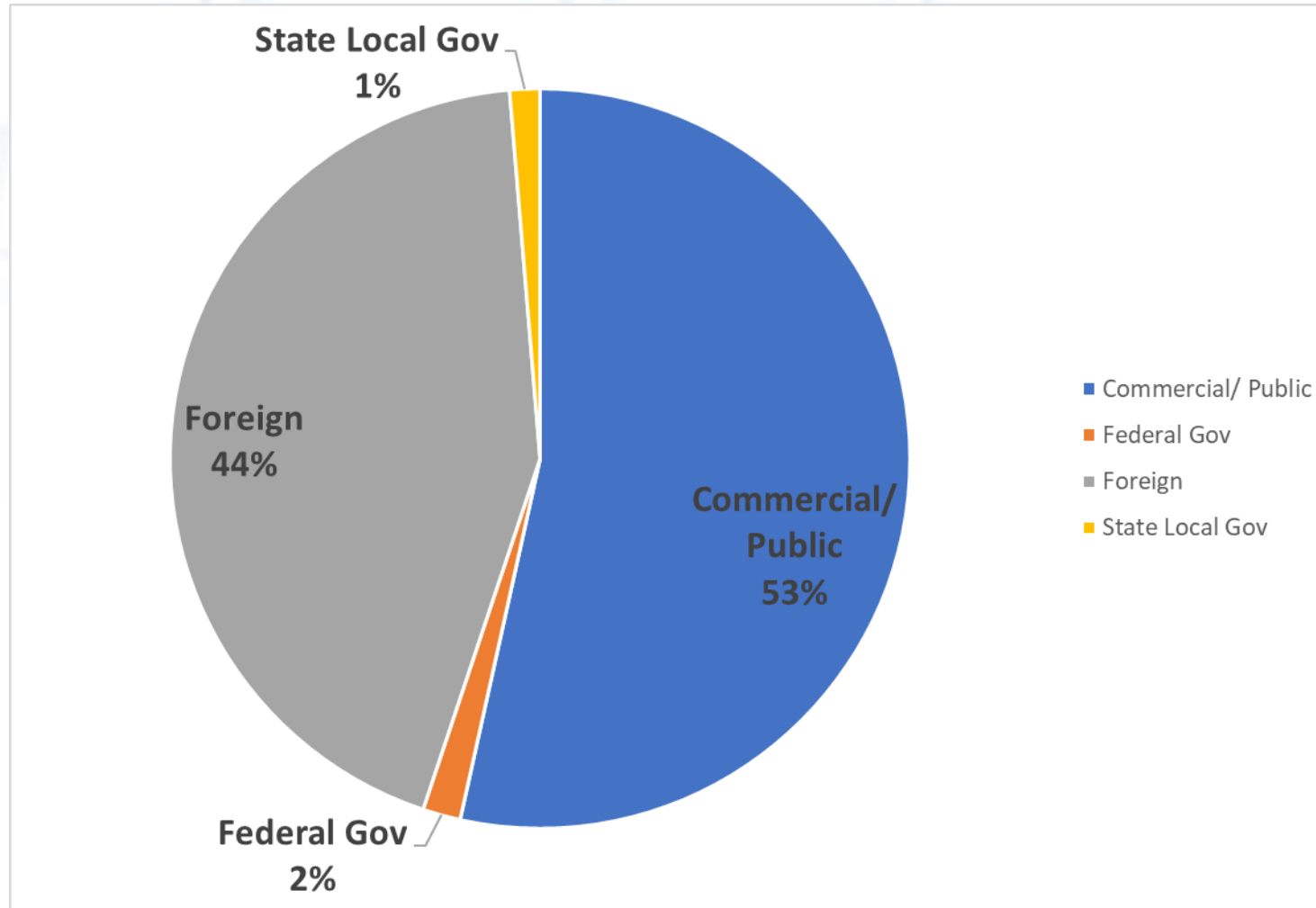


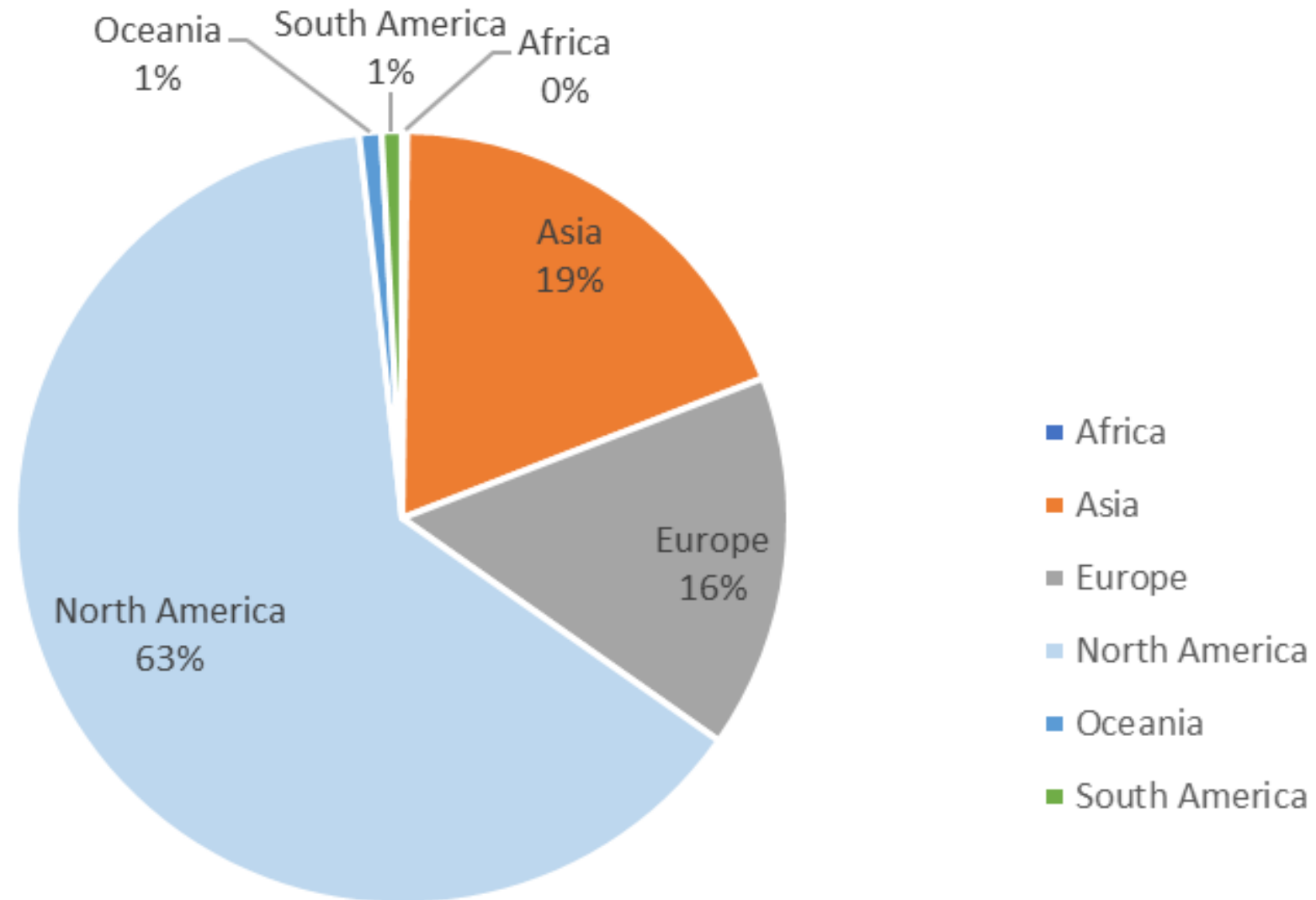
# NIST Standard Reference Materials (SRM) Annual Report FY2024



