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SACHEM CleanFlex:

Your High Purity, High Volume Tolling Solution

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SACHEM Overview



OUR APPROACH

We align ourselves with customers' goals and utilize our expertise in ionic technology to enable the performance needed to reach those goals.

Company History

-
- 1946**
Mooney Chemicals Founded
 - 1984**
Southwest Analytical Chemicals Acquired
 - 1991**
SACHEM (Cleburne, TX) Facility Established
 - 1998**
SACHEM Asia Osaka (Japan) Established
 - 2001**
SACHEM Europe Netherlands Acquired
 - 2006**
SNTech Begins
 - 2008**
SACHEM Wuxi (China) & Sakai (Japan) Established
 - 2016**
SACHEM Cleburne, TX Expansion
 - 2017**
SACHEM Wuxi (China) Expansion
 - 2018**
SACHEM Mumbai (India) Office Established

SACHEM Profile



Privately Held Company



300

300 Associates Worldwide



4

4 Manufacturing Facilities



4

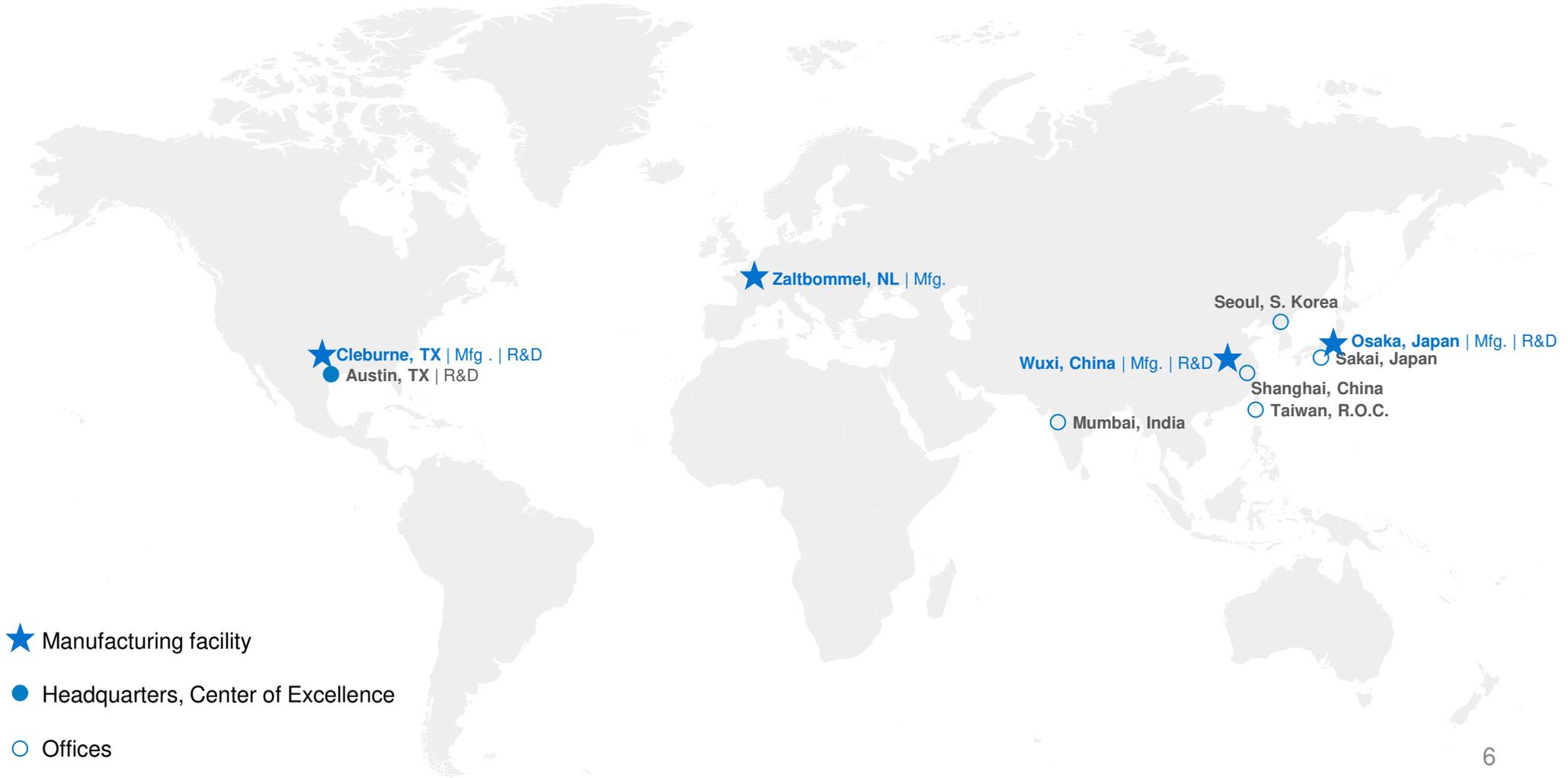
4 Research & Development Centers



Strong Commitment to Health, Safety, Security, Environment and Ethics



SACHEM is a Global Company with a Network that Spans Over 30 Countries



SACHEM Austin, TX USA



- Global Headquarters
- Research & Development

SACHEM Cleburne, Texas USA



- South Central USA
Location with 60 acres
- Manufacturing, Research & Development
- Fully Permitted and
Expandable with Approval

SACHEM'S Area of Expertise

CHEMICAL SCIENCE BASED APPROACH

- Molecular design of products to meet target application performance
- Selective synthesis of new materials meeting stringent purity and performance targets for specific markets
- Production of high purity and precision formulations at commercial scale

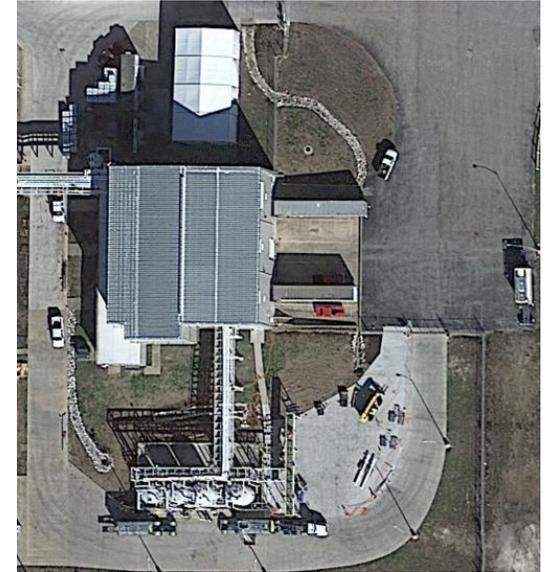
PARTNERSHIPS

- Close relationships with customers, suppliers and equipment manufacturers to design products for new applications



CleanFlex Custom Blending

CleanFlex High Purity Blending Facility



~1600 sqft

