

2024

MILLIKEN & COMPANY

# FINE CHEMICALS

Delivering chemistry with purpose

*Milliken*






## PRESENTATION OVERVIEW

- Milliken overview
- Fine chemical overview
- Sustainability
- Range of capabilities
- Case studies
- Conclusion







## OVER 150 YEARS OF EXCELLENCE

- Founded in 1865 in Maine
- Privately held, fifth generation
- Diversified Industrial company
- Recognized for innovation leadership and manufacturing excellence



40+

Manufacturing locations



15

Countries



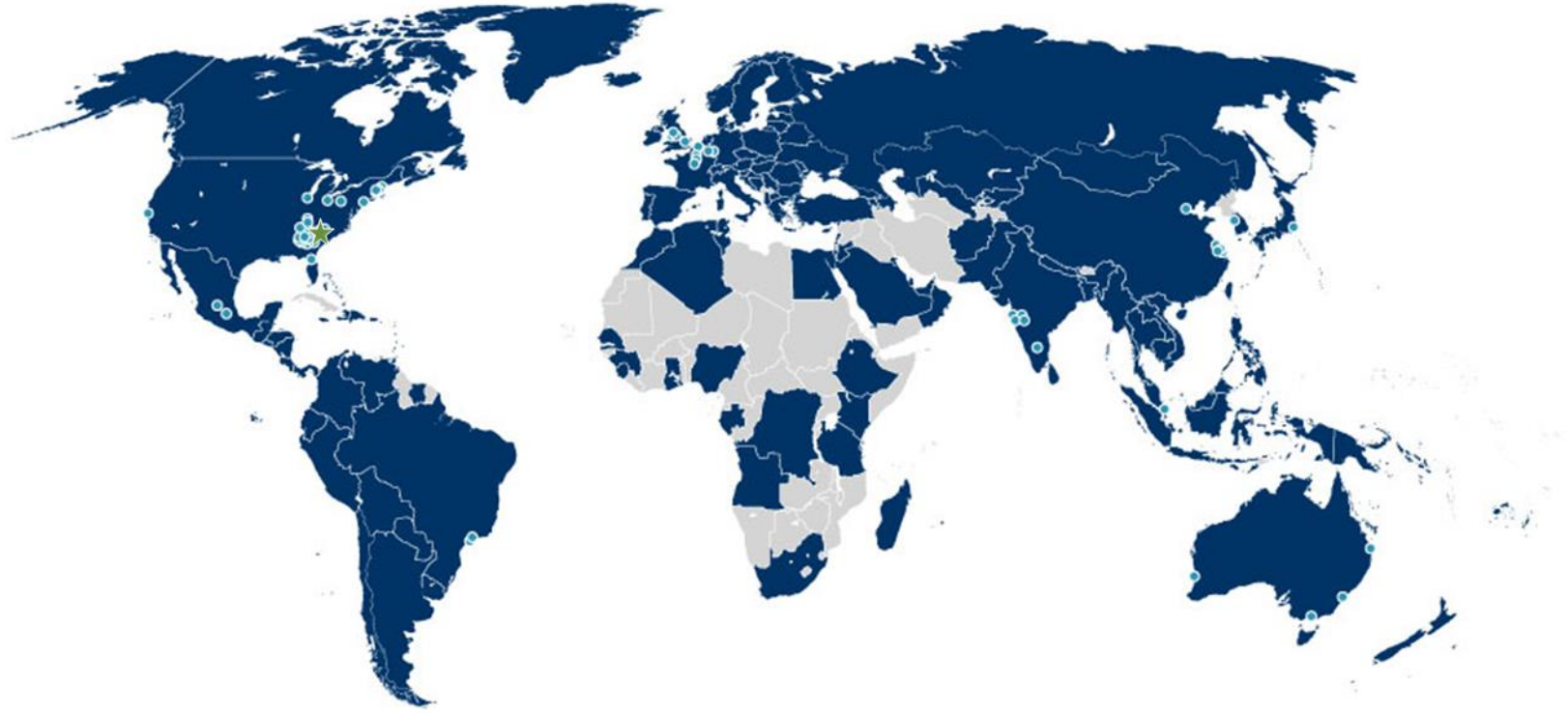
8000+ Associates



11,000+ Products



## MILLIKEN AT A GLANCE



APPAREL



AUTOMOTIVE



BUILDING AND INFRASTRUCTURE



CONSUMABLES



DURABLES



HOSPITALITY



INDUSTRIAL



MEDICAL



MILITARY



PACKAGING

# MILLIKEN BUSINESSES

## TEXTILE



Apparel  
Industrial  
Automotive

## CHEMICAL



Colorants & Ingredients  
Plastic Additives  
Fine Chemicals  
Coating Additives  
Encapsys

