

A World Class Specialty Materials Company

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Vice President, Global Sales, Asia/Japan



AGENDA

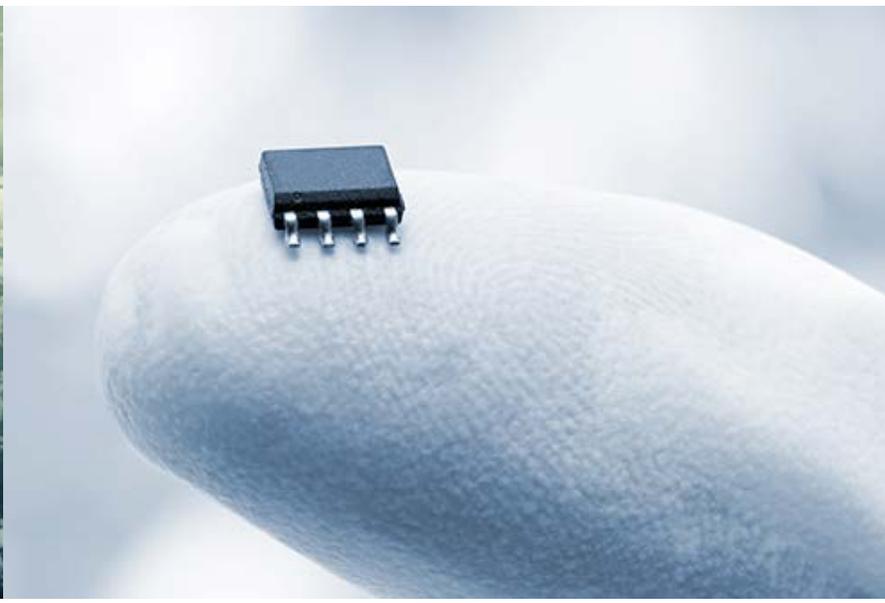
- Entegris Company Overview
- Entegris in China
- Q&A
- Meeting Close



**50 YEARS OF
PURE ADVANTAGE**



ENTEGRIS OVERVIEW



OUR MISSION

Entegris provides yield-enhancing materials and solutions for the most advanced manufacturing environments

PURE ADVANTAGE

ENTEGRIS AT A GLANCE

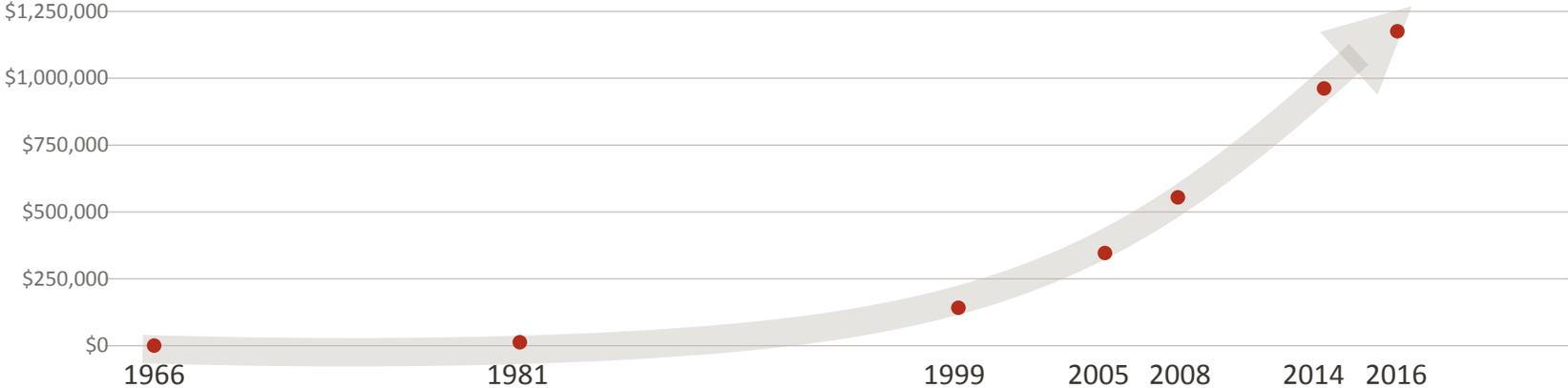
- Founded in 1966
- 2016 Sales of \$1.2 billion
- 3,500 employees worldwide
- 643 U.S. patents and 1,320 patents in other countries
- Market leader in contamination control, critical materials handling and advanced process materials for semiconductor and other high-tech industries
- Headquartered in Billerica, MA
- Semiconductor Revenue: 77% of total
- Publicly traded on NASDAQ under ENTG



50 YEARS OF PROVIDING MISSION CRITICAL SOLUTIONS



Entegris Revenue 1966-2016



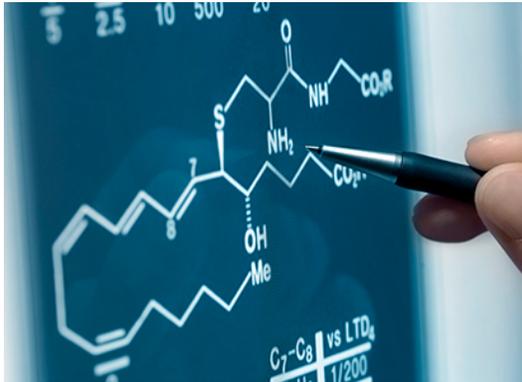
Note: Entegris founded as Fluoroware in 1966. Company became Entegris in 2000. All data is as reported.