Contract manufacturing for multi-component blends

- Manufacturing of high-purity formulated solutions and blends:
 - Management of multiple raw materials
 - Precision blending and filtration
 - Finished good packaging
 - Sampling, QC, and shipment
 - High volume and in a tightly controlled, high purity environment
- SACHEM's CleanFlex custom blending facility offers all this along with the skilled workforce trained to meet the stringent requirements of high purity industries.
- Located inside SACHEM's flagship plant in Cleburne, Texas



SACHEM's CleanFlex facility is ready to be your primary manufacturing location in the US or to expand your manufacturing capacity quickly with minimal capital investment

Blending Capability

- 3 High Volume Blend Tanks
 - 4,000 gal, Teflon-lined SS, 2-level agitation
 - Load cells (± 10 lb accuracy)
 - External heat exchanger to adjust incoming raw material temperature
 - 2-stage filtration, 30" filters, filtration to 2nm capable
 - Rockwell-based automated processing software
 - Honeywell data acquisition/historian



Raw Material Component Handling

- 6-component Liquid Blend Capability
 - 4 bulk raw material storage tanks
 - 3-space truck/ISO parking for bulk off-loading
 - 1 line to charge directly from tote
 - DI Water
 - All lines manifolded to feed all blend tanks



Ultra Clean

- Clean Room processing facility
 - Great room Class 10,000
 - Product filtration area Class 1,000
 - Finished goods packaging Class 100
- Gowning room and air shower for cleanroom access
- Temperature-controlled



Clean Packaging & Utilities

- 2-bay automated packaging station
 - PFA piping from blend system to packaging station
 - Package into totes, drums, separately-valved line for carboy packaging (bulk loading not available)
 - Package scales capable to $\pm 1\text{lb}$ accuracy
- On-site DIW system
 - 18 M Ω -cm, 1.5ppb TOC
- On-site N₂ system
 - Available N₂ blanketing for RM and blend tanks, FG packages



