



A World Class  
Advanced Materials  
Company

August 2020

# Safe Harbor

This presentation contains forward-looking statements. The words “believe,” “expect,” “anticipate,” “intend,” “estimate,” “forecast,” “project,” “should,” “may,” “will,” “would” or the negative thereof and similar expressions are intended to identify such forward-looking statements. These forward-looking statements include statements related to future period guidance; future net revenue, operating expenses, net income, diluted earnings per common share, non-GAAP operating expenses, non-GAAP net income, diluted non-GAAP earnings per common share, and other financial metrics; future repayments under the Company's credit facilities; the Company's performance relative to its markets, including the drivers of such performance; the impact, financial or otherwise, of any organizational changes; market and technology trends, including the expected impact of the Covid-19 pandemic; the development of new products and the success of their introductions; the Company's capital allocation strategy, which may be modified at any time for any reason, including share repurchases, dividends, debt repayments and potential acquisitions; the impact of the acquisitions the Company has made and commercial partnerships the Company has established; the Company's ability to execute on its strategies; and other matters. These statements involve risks and uncertainties, and actual results may differ materially from those projected in the forward-looking statements. These risks and uncertainties include, but are not limited to, risks related to the Covid-19 pandemic on the global economy and financial markets, as well as on the Company, our customers and suppliers, which may impact our sales, gross margin, customer demand and our ability to supply our products to our customers; weakening of global and/or regional economic conditions, generally or specifically in the semiconductor industry, which could decrease the demand for the Company's products and solutions; the Company's ability to meet rapid demand shifts; the Company's ability to continue technological innovation and introduce new products to meet customers' rapidly changing requirements; the Company's concentrated customer base; the Company's ability to identify, effect and integrate acquisitions, joint ventures or other transactions; the Company's ability to effectively implement any organizational changes; the Company's ability to protect and enforce intellectual property rights; operational, political and legal risks of the Company's international operations; the Company's dependence on sole source and limited source suppliers; the increasing complexity of certain manufacturing processes; raw material shortages, supply constraints and price increases; changes in government regulations of the countries in which the Company operates; fluctuation of currency exchange rates; fluctuations in the market price of the Company's stock; the level of, and obligations associated with, the Company's indebtedness; and other risk factors and additional information described in the Company's filings with the Securities and Exchange Commission, including under the heading “Risks Factors” in Item 1A of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed on February 7, 2020, and in the Company's other periodic filings. The Company assumes no obligation to update any forward-looking statements or information, which speak as of their respective dates.

This presentation contains references to “Adjusted EBITDA,” “Adjusted EBITDA – as a % of Net Sales,” “Adjusted Operating Income,” “Adjusted Operating Margin,” “Adjusted Gross Profit,” “Adjusted Gross Margin – as a % of Net Sales,” “Adjusted Segment Profit,” “Adjusted Segment Profit Margin,” “Non-GAAP Operating Expenses,” “Non-GAAP Tax Rate,” “Non-GAAP Net Income,” “Non-GAAP Earnings per Share,” and “Diluted Non-GAAP Earnings per Common Share” that are not presented in accordance GAAP. The non-GAAP financial measures should not be considered in isolation or as a substitute for GAAP financial measures but should instead be read in conjunction with the GAAP financial measures. Further information with respect to and reconciliations of such measures to the most directly comparable GAAP financial measure can be found attached to this presentation.

# Entegris at a glance.



A world-class supplier of advanced materials and process solutions for the semiconductor and other high-tech industries



Founded  
1966



2019 Revenue  
\$1.6B



Headquarters  
Billerica, MA



2019 R&D investment  
~8% revenue



Employees  
4,000+



## Business Divisions

- Specialty Chemicals & Engineered Materials (SCEM)
- Microcontamination Control (MC)
- Advanced Materials Handling (AMH)

**ENTG**  
**NASDAQ**  
LISTED

# Our platform is differentiated and resilient...

## Recurring Revenue with Long Tails



### "Sticky" Solutions

Critical part of process recipe  
Long product lifecycles

### Diverse customer base

Low customer concentration  
and broad distribution across  
supply chain

### Broad product offering

Several thousand products sold  
Majority of products tied into  
customer roadmaps

...and agnostic to specific technology shifts

<sup>1</sup> 20% Fab related: related to semiconductor fabrication facility build out. 10% WFE related: related to Wafer Fab Equipment spend.