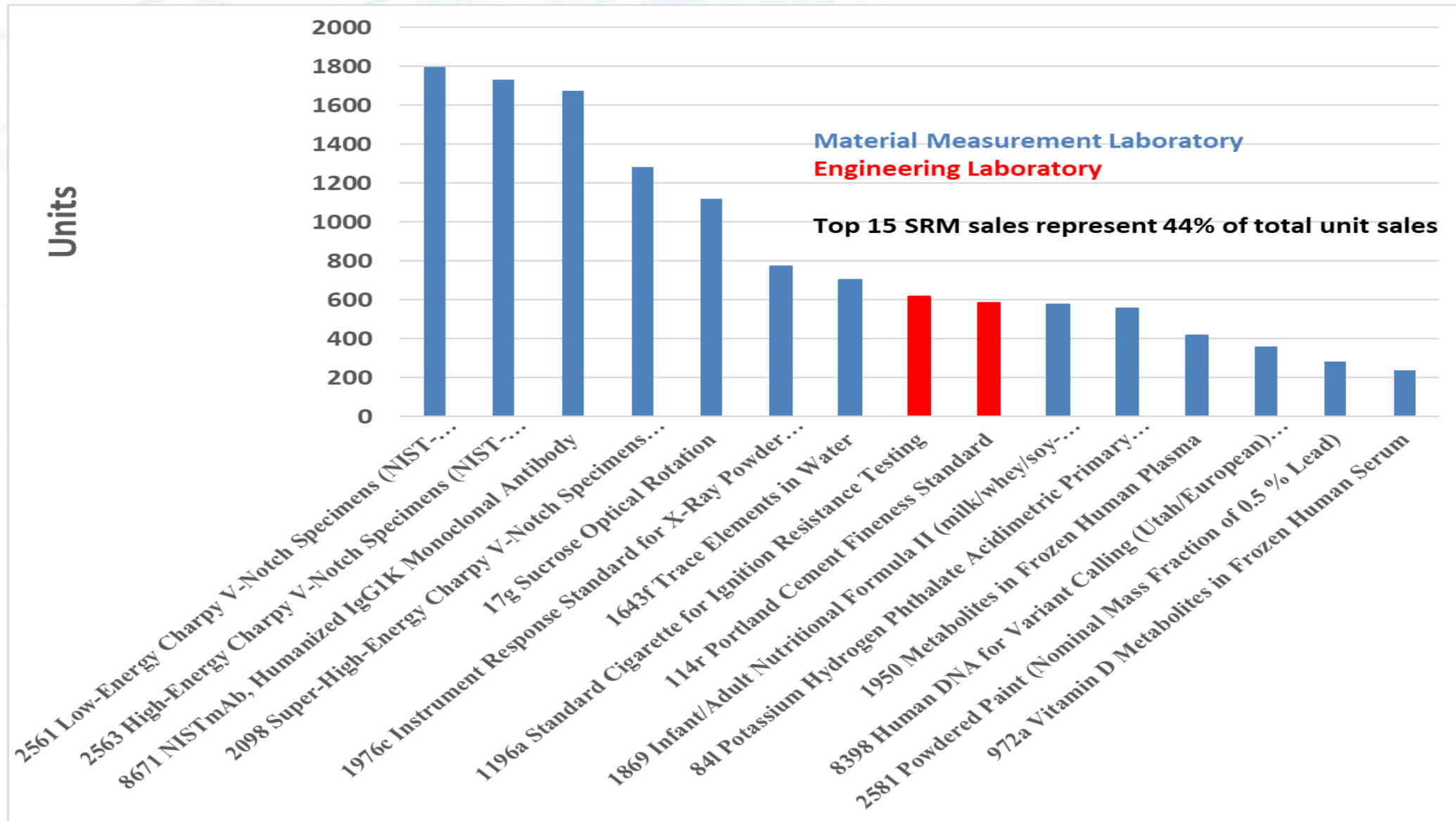
# Sales by Customer Type FY2024



# FY 2024 Unit Sales Percent by Continent



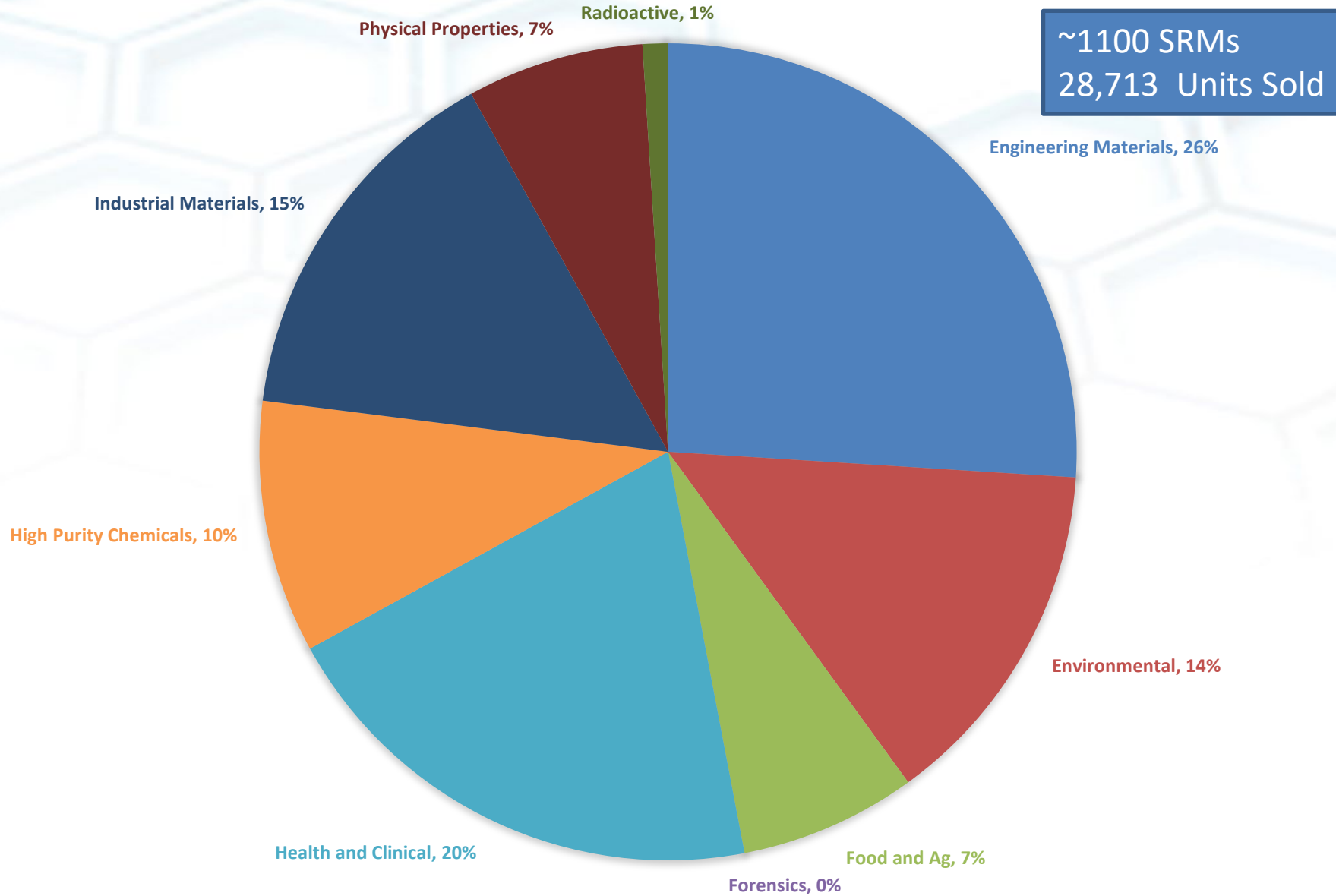
# FY 2024 Top 15 SRM Sales



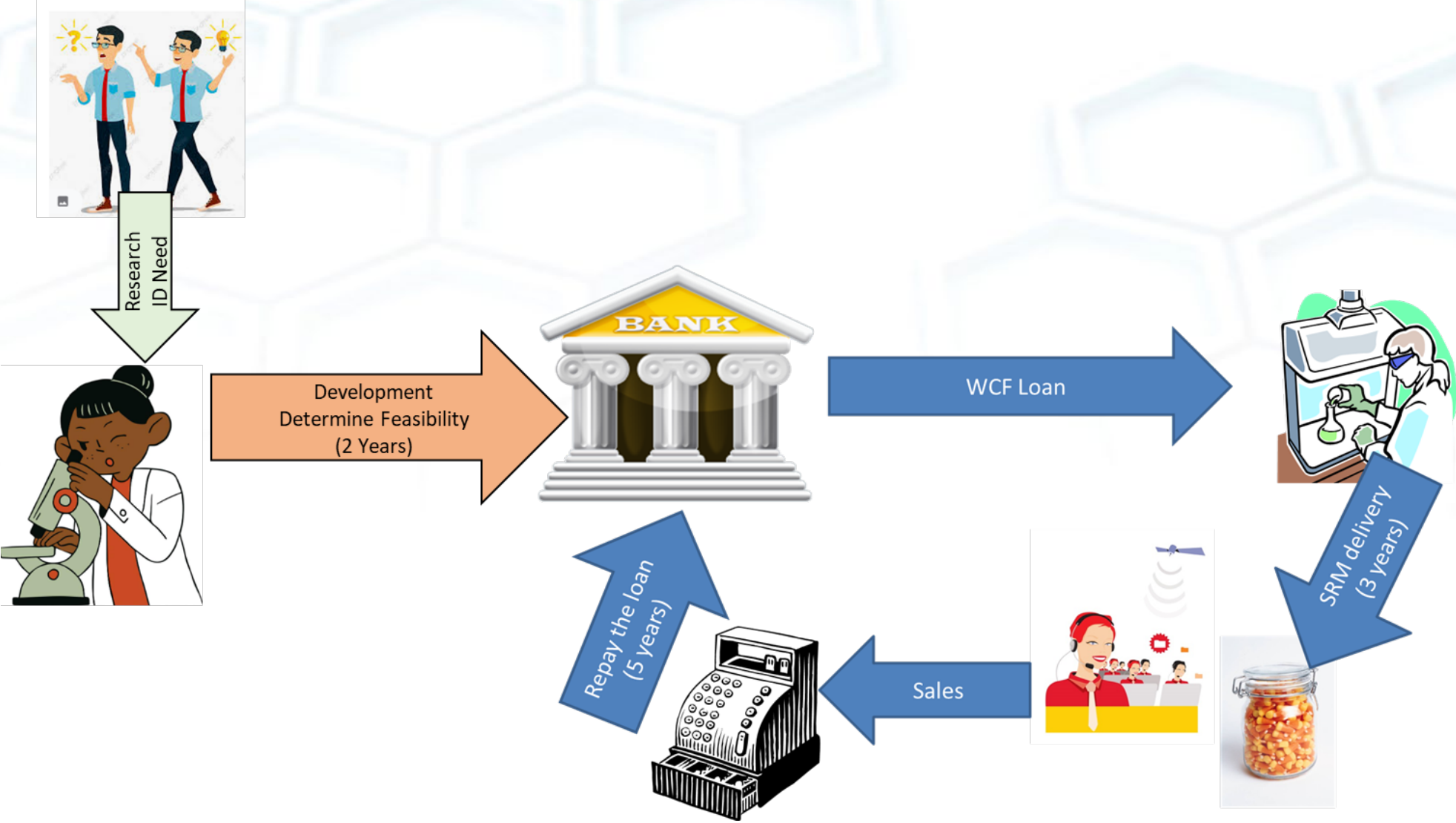
# SRM Major Categories

- **Industrial Materials:** Ferrous, non ferrous materials and cements
- **Environmental:** Toxic elements in soil, PFAS
- **Engineering Materials:** Charpys
- **Health and Clinical:** Analytes in serum; Monoclonal Antibody
- **Food and Ag:** Accuracy in labeling and AOAC food triangle materials
- **Physical Properties:** Physical properties of materials and instrument performance validation standards
- **Forensics:** DNA analysis
- **High Purity Materials:** Materials suitable for traceability to SI
- **Radioactivity**
- **SRI:** Standard Reference Instruments