Quality and Logistics

- QC capabilities
 - On-site RION KS-19F 0.04-0.13 μ m LPC measurement
 - Blend tank sampling ports for in-process QC as needed
 - Access to SACHEM full-service QC lab
- Internal and external warehousing space
- 3-bay dedicated loading dock
- Class 10,000 general storage space (spare parts, PPE, etc.)
- Dedicated control room and office space



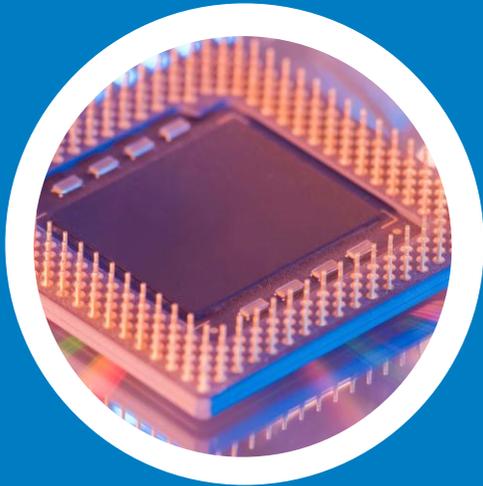
CleanFlex Summary

- Materials handling
 - Liquids
 - Solids handling capability can be added
 - Corrosives
 - Flammables
- Quality systems
 - Fully certified QC lab
 - Staff training based on Intel semiconductor system



SACHEM Product Portfolio

Industries & Applications Overview



ELECTRONIC MATERIALS

Integrated Circuit, TFT-LCD,
Printed Wiring Board



STRUCTURED MATERIALS

Zeolites, Catalytic Converters



SPECIALTIES

Carbohydrates, Polymers, Personal
Care, Ag Chem, Pharma, Advanced
Ceramics, Casting, Energy

SACHEM Locations



Cleburne, TX



Wuxi, China



Zaltbommel, Netherlands



Austin, TX (HQ)



Osaka, Japan



Sakai City, Japan

Electronic Materials



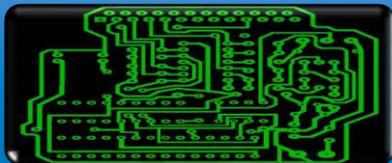
Envure™

- IC Chemicals and Formulations



Devera™

- TFT-LCD Chemicals and Formulations



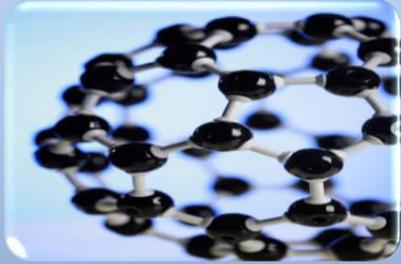
Tronos™

- PWB Chemicals and Formulations



Mobius System®

- Recycle System and Services



ZeoGen™

- Structured Directing Agents for Zeolites



Avanta CC™

- Catalytic Converter Manufacturing

Energy Materials



Endura CS™ & CSG™

- Clay Stabilizers for Oilfield
- Shale Inhibitors



Avanta EL™, PV™, RA™

- Electrolytes
- Photovoltaic
- Reducing Agents



Energy Storage

- Core-Shell Cathode Coating Technology

Specialties



Reagens™, GMAC™ & DCP

- Carbohydrates



Catana™

- Polymer



Ferrion™

- Agrochemical



Salego™

- Pharmaceutical

Specialties



Saskine™

- Personal Care



Avanta AC™

- Advanced Ceramics
- Investment Casting



SBS™

- SACHEM Biotechnology Solutions

SACHEM & Sustainability

SACHEM & SUSTAINABILITY

- ▶ We will leverage our ionic technology driving force, applications marketing expertise, and customer focus to create sustainable solutions that protect the environment, improve the quality of life, and support the creation of a circular economy.
- ▶ We will improve and transform our operating processes to be more sustainable. Our holistic approach here will include yield improvement, energy improvement, waste reduction and developing altogether more sustainable processes.
- ▶ Our business processes and work practices will promote, support and reflect a sustainability mindset that is deeply woven into the fabric of the company.



Achievement of an Eco-Friendly scheme By TMAH recycle system : **Mobius System**[®]

Semiconductor Fab



USER MERIT

- TMAH & Water Recycle
- Energy Reduction
- Stable supply

**Zero emission
&
Improved
profitability**

Footprint Reduction
Energy Reduction
Waste Reduction



Supply of Eco-Friendly chemicals



Collaboration





SachemInc.com
QUESTIONS OR COMMENTS?

SACHEM