BUILD SCALE TO CREATE CUSTOMER VALUE

Customer Value

Enable higher yields, improve performance, reduce cost of ownership

Technology Portfolio



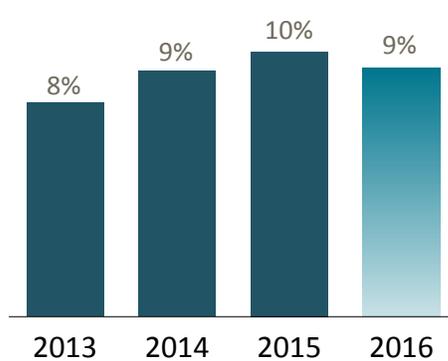
Global Responsiveness



Operational Excellence

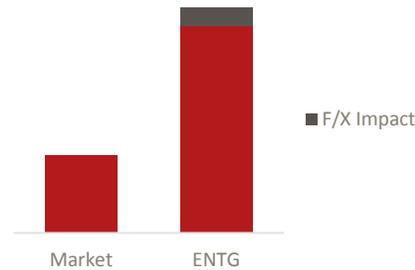


R&D/Sales

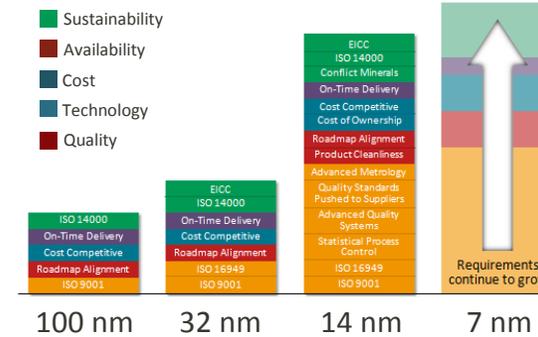


Relative Growth

Entegris vs. Market Blend
2015 vs. 2016

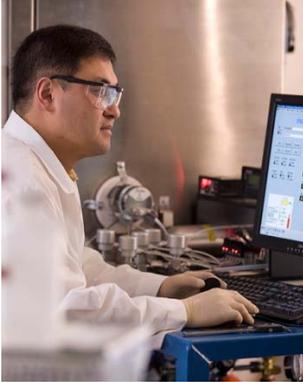


QOS+



CORE CAPABILITIES

Culture of innovation



Materials Science and Analytics

- Separation science
- Membrane science and engineering
- Polymer characterization and development
- Interfacial science
- Source of contamination analysis



Advanced Materials

- Materials synthesis and tailored formulation
- Precision gas mixtures
- Specialty coatings
- Graphite, SiC, engineered carbon
- Surface prep and clean
- Liquid/gas storage and transport



Microcontamination Control

- Leading edge liquid filtration and purification
- Gas purification at ppt
- AMC solutions for advanced fabs
- Wafer and reticle handling
- Fluid management, sensing and control



Manufacturing Excellence

- Ultraclean component and materials manufacturing
- Rapid prototyping and customization
- Leading-edge quality control with integrated SPC
- Broad global manufacturing footprint