# Long-term secular industry growth.

Then

Now

Singular drivers = Slower growth and greater volatility

Multiple new drivers = Accelerated growth and improved stability

Secular Wafer Start Growth **2x GDP**<sup>1</sup>

Data Economy

IoT and Smart Devices

EV and New Energy

AI

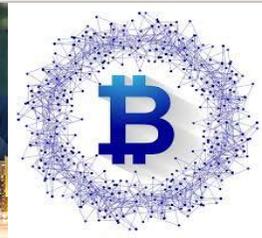
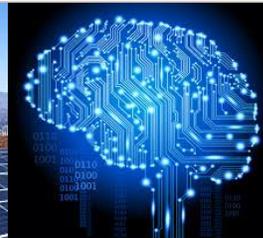
Industrial Automation

Automotive and Autonomous Drive

VR and AR

Blockchain

5G Network



By 2025 there will be over 75 billion installed IoT devices worldwide<sup>2</sup>

Volume of global data to increase 10x to 175 Zettabytes from 2016 to 2025<sup>3</sup>

<sup>1</sup>Company estimate for the next 3-5 years. <sup>2</sup>Statistica. <sup>3</sup>IDC study for Seagate.

# Entegris value add.

Helping customers achieve higher yields and new levels of performance and reliability



## New device architecture enabled by



### **More Precision Materials**

Number of elements from the Periodic Table used to make advanced semiconductors has quadrupled since the 1990s