# Sales by Major Category FY 2024



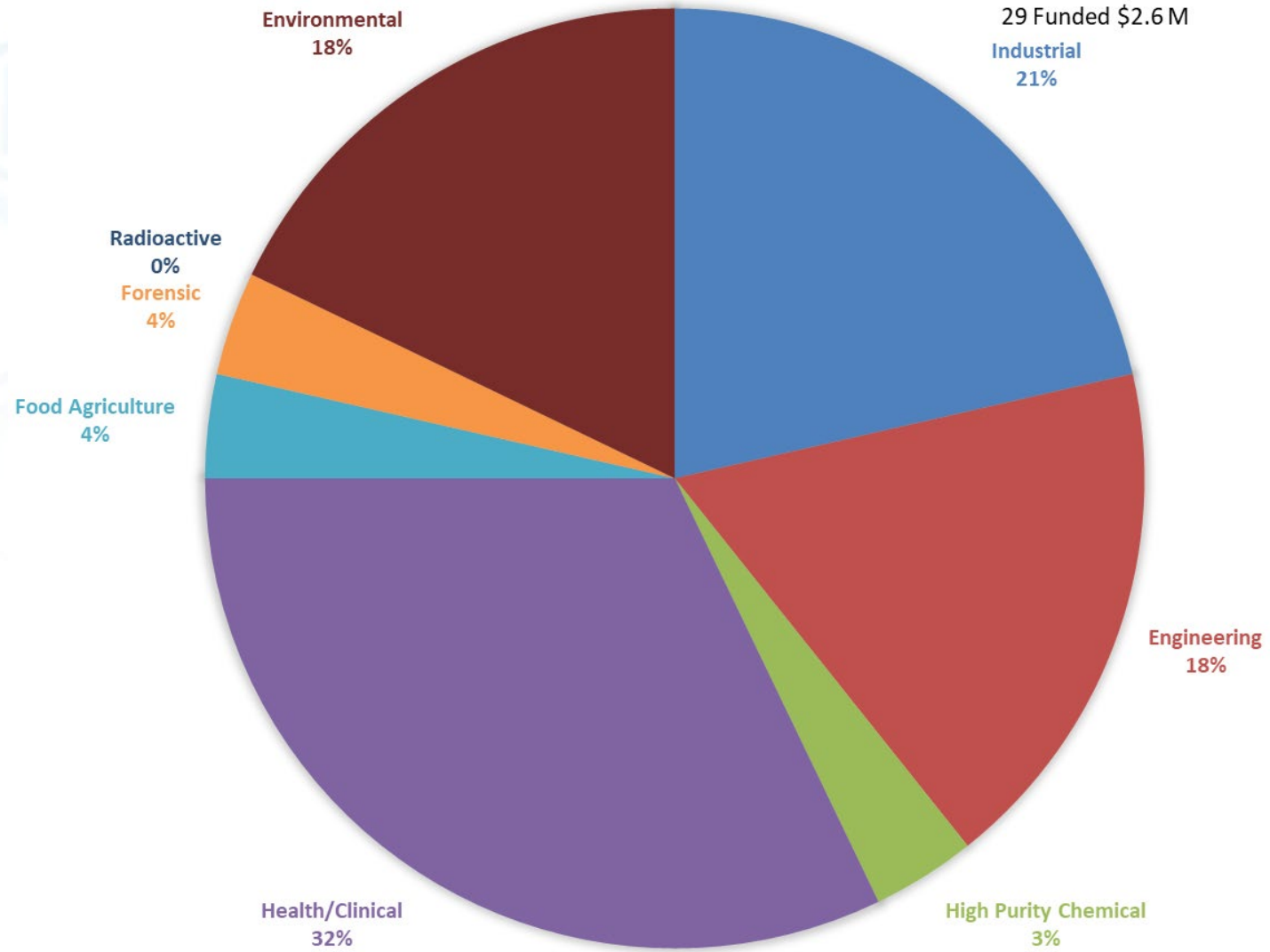
# SRM Process Description





# FY 25 SD Proposals 29 Funded \$2.6M

NanoPlastics  
Lipid NanoParticles  
Toxic Elements Food  
Cannabinoid Calibration  
Therapeutic Oligo's