BREADTH OF ENTEGRIS PORTFOLIO

Market leadership positions across the entire IC wafer fabrication process

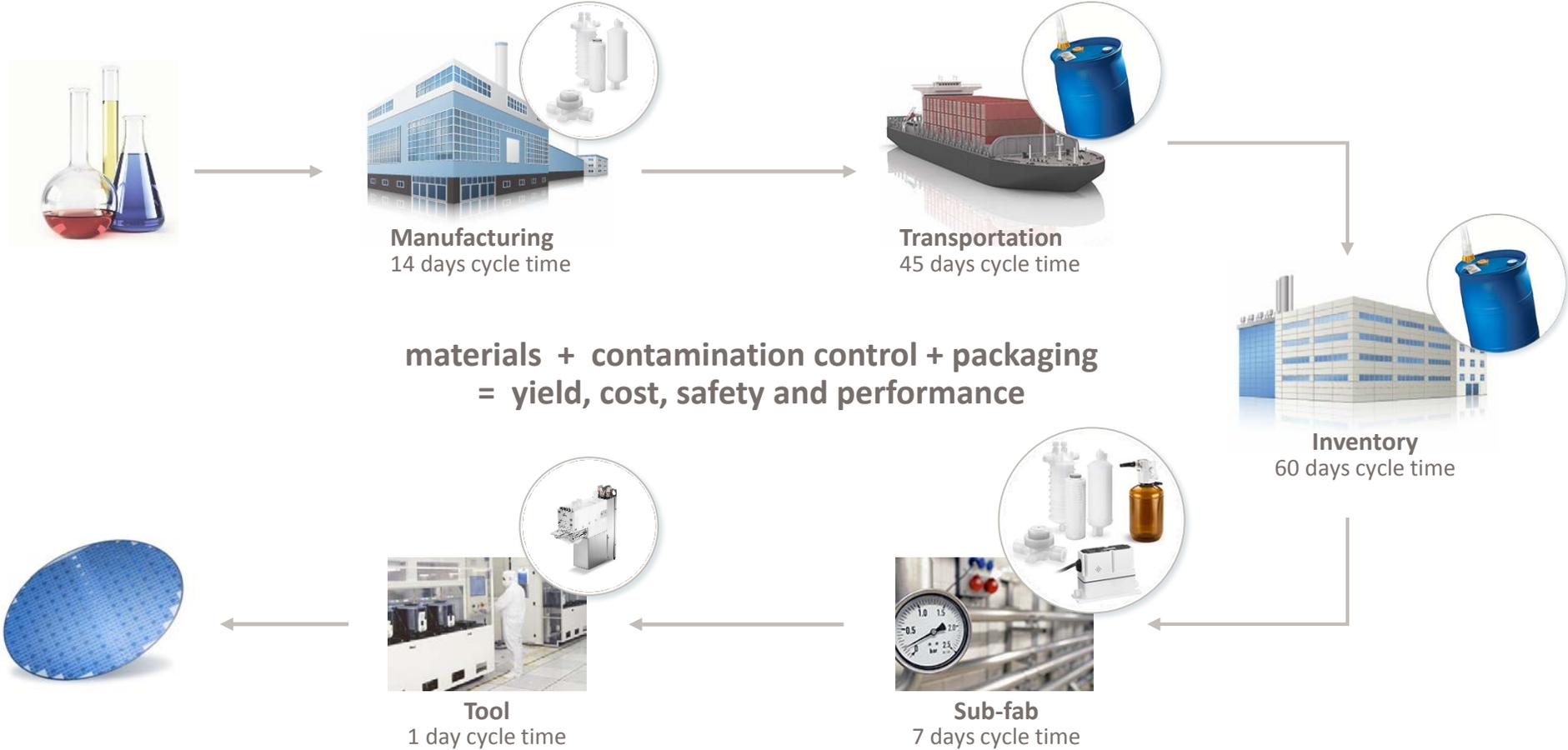
Implant	Lithography	Deposition	Dry Etch	Wet Clean	CMP	Fab Facility
Safe Gas Delivery Systems	Advanced Photoresist Packaging	CVD/ALD Precursors	Formulated Cleans	Formulated Cleans	Formulated Cleans	Advanced FOUPs
Electrostatic Chucks	Filtration and Dispense	Copper Plating	Gas Filters and Diffusers	Liquid Filtration	Liquid Filtration	AMC Filtration
Gas Purification	Gas/Liquid Purification	Gas Filtration and Purification	Gas Purification	Fluid Handling and Sensing	Pad Conditioners	Bulk Chemical Delivery
Specialty Gases	Reticle Pods	Fluid Handling and Sensing	CVD Precursors and Specialty Coatings	Containers	Fluid Handling and Sensing	Wafer Shippers

Advanced Chemicals	Filtration and Purification	Materials Handling
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A leader in yield-enabling materials and solutions for advanced, cost-effective manufacturing

ENSURING PURITY FROM PRODUCTION TO CONSUMPTION

Contamination can occur at multiple points in a chemical's journey to the wafer



Entegris has the technology to control contamination across the fluidics stream – from production to consumption