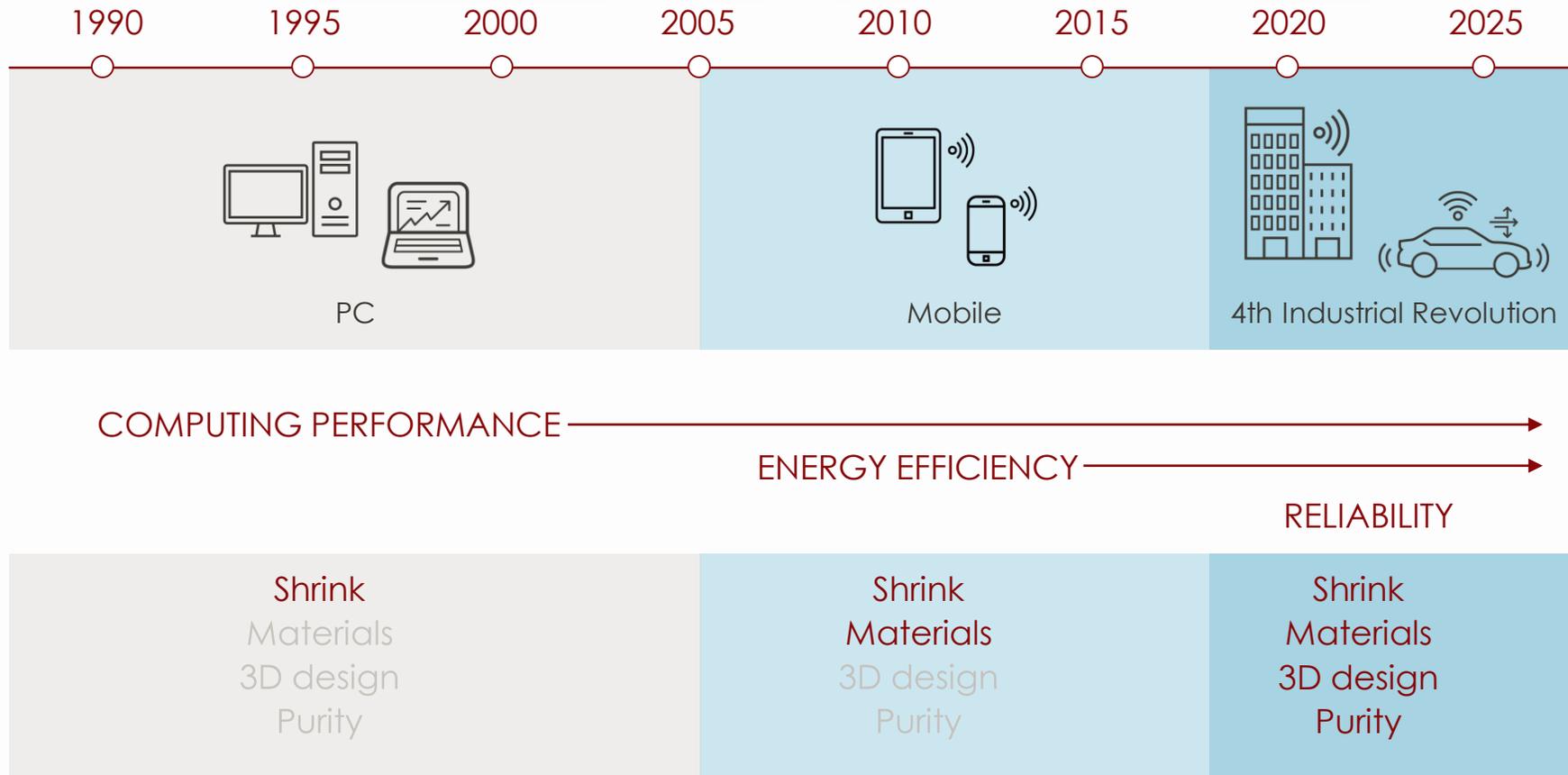


### **Greater Purity**

Drives higher wafer yield, device speed, device energy efficiency, and device reliability

# Materials intensity is the new Moore's Law.

Advanced materials enable the emergence of 3D architectures in logic and memory



# Greater materials intensity...

Advanced chip architectures will drive increased process complexity and require more atomic scale precision materials

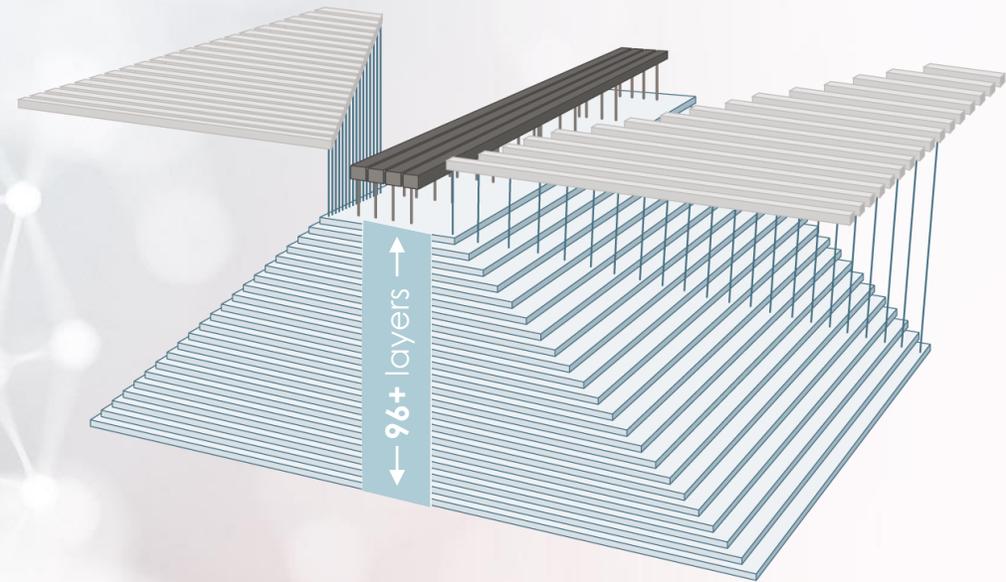
New multi-layer memory device structures require new higher value, highly engineered materials

## Increased Process Complexity

Change from 20 nm to 7 nm logic technology results in a **2x increase** in processing steps

## More Spending Per Wafer

~**3x** materials spending per wafer increase is expected for both logic devices and 3D NAND for Entegris' markets<sup>1</sup>