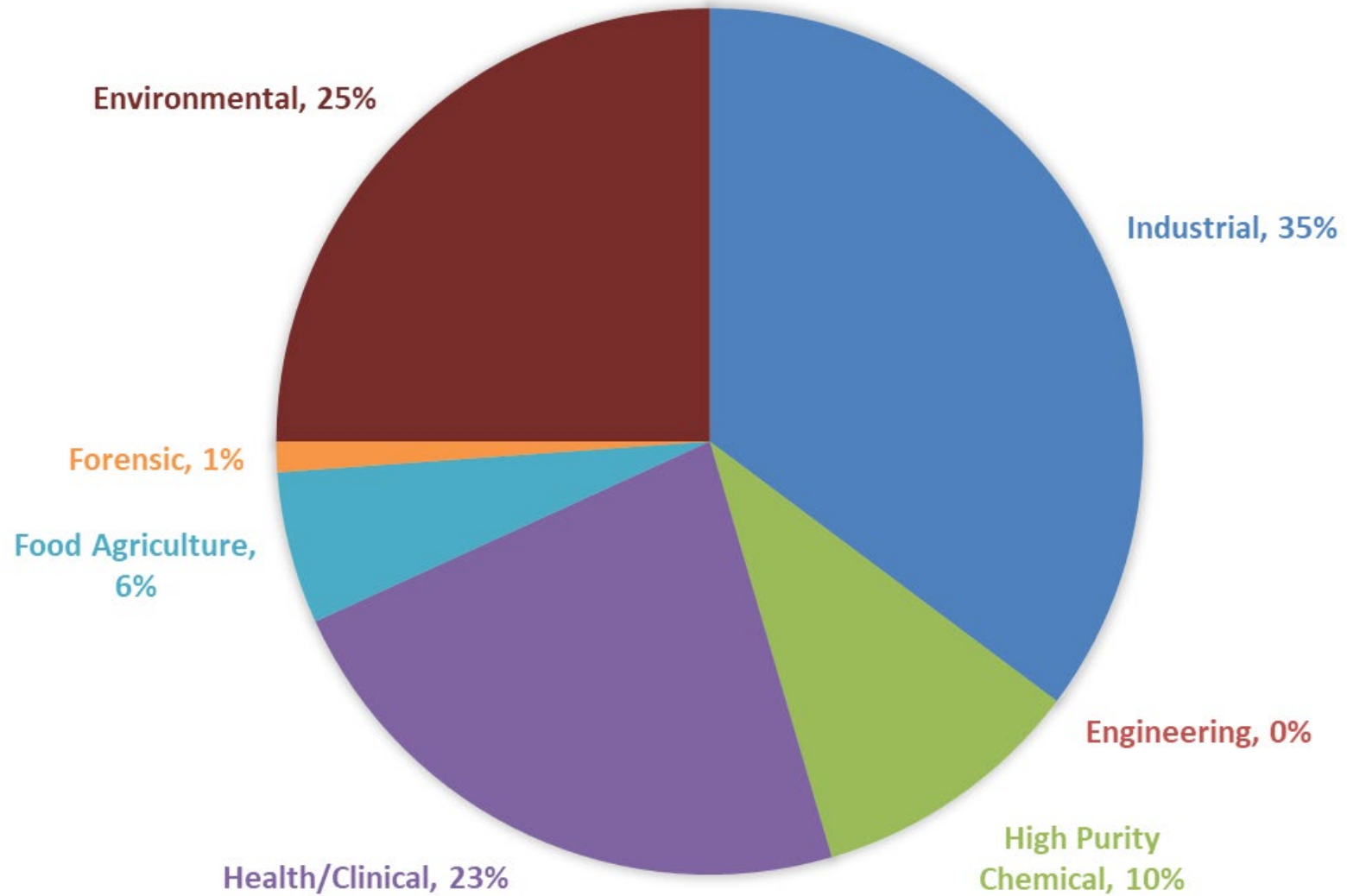




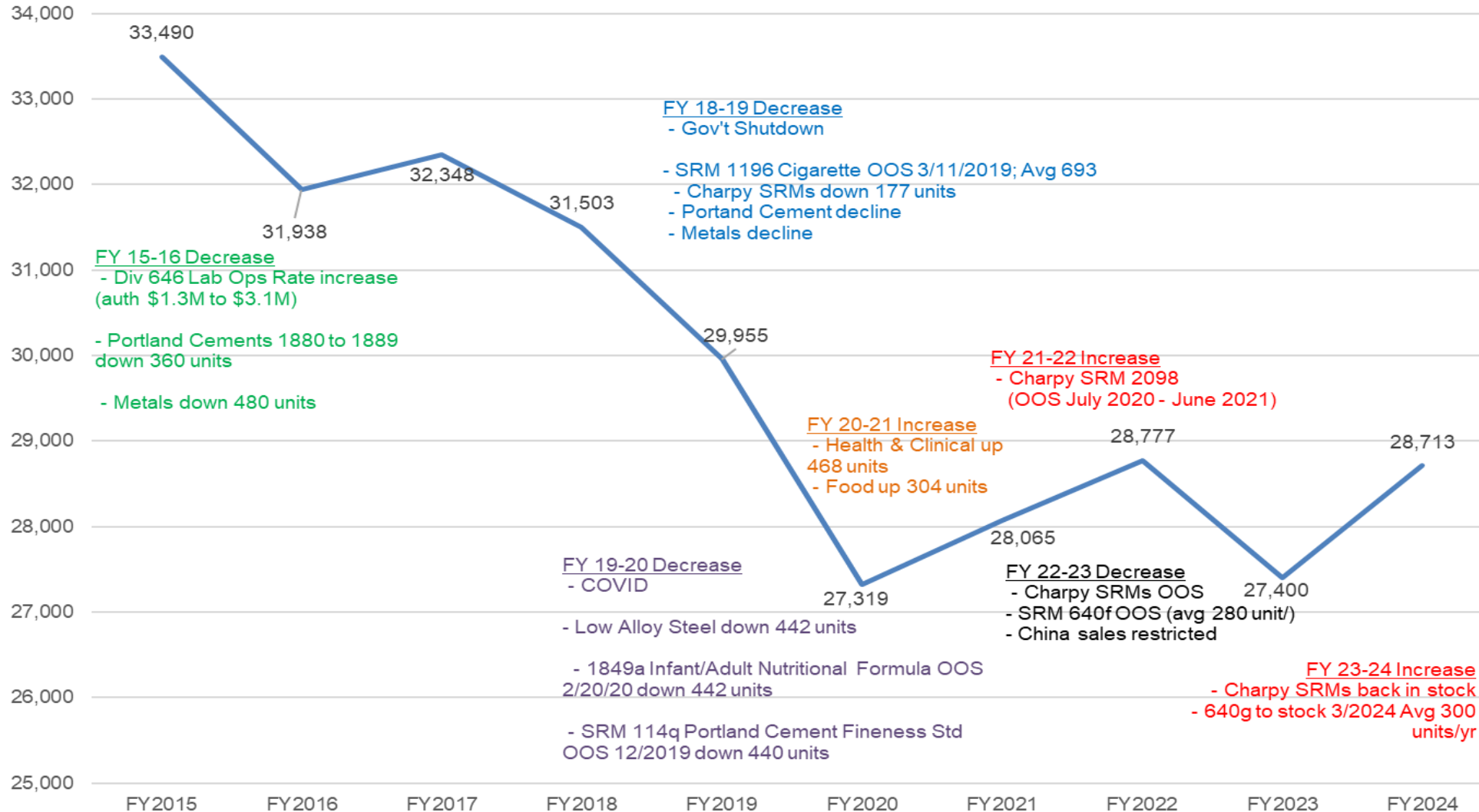
# FY 25 WCF Proposals 88 Projects \$12.M

PFAS  
Infant Formula HMO  
Omics Measurements  
uPlastics  
cNISTmAb  
Mpox DNA PCR Std.