GLOBAL INFRASTRUCTURE WITH LOCAL R&D, MANUFACTURING AND SUPPORT

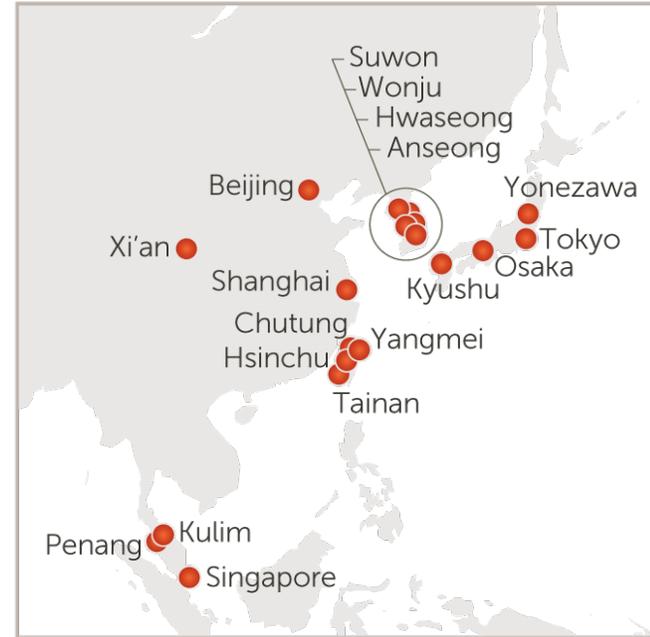
Invested in infrastructure to serve global customer base



North America



Europe and Israel



Asia and Japan

Differentiating Product Development

- Deep technical expertise and application knowledge
- Unique capabilities to enhance speed, effectiveness and efficiency of material development process

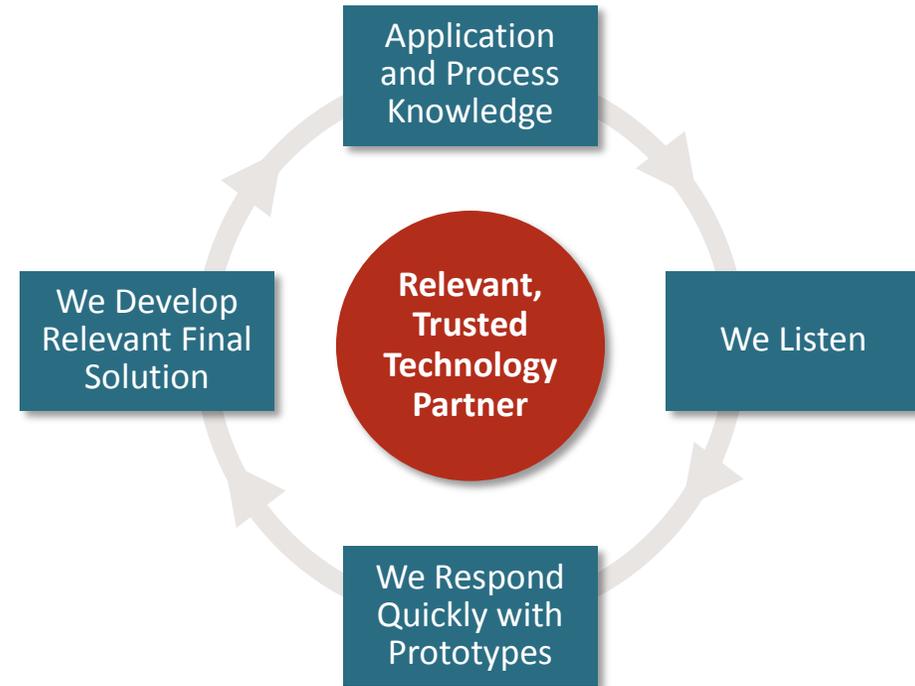
Strong Customer Relationships

- Dedicated customer support organization focused on specific customer needs
- Collaborative customer engagements leverage global state-of-the-art infrastructure and tech centers

DEEPENING OUR COLLABORATION WITH THE INDUSTRY

We conduct many Joint Development Agreements, collaboration engagements and development projects with top IDMs, Process Equipment Manufacturers and others, including:

- Suppliers
- Customers
- Competitors
- Academic Institutions
- Consortia
- Consultants/Experts



- Direct engagement by engineering teams
- Pilot capability at most sites



- Expanded applications excellence
- Faster new product development

TECHNOLOGIES DESIGNED FOR SAFETY

Entegris technologies are designed to address critical safety risks in fabs

**SDS® Toxic Gas
Delivery Systems**



- Safest technology in the industry
- Ensures safety of toxic implant gases
- Stores and delivers gas sub-atmospherically
- Eliminates leakage and high pressure storage
- >199K cylinders shipped to date
- 20+ year of history with no reportable incidents

**Sentry® QCIII Quick
Connect Systems**



- Delivers superior seal technology
- Provides reliable, leak-free performance
- Eliminates unsafe chemical mixing while guaranteeing dedicated clean service
- Key-coded head and drum insert self align to assure against unsafe chemical mixing