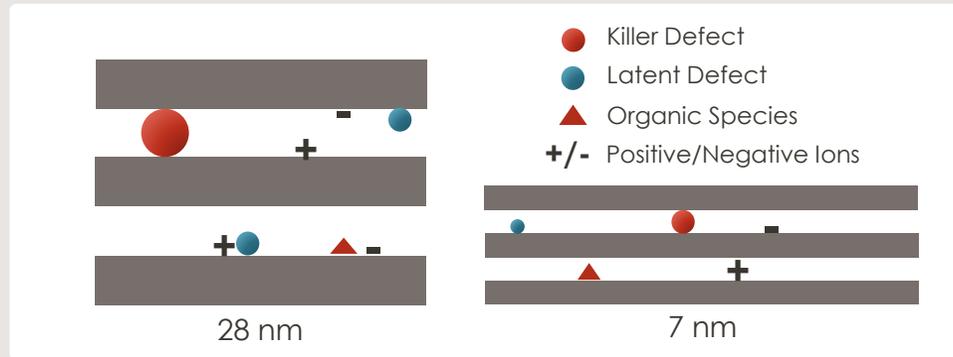


...means new product opportunities for the industry – and Entegris

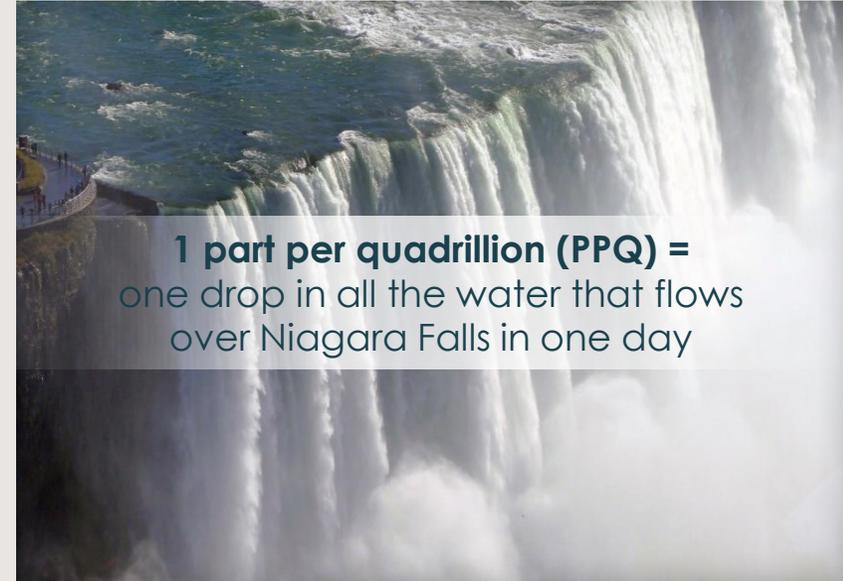
<sup>1</sup>Source: IC Knowledge and Entegris; for logic devices from 28 nm to 7 nm; for 3D NAND devices from 32 layers to 128 layers.

# Achieving the highest levels of purity.

In the size and types of contaminants...



...and the concentration level of contaminants



**PURITY IS KEY:** Wafer Yield | Device Performance | Device Energy Efficiency | Device Reliability

A **1% yield improvement** can mean:  
\$150M/year net profit in leading-edge logic<sup>1</sup>  
\$110M/year net profit for 3D NAND fabs<sup>2</sup>

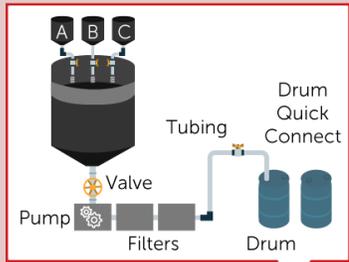
<sup>1</sup> Assumes 10 nm logic fab, 60K wafer starts per month.

<sup>2</sup> Assumes 64 layer 3D NAND fab, 60K wafer starts per month.

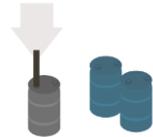
# Clean Chemical Delivery

End-to-end solutions for improved yield, reliability, and performance

## 1 CHEMICAL MANUFACTURER



### PARTICLE CONTAMINATION



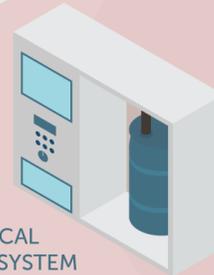
Clean chemical gets contaminated by dirty containers

Our solutions:  
Valves, Fittings, Tubing,  
Quick Connects, and  
Chemical Packaging

## 2 SEMICONDUCTOR SUB-FAB

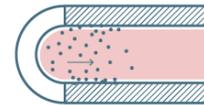


CHEMICAL STORAGE



CHEMICAL DISPENSE SYSTEM

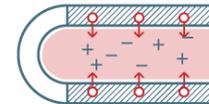
### PARTICLE CONTAMINATION



Surface particles that have not been flushed from interior tubing surfaces will release into the chemical over time.