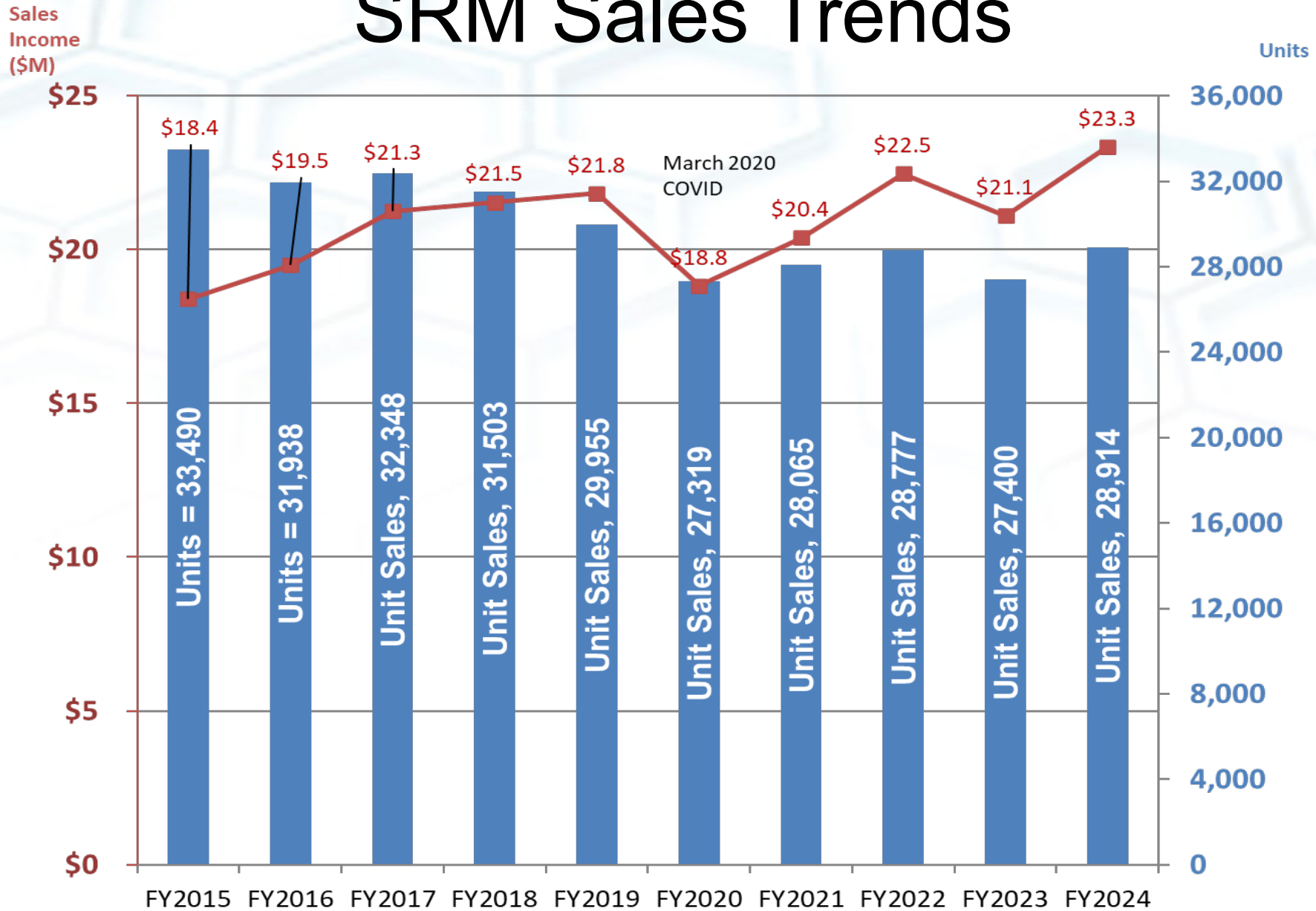
25% new 75% renewal



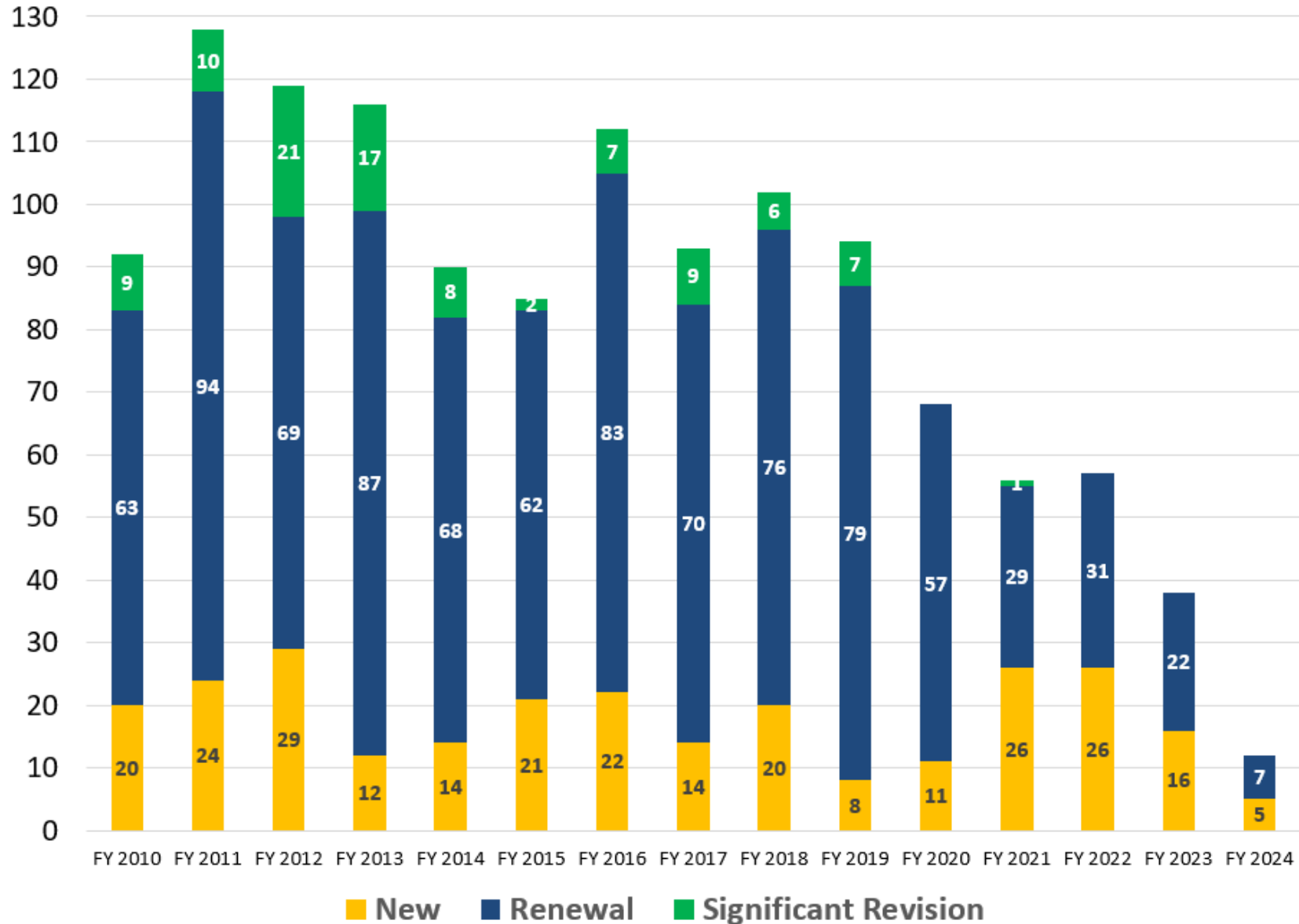
# SRM Unit Sales



# SRM Sales Trends



# Number of SRMs Delivered to Stock



# 5 New SRMs

1229 Zirconium (Sn-Fe-Cr)  
Alloy UNS R60804 (block  
form)



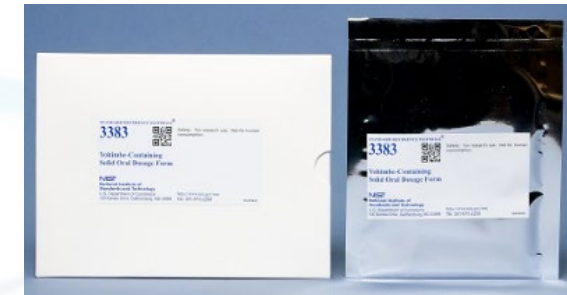
2983 Inorganics in  
Geoduck Clam Tissue  
(Panopea generosa)



3328 Lead (Pb) Isotopic  
Standard Solution



3383 Yohimbe-Containing  
Solid Oral Dosage Form



8210 Hemp Plant





# 7 Renewal SRMs

640g Line Position and Line Shape Standard for Powder Diffraction



1955a Homocysteine in Frozen Human Serum



2246a Relative Intensity Correction Standard for Raman Spectroscopy



2693a Bituminous Coal (Nominal Mass Fraction 0.5 % Sulfur)