**PrimeLock®
PFA Fittings**



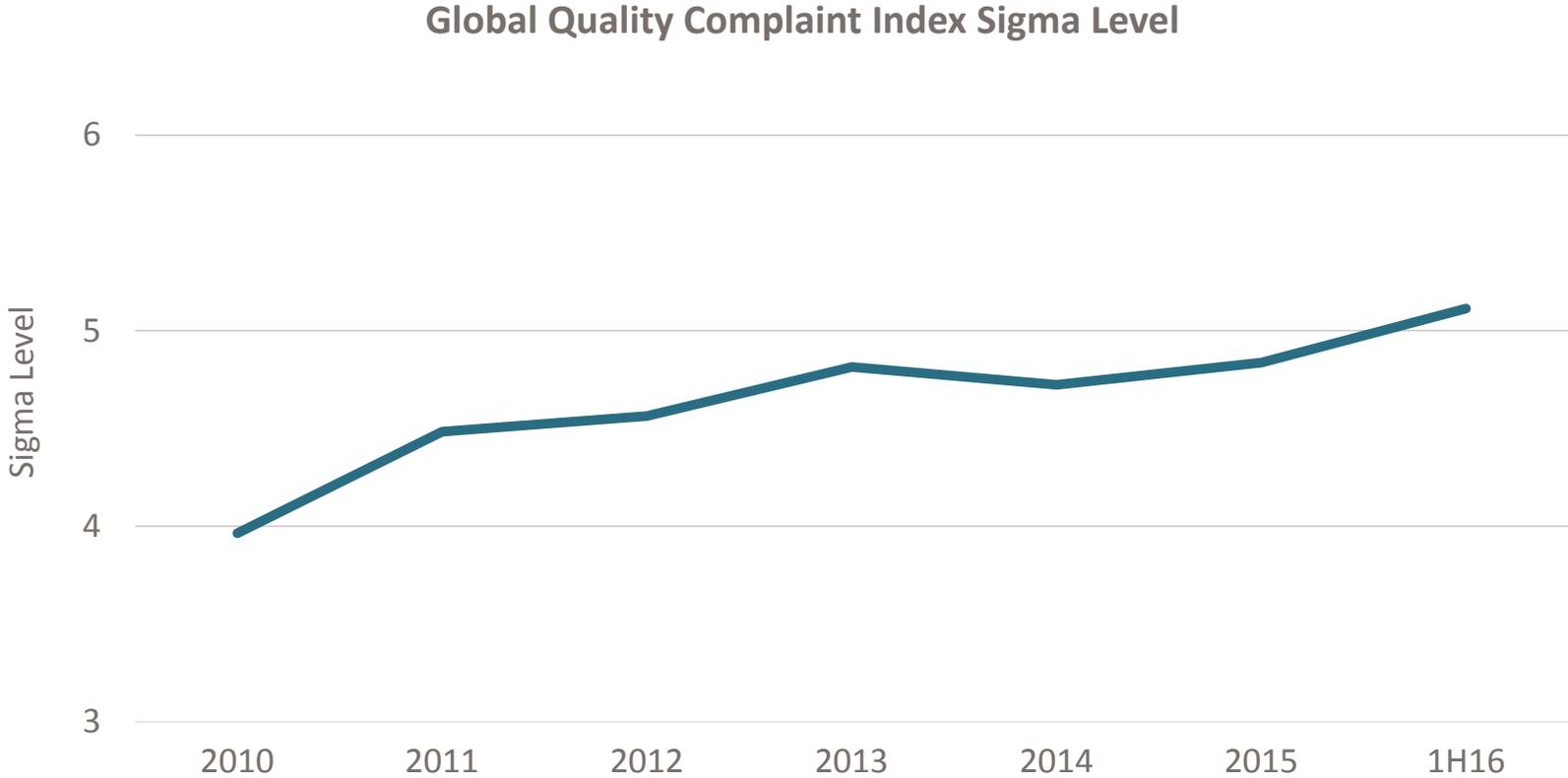
- Delivers reliable, leak-free performance
- Superior safety from competing insert-style fittings
- Color-coded to help identify chemistry lines
- Outstanding performance in reliability tests
- Highest possible “tube pull out” strength on the market
- Best in class under extreme tensile loads

**Torrento® X
Series Filters**



- 40% greater operating temperature maximum
- Up to 2x the flow rate of similar sized radial filters
- Industry-leading flush-up performance
- Lowest hold-up volume