Our solutions:  
High-purity Tubing, Fittings,  
Valves, and Filters

### METALLIC CONTAMINATION



As chemical sits in long tubing runs, metallic ions can leach into the chemicals

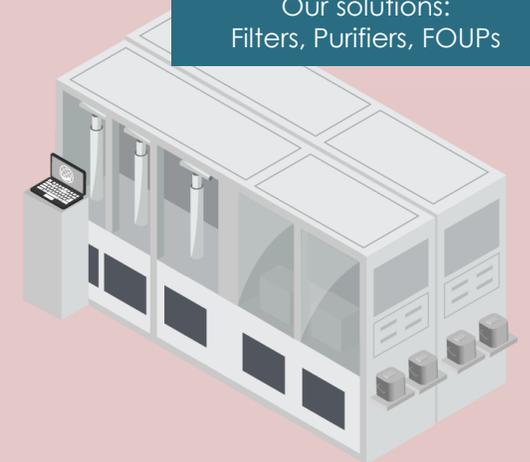
Our solutions:  
Ultraclean PFA Tubing,  
Fittings, and Valves

## 3 FAB FLOOR

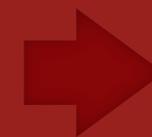
Contaminants at the point of use are detrimental to wafer yield



Our solutions:  
Filters, Purifiers, FOUPs



More filtration points and greater frequency of filter changeout  
Higher-purity chemical packaging and fluid management systems  
Microenvironmental wafer protection from bare to finished wafer



**Increased SAM**

# Our sales growth algorithm.



+



- Greater materials intensity
- Higher purity requirements
- Market share gains

# We offer the **broadest solutions portfolio.**



## **Uniquely positioned** to address precision, purity, integrity, and safety challenges

### **Specialty Chemicals & Engineered Materials**



- SDS/VAC delivered gases
- Post Etch/CMP cleans
- Plating and CMP components
- Advanced deposition materials
- Graphite and SiC
- Specialty coatings
- Specialty chemicals

### **Microcontamination Control**



- Liquid filters and purifiers
- Gas filters/diffusers/purifiers
- Airborne molecular contamination control

### **Advanced Materials Handling**



- Microenvironments
- Fluid handling
- Sensing and control
- Liquid packaging

Leading to shorter development times and unique co-optimized systems and solutions

# The **broadest portfolio** of solutions.

## **Specialty Chemicals and Engineered Materials:** Creating advanced materials with better electrical and structural properties



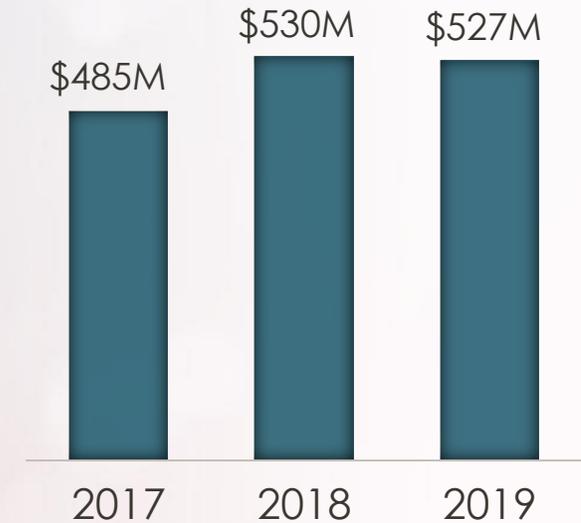
- SDS/VAC delivered gases
- Post Etch/CMP cleans
- Plating and CMP components
- Advanced deposition materials
- Graphite and SiC
- Specialty coatings
- Specialty chemicals

### **3-year outlook<sup>1</sup>:**

Sales growth:  
200-300 bps above market

Adjusted operating margin<sup>3</sup>: 23%-25%

### **2017-2019 Sales CAGR: 4%<sup>2</sup>**



<sup>1</sup>Organic sales growth. Market: ~100% MSI. <sup>2</sup>As reported. <sup>3</sup>Non-GAAP adjusted measure.

# The **broadest portfolio** of solutions.

**Microcontamination Control:** Delivering ultrapure solutions to improve chip performance, reliability, and cost

Liquid filters and purifiers

Gas filters, diffusers, and purifiers

Airborne molecular contamination control

### 3-year outlook<sup>1</sup>:

Sales growth:  
200-400 bps above market

Adjusted operating margin<sup>3</sup>: 33%-35%



Ensuring air, gas, and liquid purity

<sup>1</sup>Organic sales growth. Market: ~70% MSI and ~30% total CAPEX. <sup>2</sup>As reported. <sup>3</sup>Non-GAAP adjusted measure.