## FLOOR COVERING



Carpet  
Luxury Vinyl Tile  
Mats

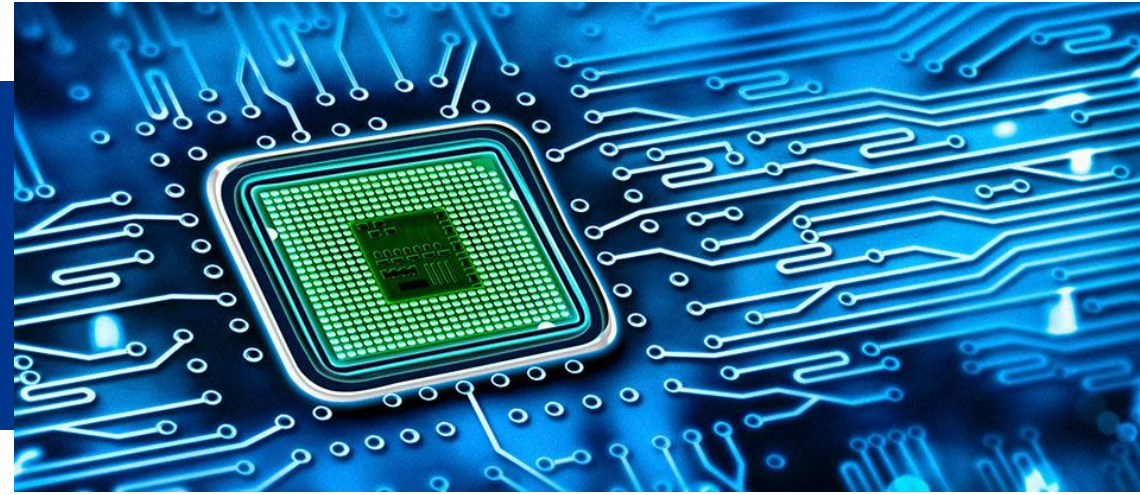
## HEALTHCARE



Wound Dressings  
Compression Bandages  
Hemostatic Dressings



60+ YEARS OF EXPERTISE SAFELY HANDLING REACTIVE AND HAZARDOUS MATERIALS



Net-zero targets approved by



SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

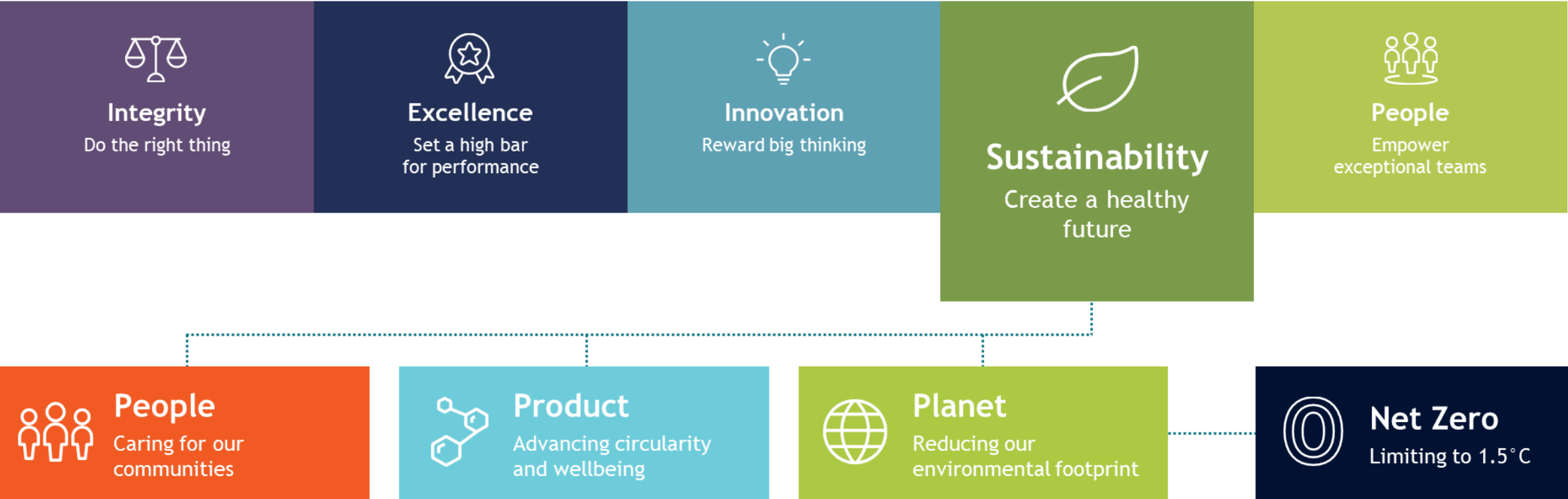


# SUSTAINABILITY IN OUR PURPOSE AND VALUES

PURPOSE

Together we strive to positively impact the world around us for generations to come.

VALUES



# MILLIKEN'S NET-ZERO TARGETS ARE SBTI APPROVED

## NEAR TERM TARGETS 2030

- Reduce absolute scope 1 and scope 2 greenhouse gas emissions 50.4% from a 2018 base year.
- Reduce absolute scope 3 greenhouse gas emissions 30%.

## LONG TERM TARGETS 2050

- Reduce absolute scope 1 and scope 2 greenhouse gas emissions 90% from a 2018 base year.
- Reduce absolute scope 3 greenhouse gas emissions 90%.
- Neutralize any residual emissions

## OUR NET-ZERO TARGETS

- Aligned with 1.5
- Third-party validated
- Progress reported annually



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

THE NET  
ZERO  
STANDARD

APPROVED NET-ZERO TARGETS

### Questions?

Learn more about Milliken's science-based net-zero targets.



