – Two Production Dryers + Lab Unit
  - 10' & 16' Diameters
  - Disc Atomizer
  - Explosion Suppression for Class 1 dust ( $K_{st} < 200$ )



# Major Unit Operations – Rotary Calcining

- Valparaiso
  - Nine Indirect Fire Production Units 14” – 48” Diameters
  - Gas and Electric
  - Inconel – 1100°C
- Valparaiso
  - Direct Fired Calciner – 1400°C (Ceramic Lined Tube)
  - 42” Diameter; 40 Feet Heating Zone



# Major Unit Operations – Rotary Calcining

- Valparaiso
  - Two Pilot Scale (6") calciners
  - Electric
- RT Process
  - Two 10" Semi-works scale calciners
  - Electric
- Capability
  - Atmosphere
  - NOx Control
  - Thermal Oxidizer
  - Feed Systems





# Major Unit Operations – Kiln Calcining / Firing / Sintering

- Three Tunnel Kilns
  - Max Temp. – 1480°C
  - Continuous Push 34 or 37 Cars of
  - 6 ~ 24 Hour High Temperature Soak Time
- One Shuttle Kiln
  - Max Temp. – 1340°C
  - Two Cars of 38"W x 144"L x 56"H
- Two Periodic Elevator Kilns (Pilot Plant)
  - Max Temp. – 1480°C
  - One Car of 26"W x 26"L x 40"H
- Two Roller Hearth / Pusher Kilns –
  - Max Temp. – 1400°C
  - 2 – 8 Hours Residence Time



# Supporting Unit Operations

- Solid – Liquid Impregnation & Coating
  - Munson Batch Mixer w/ Nozzle Spray
  - Ribbon Blenders w/ Liquid Spray
  - PK Blenders w/ Liquid Spray
  - Plowshare Blenders / Mixers
  
- Liquid Batching & Preparation
  - Batching tanks for Colloidal Suspensions up to 80% Solids
  - High Shear Mixing with Wet Milling
  - Jacketed Tanks for Heating / Cooling Prior to Spray Drying



# Supporting Unit Operations

- Milling/Blending/Size reduction
  - Jet Milling
  - Hammer Milling
  - Vibratory Milling
  - Ball Milling
  - Palla Mill
  - Ribbon-V-Double Cone Blenders
  - Plowshare Blenders
  - Screening



# QA/QC Capabilities

<u>Equipment</u>	<u>Uses</u>
<input type="checkbox"/> Laser Particle Size and Shape Analyzer	Particle Size and Shape (0.04 ~ 500 $\mu\text{m}$ )
<input type="checkbox"/> Surface Area Analyzer (Micromeritics TriStar)	BET Surface Area
<input type="checkbox"/> Surface Area Analyzer (Micromeritics Gemini)	BET Surface Area
<input type="checkbox"/> X-Ray Fluorescence Spectrometer	Composition Analysis
<input type="checkbox"/> Carbon Analyzer	Carbon Content
<input type="checkbox"/> Viscometer	Viscosity of Liquid Samples
<input type="checkbox"/> pH Meter	Cl Content or pH
<input type="checkbox"/> Solids Contents Test Unit	Solids Percentages
<input type="checkbox"/> Moisture Analyzer	Moisture Content
<input type="checkbox"/> Flowmeter	Powder Flow Rate
<input type="checkbox"/> Dry Sieve Screen	Dry Particle Size Distribution
<input type="checkbox"/> Densitometer	Powder Bulk Density and Tapped Density
<input type="checkbox"/> Strength Tester	Mechanical Strength
<input type="checkbox"/> Flux Meter	Magnetic Saturation
<input type="checkbox"/> LCR Meter / Impedance Analyzer	Electromagnetic Properties
<input type="checkbox"/> Tube Kilns / Batch Kilns	Calcining / Sintering
<input type="checkbox"/> Helium Pycnometer	True/Bulk Density



# EHSS

- Health & Safety Activities
  - Dedicated Team
  - Suggestion Programs
  - Incentive Programs
  - Routine Monitoring
  - Job Task Analyses
  - SOCMA - Chemstewards
- Environmental
  - Title V Permit
    - CEMS Systems
    - On-line Parameter monitoring
    - Periodic Audits
  - No Contaminated Water Discharge
  - All Wastes Profiled and Shipped Offsite



# Booth 214

- Bryan Colter
- Sarah Freeland
- Discuss ways PPT can help you advance your business goals
- Drop off your business card to enter for a drawing to win an Apple watch