# The **broadest portfolio** of solutions.

**Advanced Materials Handling:** Protecting critical materials throughout the supply chain

**2017-2019 Sales**  
**CAGR: 2%<sup>2</sup>**



Microenvironments  
Fluid handling  
Sensing and control  
Liquid packaging

**3-year outlook<sup>1</sup>:**

Sales growth:  
Flat – 100 bps above market

Adjusted operating margin<sup>3</sup>: 19%-21%



<sup>1</sup>Organic sales growth. Market: ~50% MSI and ~50% total CAPEX. <sup>2</sup>As reported. <sup>3</sup>Non-GAAP adjusted measure.

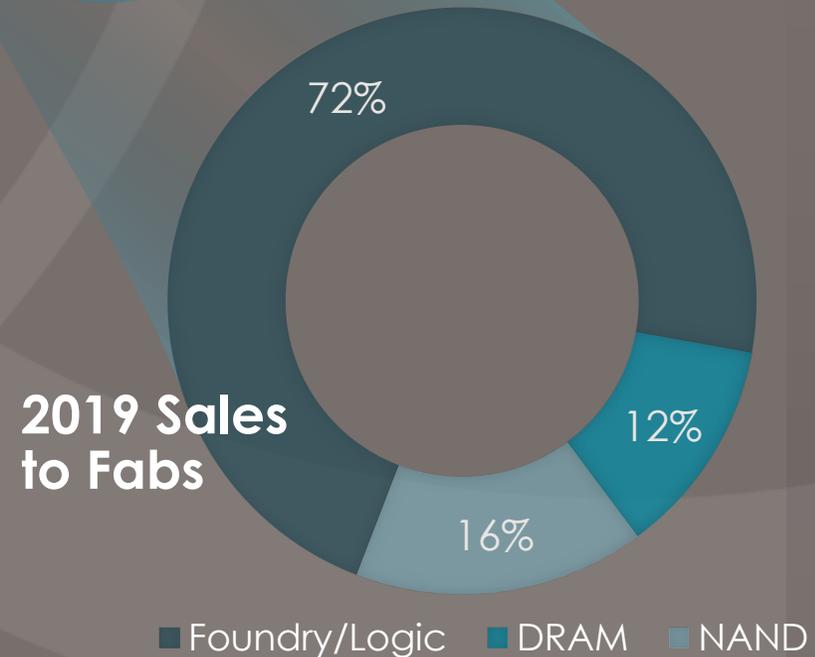
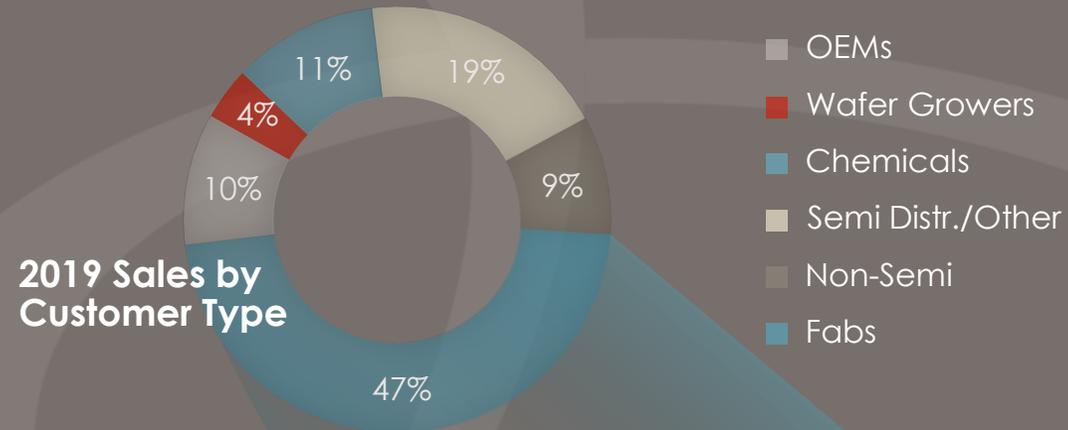
# At the center of the ecosystem – serving all device types.