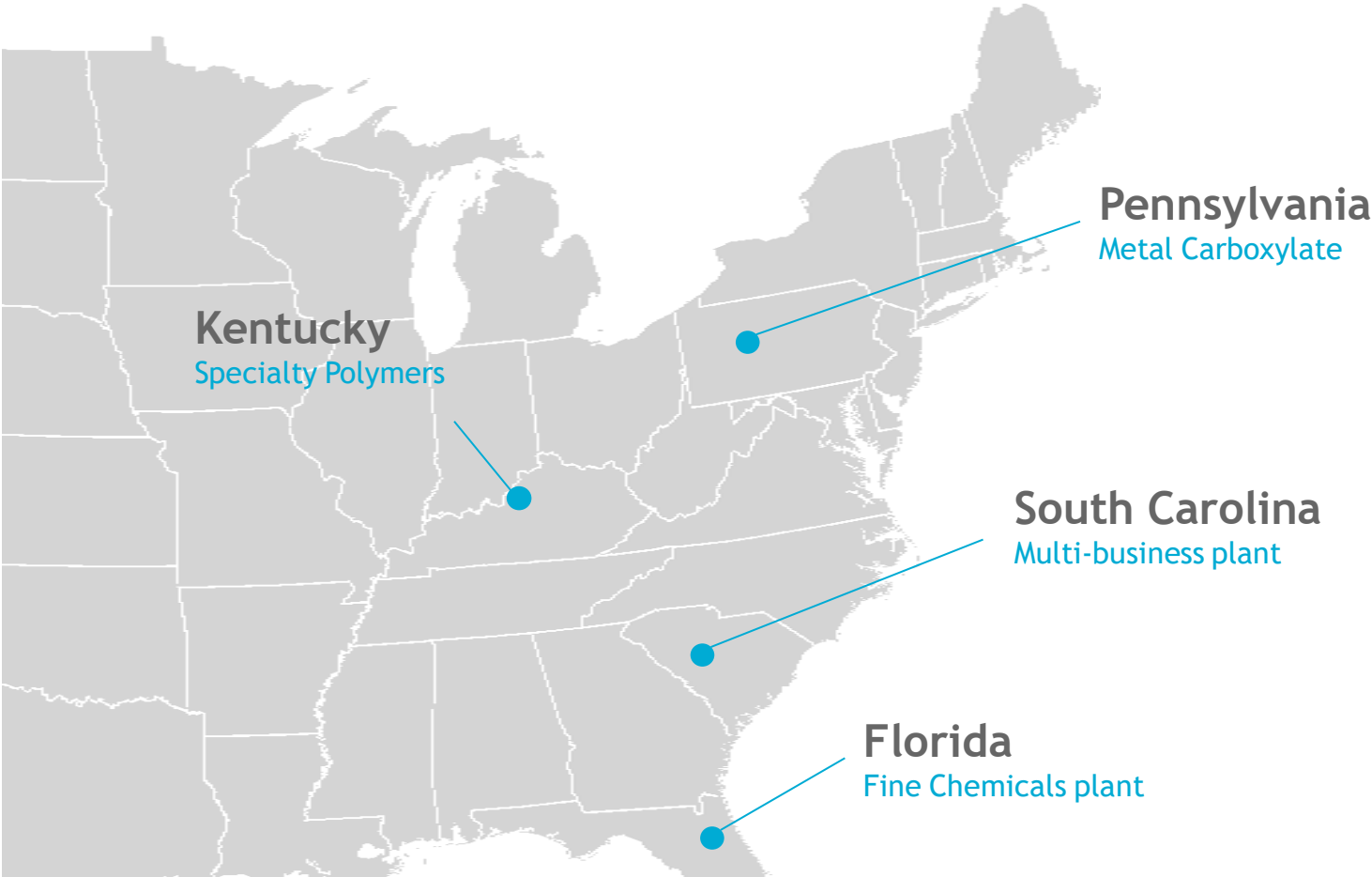
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# MANUFACTURING PLANTS

Our US manufacturing capabilities make us a responsive partner, allowing us to quickly and efficiently meet our customers' needs