ACHIEVING WORLD-CLASS QUALITY



Entegris' quality levels are approaching six sigma best in class

Note: Index reflects numbers of customer complaints

CUSTOMER AWARDS AND RECOGNITION

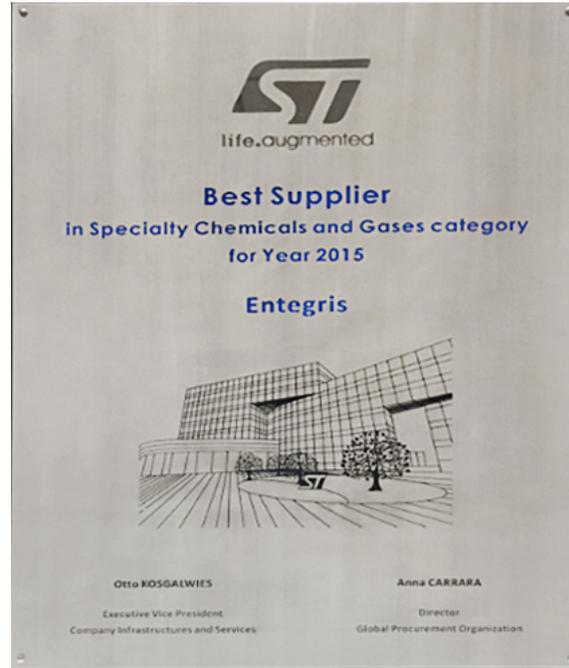
2015 Samsung
Best in Value Award



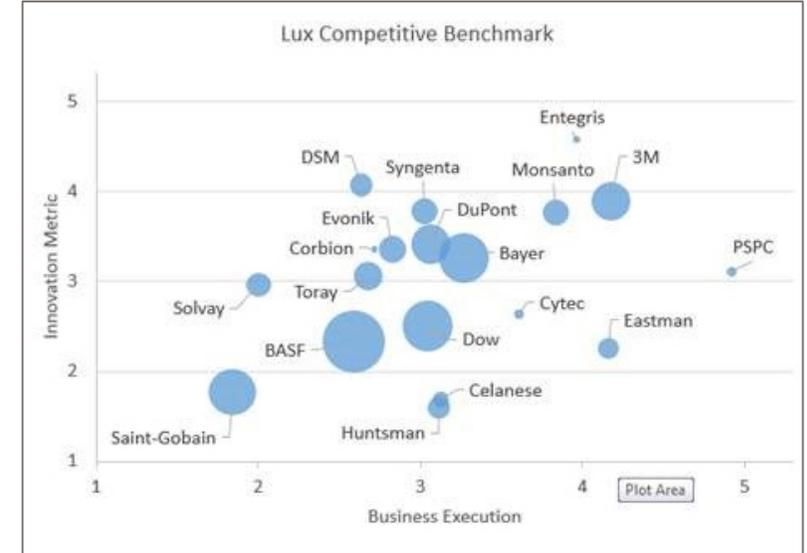
2015 Seagate
Appreciation Award



2015 STMicroelectronics
Best Supplier Award



2016 Lux Research
Most Innovative Companies



Lux Research Inc. @LuxResearch · Mar 1
 #Chemical Industry Benchmarking Finds Entegris, DSM, 3M Leading in
 #Innovation - Read More: luxr.us/1TOS8xt



ENTEGRIS IN CHINA

ENTEGRIS IN CHINA

Since 2001

- Three locations and 78 employees
- Sales
- Engineering
- Customer service
- Marketing
- Logistics
- Local procurement
- eVOLV™ technology lab



ENTEGRIS IN CHINA

Delivering value to our customers

- Leading-edge technology and products
- World-class solution development
- Local technical and application support
- Local sales team and sales channel network for seamless customer engagement
- Local logistic capability for on-time delivery
- Shortened response time for customer satisfaction
- Suppliers
- Customers
- Competitors
- Academic Institutions
- Consortia
- Consultants/Experts



ON-GOING COMMITMENT

Entegris is committed to:

- Providing a breadth of technologies
- Rapid Innovation for advanced processes
- Continued expansion of local support
- Continued focus on semiconductor, adjacent markets and engaging new markets
- Continued close collaboration with customers to solve highly complex challenges



NEW COMPANY ANNOUNCEMENT!

Entegris announces partnership with China's Spectrum Materials

- Spectrum to manufacture and distribute Entegris specialty chemical products
- The agreement addresses growth demands in the semiconductor and flat-panel display industries in China
- Manufacturing will take place in Spectrum's new manufacturing facility in Quanzhou, Fujian
- This will shorten the supply chain for customers in China
- This will help Entegris expand its operations in China



NEW PRODUCT ANNOUNCEMENT (FEBRUARY 28)

Purasol™ purifiers

- A new purifier platform for photochemical manufacturing
- Unique, tailored membrane removes all metal contaminants from solvents
- First of its kind to remove metals known to cause defects in photolithography applications
- Until now, no good solution has been available for broad metal contaminant removal
- Compatible with most solvents, including difficult to remove ketones, like cyclohexanone
- Removes metals to single- or subparts-per trillion contaminant levels
- Removes both dissolved and colloidal metal contaminants from a wide variety of ultra-pure, polar and non-polar solvents



NEW PRODUCT ANNOUNCEMENT (FEBRUARY 7)