967b Creatinine in Frozen Human Serum

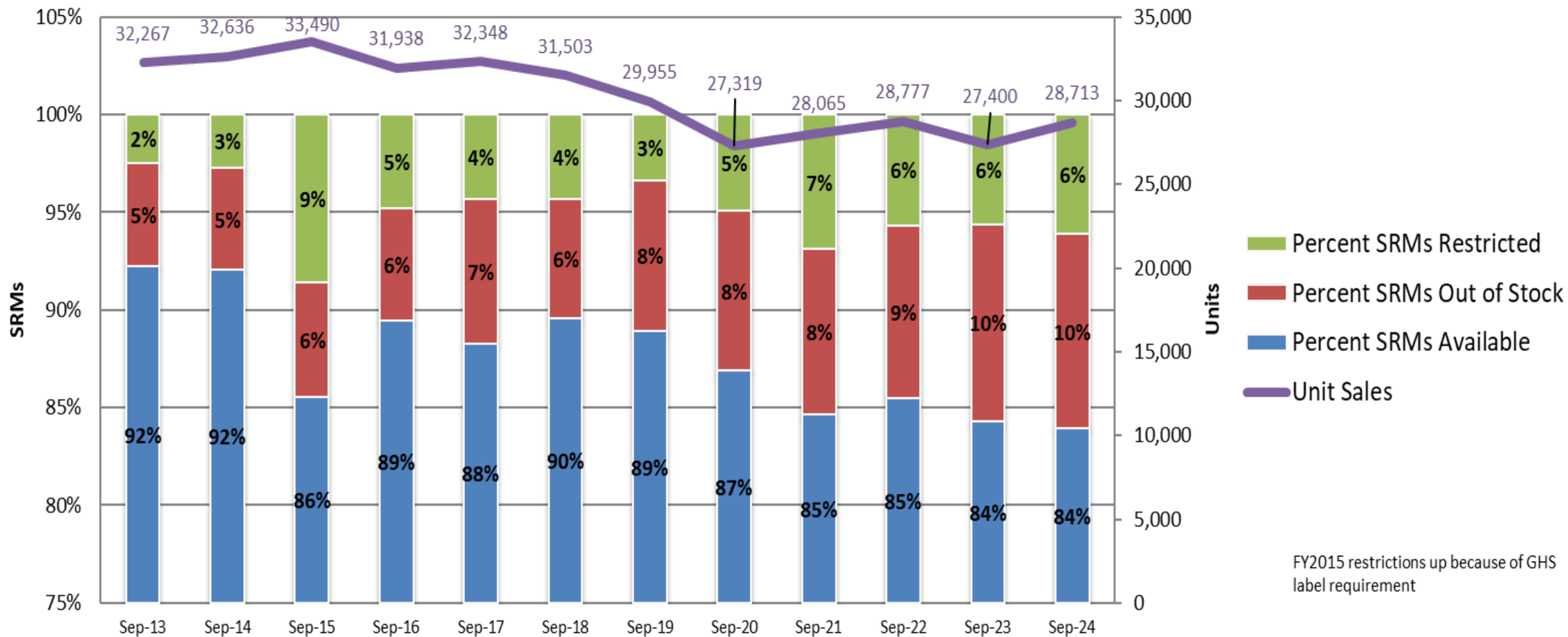


1595a Tripalmitin



4324c Uranium-232 Radioactivity Standard

# SRMs Available, Out of Stock, Restricted vs. Unit Sales





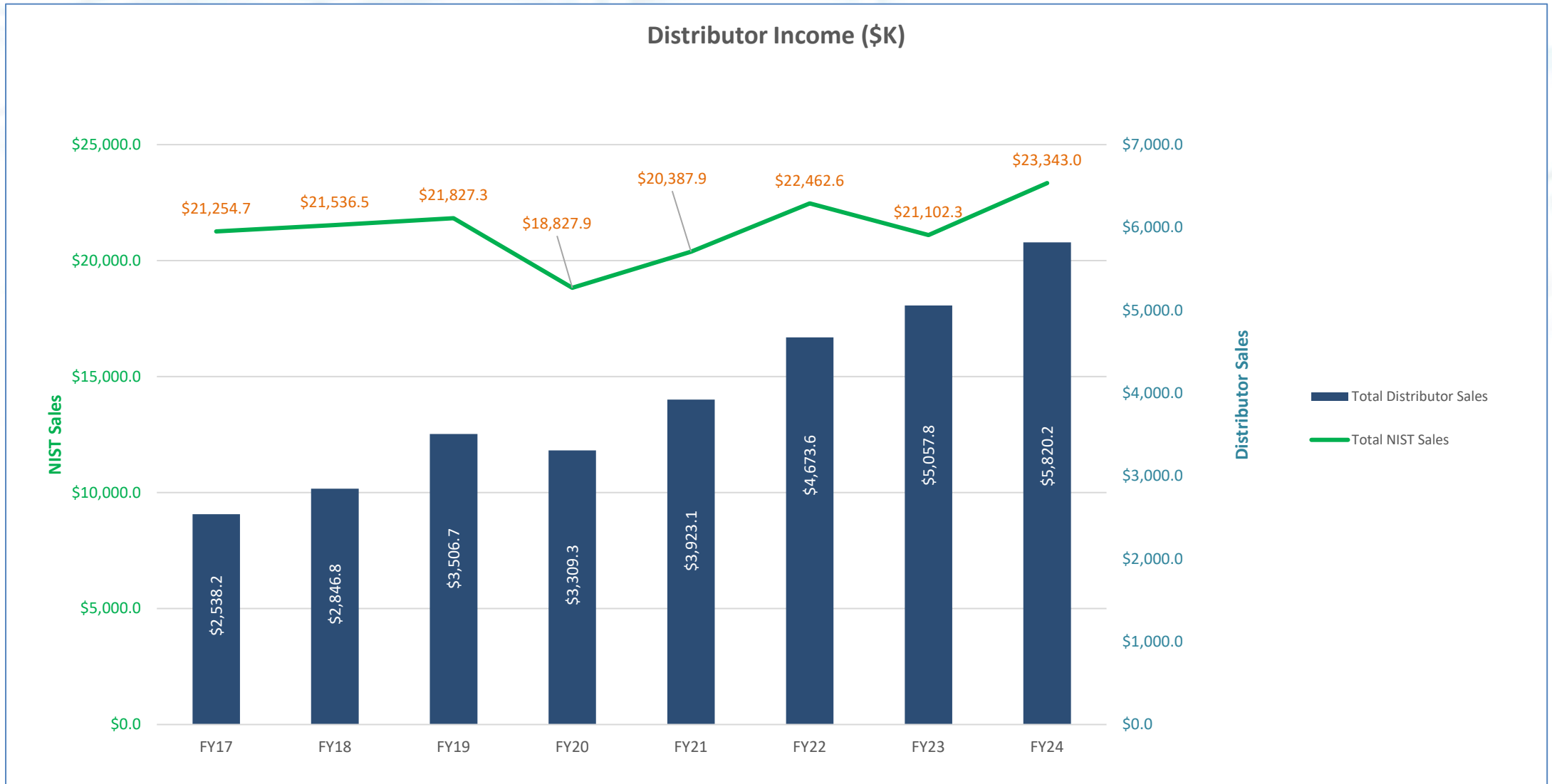