## Range of capabilities

### Semiconductor

- Silanes
- Aminosilanes
- Alkoxysilanes

### Specialty Silicones

- Silanes
- Siloxanes
- Aminosilanes

### Organic Fine Chemicals

- Cyclic Hydrocarbons
- Anhydrides
- EO/PO
- ATO-ESD
- Silver Antimicrobial

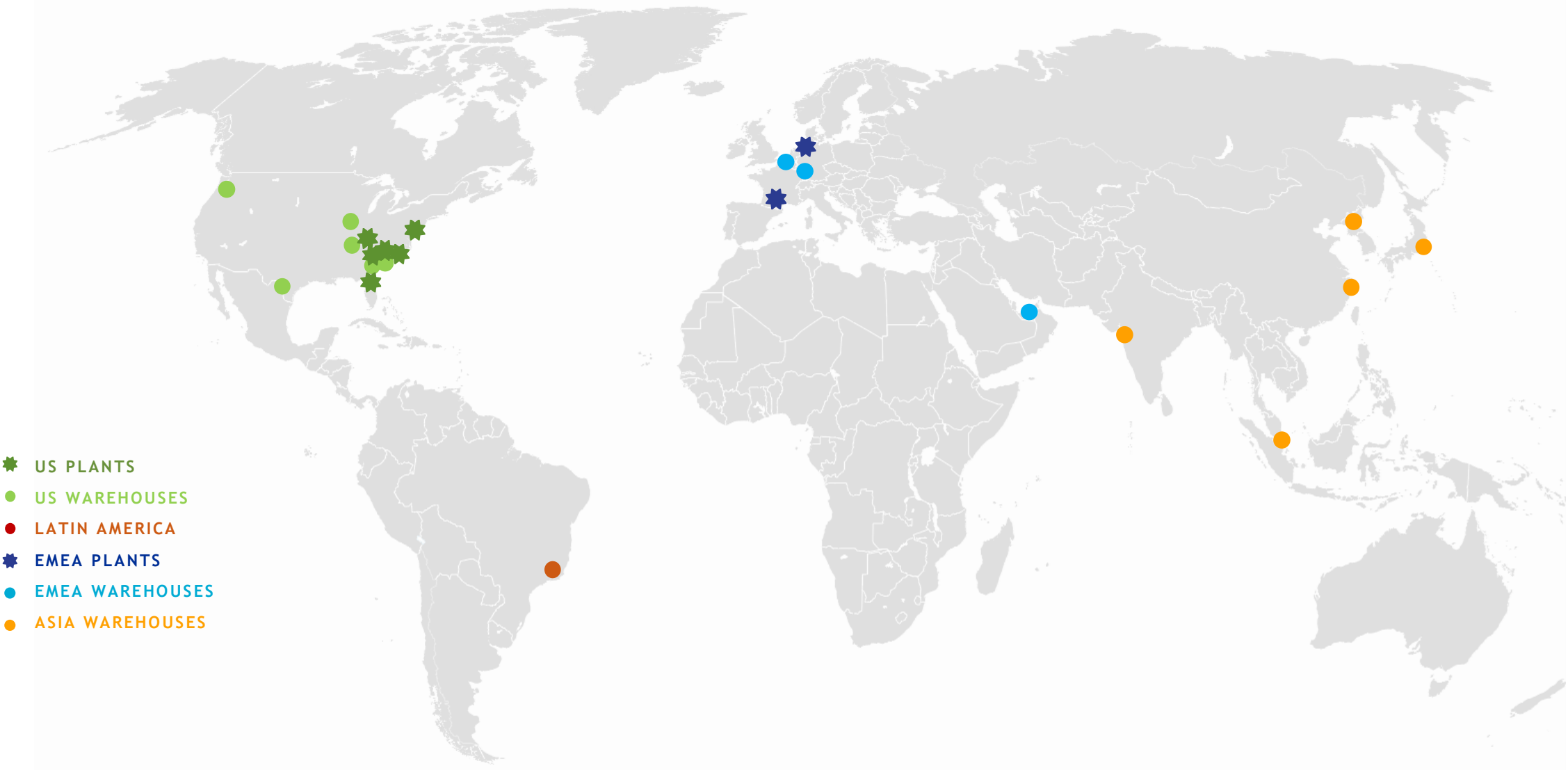
### Performance Specialties

- Metal Carboxylates
- Polymer Emulsions





# MILLIKEN CHEMICAL DISTRIBUTION NETWORK



## FINE CHEMICALS

 Manufacture difficult molecules at any volume responsibly and responsively

 Flexible and stringent quality standards through US manufacturing

 R&D capabilities that are state-of-the-art

 Strong sustainability commitment





# SPECIALTY SILICONES

Milliken's facility adheres to high quality and safety standards and is equipped with several different reactors capable of various weights

- **50-to-10,000-gallon (190-37,800 liter) 15+ reactor systems**
  - Glass-lined steel, stainless steel, and Hastelloy C-276
  - Integrated distillation columns
- **100-to-700-gallon (380-2700 liter) autoclaves**
  - 500 Psi (3400 Kpa) rating
  - SS and Alloy-20
- **10+ batch and continuous distillation columns**
  - 2" to 24" (5-46 cm) diameter, 5-60 theoretical plates
  - All-glass, glass-lined steel, stainless steel and carbon steel
- **All systems built to explosion-proof electrical requirements**