A uniquely capable  
development partner

Translating our logic/foundry expertise to  
address fast-growing needs in memory

Assuring supply-chain purity for  
advanced and mainstream chips

Expanding our served addressable market  
with new materials and purification solutions



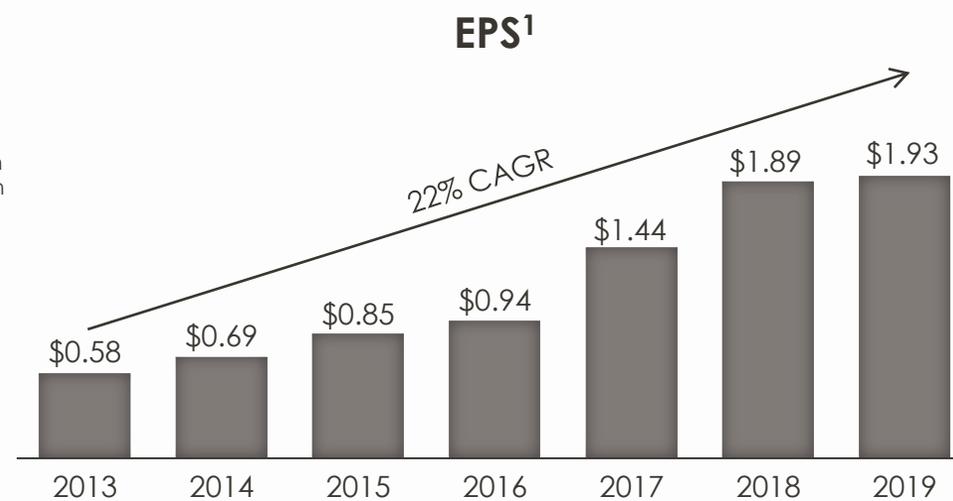
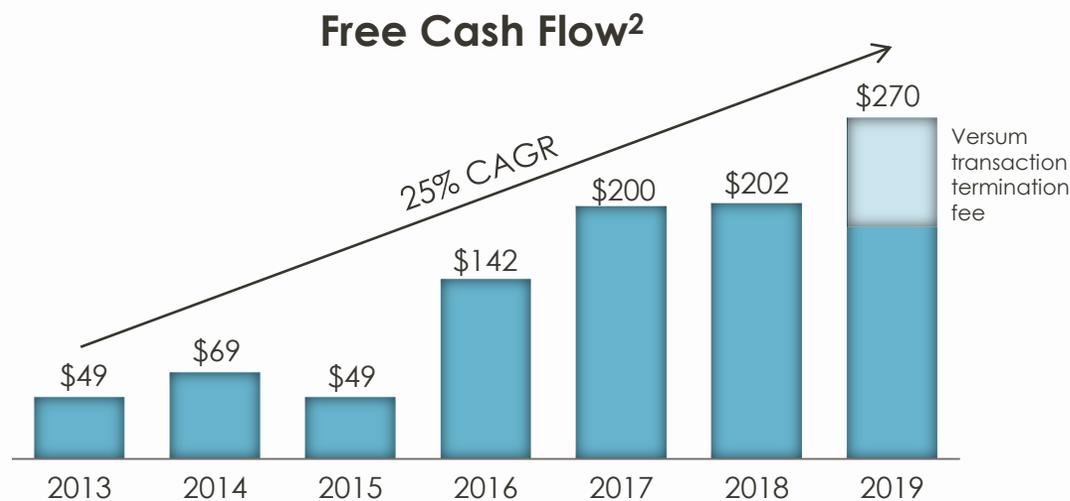
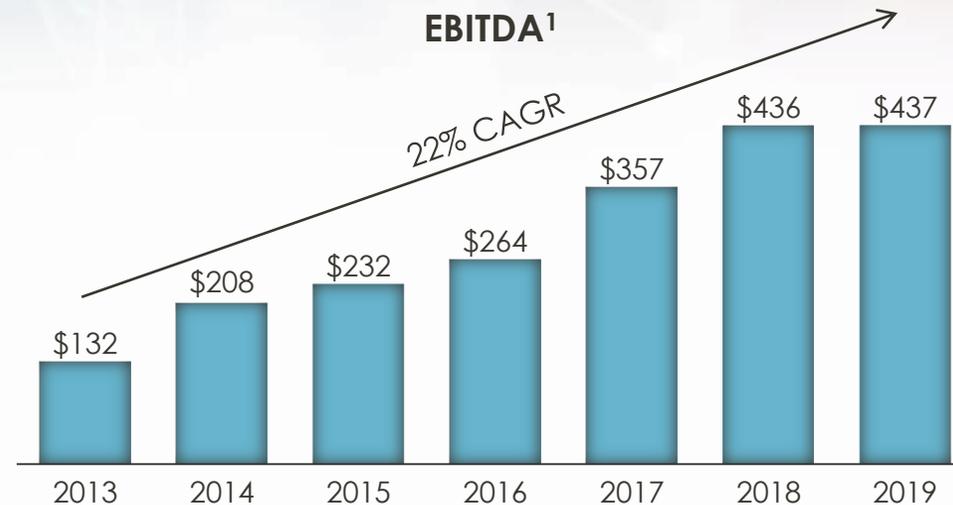
# Financial Track Record