GateKeeper® Gas Purification System

- Entegris announced our latest platform for gas purification (February 2017)
- Helps improve wafer yields for advanced semiconductor and LED processes
- Offers best-in-class purification with a small footprint
- Removes contaminants at a parts-per-trillion level and at a variety of flow rates
- It can purify many process stream gases at a much smaller footprint, including Nitrogen, Hydrogen, Hydrogen for EUV, Argon, Ammonia and Clean, Dry Air (CDA)
- Systems provide automated regeneration of purifiers
- **New purifier media allows improved systems to offer best-in-class outlet purity**
- **New manufacturing for these systems has been installed in our JangAn facility for local and regional support**



ENTEGRIS AT SEMICON® CHINA

Entegris hosted the **Semiconductor Materials Contamination Control Symposium** on March 13

- Morning Session
 - Semiconductor contamination control challenges in the next 10 years – Entegris
 - Materials contamination control in foundry operation – SMIC
 - Liquid IC chemicals contamination control: Manufacturing, transportation, storage and wafer processing – Entegris
 - Gas and air contamination control: From factory to fab to wafer – Entegris
- Afternoon Session:
 - State of the art semiconductor materials manufacturing process – Dow Chemicals
 - Total quality control in semiconductor manufacturing process – Entegris
 - Safety and environmental sustainability of semiconductor materials – Entegris/Spectrum Materials
- Close of symposium

ENTEGRIS AT SEMICON CHINA

Special Focus on PDS® Pure Delivery Source®

- PDS gas sources package and deliver highly toxic gases used in manufacturing
- The system features an automated gas delivery cabinet and includes Arsine, Phosphine, Germane and Boron Trifluoride gases
- PDS utilizes the following gas cylinder types:
 - PDS-A: subatmospheric storage and delivery (SAGS Type 1 – the safest available)
 - PDS-V: pressurized storage with subatmospheric delivery (SAGS Type 2 – the next safest)
 - PDS+100: very low positive pressure delivery (Less than high-pressure cylinders)
- It serves a wide variety of gas applications used in semiconductor, flat panel display and solar manufacturing
- Entegris has been the industry leader in safe gas delivery for more than 20 years



ENTEGRIS AT SEMICON® CHINA

- See our ads in the Show Daily eNewsletter
- Visit our booth to learn more about our featured products in these areas:
 - Wet etch and cleans
 - Ion implant
 - Advanced deposition materials
 - Photolithography
 - Chemical mechanical planarization (CMP)
 - Wafer handling



Entegris Booth #3008



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APPENDIX

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IMPROVING YIELDS IN CRITICAL SEMICONDUCTOR PROCESSES

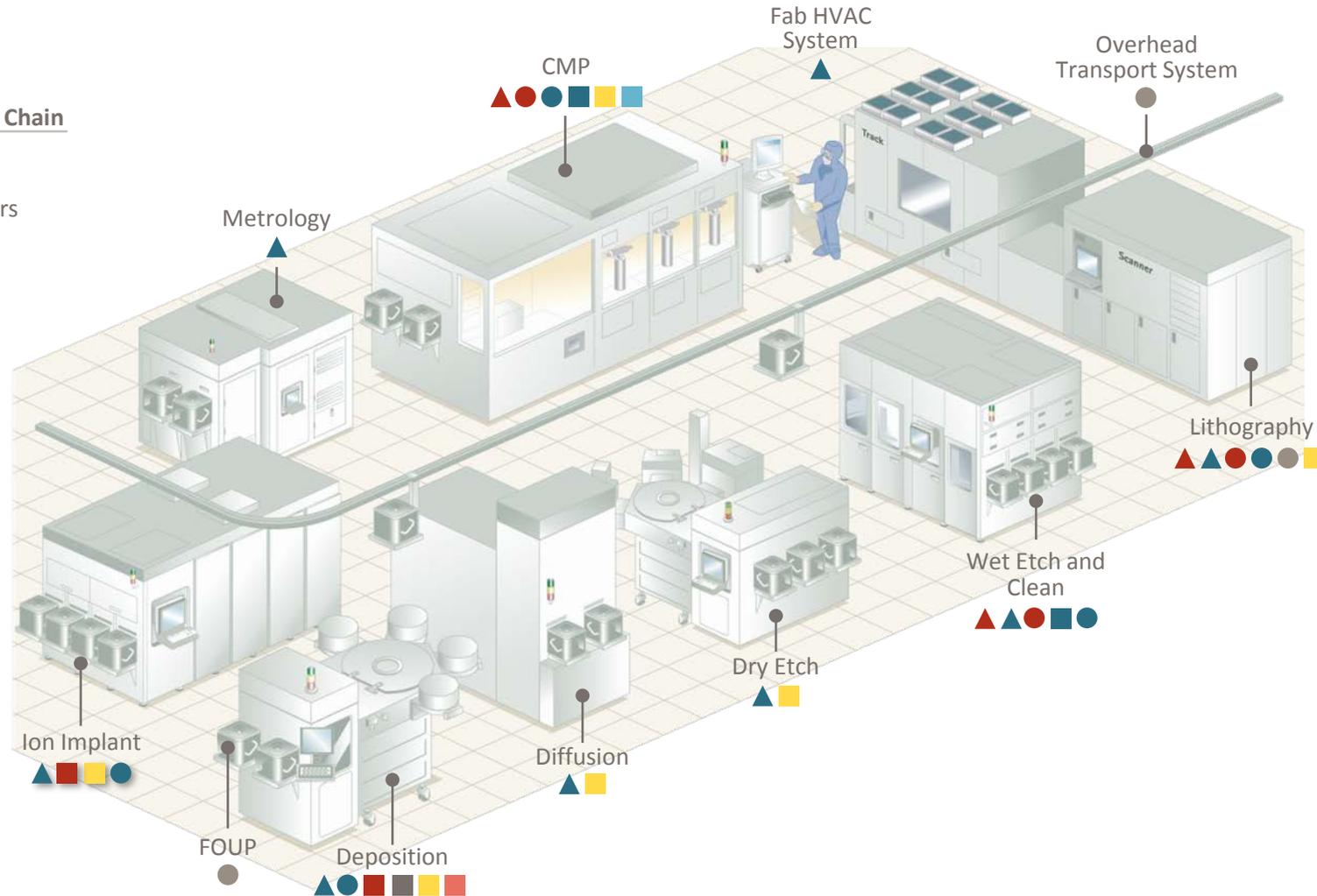
Optimizing contamination control, materials packaging and delivery and process materials