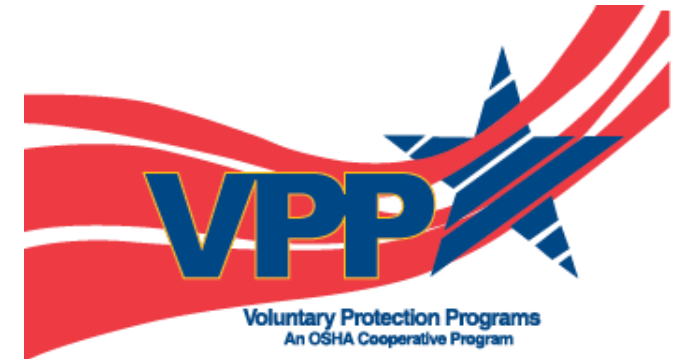


## QUALITY AND SAFETY

Our processes and products meet the highest standards of quality and safety by using the highly recognized Milliken Performance System (MPS)

- 1 Produce First Quality, First Time
- Expertise in safely handling hazardous and reactive materials
- Safely produce difficult molecules






2023 | WORLD'S MOST™  
ETHICAL  
COMPANIES®  
ETHISPHERE





## Willingness to invest in manufacturing to meet the needs of the industry

### Modular, semi-continuous production benefits:

-  Dedicated production units intentionally designed for specific molecule/chemistries
-  Continuous flow/highly automated processes
-  Improved safety in manufacturing
-  Improved quality of production
-  More sustainable with lower energy and waste





# CASE STUDIES



# CASE STUDY | INNOVATING TO REDUCE WASTE

## Customer Challenge

- Waste stream of alcohol produced as byproduct from customer's operations
- Initiative to convert waste stream into low VOC cleaning solvent for wood finishes
- Innovation path for customer was unclear

## Solution

- Collaborated with customer to develop new-to-world wood cleaner with low VOC
- Supported with small volume manufacturing and regulatory guidance



## Milliken Team

- Research & Development
- Analytical
- Regulatory
- Process Engineering
- Manufacturing

# CASE STUDY | REPLACING KEY CHEMICAL FOR MEDICAL DEVICE

## Customer Challenge

- Customer informed that current U.S. supply of key chemical was being terminated
- Timing was critical to not impact downstream sales
- Customer had limited knowledge of manufacturing process

## Solution

- Collaborated with customer to develop the replacement chemical and manufacturing process
- Supported with small-volume manufacturing, full-scale development, and regulatory guidance
- Supplied customer product within the required timing



## Milliken Team

- Research & Development
- Analytical
- Regulatory
- Supply Chain
- Manufacturing



# CASE STUDY | SOLVING INDUSTRY QUALITY ISSUE

## Customer Challenge

- Smaller nodes of next-generation semiconductor chips are more sensitive to incoming material quality
- Fabricators experiencing inconsistent chip quality tied to impurities in low- $k$  dielectric materials
- Industry suppliers unable to achieve needed purity levels for consistent chip fabrication

## Solution









- Collaborated with fabricators to identify root source of incoming impurities
- Designed pre-treatment process for raw materials that consistently reduced impurities by **5x**
- Invested in capacity to support industry growth



## Milliken Team

- Research & Development
- Analytical
- Process Engineering
- Manufacturing

### How can we support and enable your innovation?

-  Responsive
-  US manufacturing capabilities
-  R&D Capabilities driving rapid innovation
-  Expertise to scale from lab to pilot to high-volume manufacturing
-  Meeting the highest standards of quality and safety
-  Regulatory compliance
-  Providing excellent customer service
-  Minimizing our environmental impact





Milliken™

Visit booth # 703 for more info  
or scan the code to contact us