# Historical financials – growth through cycles.



\$ in millions, except EPS



<sup>1</sup>Non-GAAP. <sup>2</sup>Free cash flow equals cash from operations, less capex. 2019 FCF includes Versum transaction termination fee, net of \$83.4 million. CAGR excludes fee.

# Capital Allocation and M&A



# Liquidity and Capital Structure

\$ in millions

<b>Liquidity</b>	<b>03/28/2020</b>	<b>06/27/2020</b>
<i>U.S. Cash</i>	\$134	\$313
<i>Foreign Cash</i>	\$201	\$219
Total Cash	\$335	\$532
Undrawn Revolving Credit Facility	\$158	\$300
<b>Total Liquidity</b>	<b>\$493</b>	<b>\$832</b>

<b>Debt Structure</b>	<b>03/28/2020</b>	<b>06/27/2020</b>	<b>Covenants</b>
Senior Secured Term Loan (due 2025)	\$396	\$245	No maintenance covenants
Senior Unsecured Notes (due 2026)	\$550	\$550	No maintenance covenants
Revolving Credit Facility (drawn amount)	\$142	—	3.75x secured net leverage
New Senior Unsecured Notes <sup>1</sup> (due 2028)	—	\$400	No maintenance covenants
<b>Total debt</b>	<b>\$1,088</b>	<b>\$1,195</b>	

<sup>1</sup>Offering closed April 30, 2020. The Company expects, based on current conditions subject to change, to repay (with the proceeds of the Notes) approximately \$100 million of outstanding borrowings under its term loan facility in the second half of 2020.

# Thoughtful and balanced capital allocation.



More than \$4.0 billion allocated over the past 6 years<sup>1</sup>

Acquisitions	Acquisition of ATMI in 2014 (\$810M net of cash acquired), PSS, Saes Pure Gas, DSC, MPD, Anow, Sinmat, GMTI continued “bolt on” acquisitions broadened capabilities and leveraged global platform	\$1.6B
ER&D	Continued investments and deployment of new products, increased customer value, and drove competitive advantage	\$763M
CapEx	Increased investments to support superior growth and results	\$618M
Debt Repayment <sup>2</sup>	Deleveraging increases financial flexibility	\$646M
Share Buyback	Initiated \$10M quarterly share buyback in Q3 2017; increased to \$15M in Q2 2019	\$319M
Dividend	Initiated dividend in October 2017, increased to \$0.08 per share in July 2019	\$111M

<sup>1</sup>Reflects 2013-Q2 2020 capital allocations.

<sup>2</sup>Debt reduction following ATMI purchase to 11/18 refinance and through Q2 2020.



# Creating value via strategic acquisitions.

**ATMI**  
Advanced materials and material delivery systems

**PSS**  
Particle sizing instrumentation for liquid applications

**DSC**  
Advanced deposition materials

**Anow**  
Filtration products and technology

**GMTI**  
Analytical instruments for liquid applications



**Trinzik product line**  
Water and chemical filtration

**SAES Pure Gas**  
Bulk gas purification

**MPD**  
Advanced deposition materials

**Sinmat**  
CMP slurries

# Global Measurement Technologies, Inc. acquisition.



Market leader of yield enhancing analytical instruments for chemical mechanical planarization (CMP) slurries and formulated cleaning chemistries used in the semiconductor manufacturing process



Acquired on July 10, 2020

Part of Advanced Materials Handling (AMH) segment

Purchase price: ~\$36 million

A white speech bubble with a drop shadow, containing the text "Thank you!". The bubble is centered on a background of silhouetted business professionals in a meeting, overlaid on a cityscape and digital data patterns.

Thank you!