Incoming Supply Chain

Wafer Growers



Chemical Suppliers



Contamination Control

▲ Filtration

▲ Purification

Materials Packaging/Delivery

● Fluid Handling

● Chemical Packaging

● Critical Substrates Handling

Process Materials

■ Specialty Gas Solutions

■ Formulated Cleans

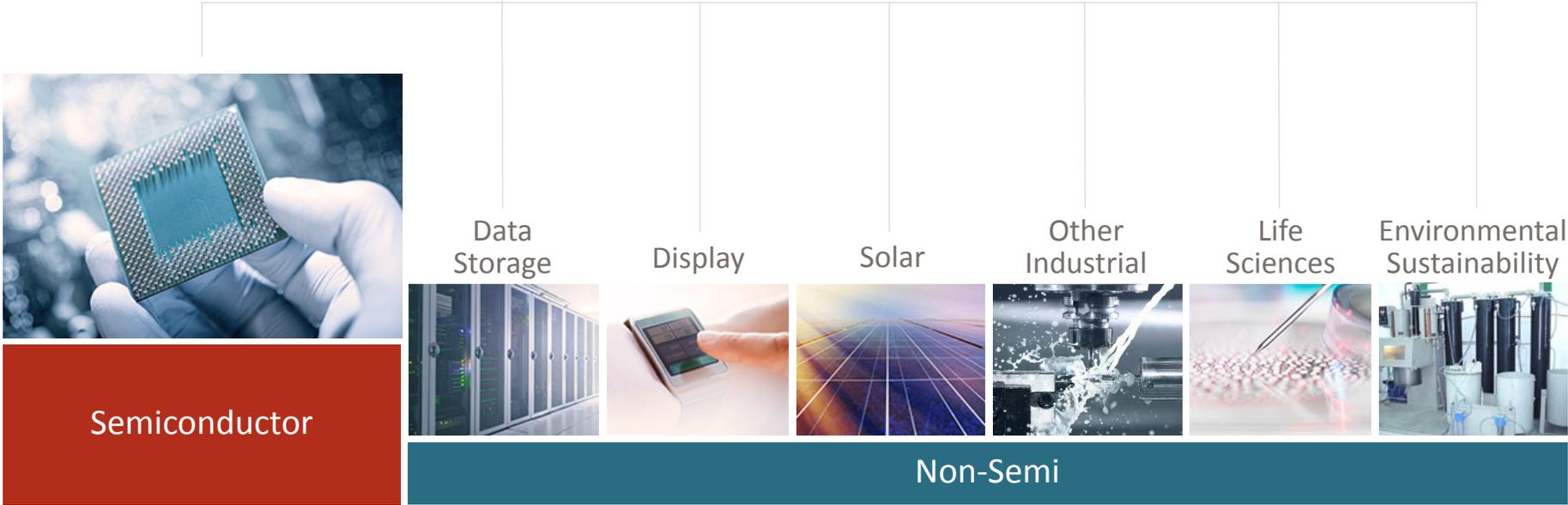
■ Deposition Materials

■ Specialty Materials

■ CMP Consumables

■ Advanced Plating Formulations

INDUSTRIES WE SERVE



FY2016 sales of \$1.2 billion