# Order and Customer Type

- Web orders increasing - FY2017 33%; FY2024 80%

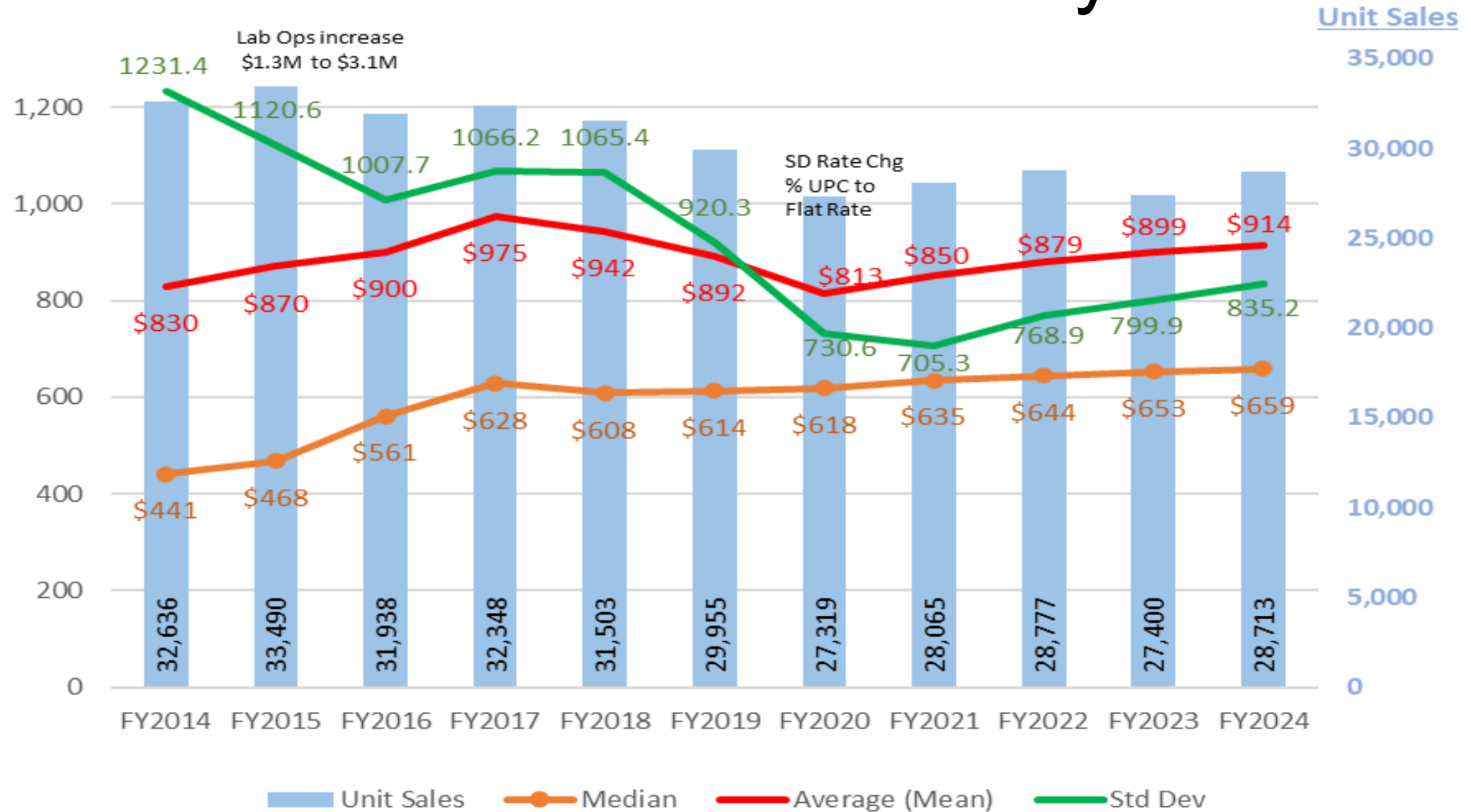


- Distributor Sales increasing - FY2017 12%; FY 2024 25%
  - NIST is increasingly utilizing the resources of our distributors to reach our customers

# Distributor Sales

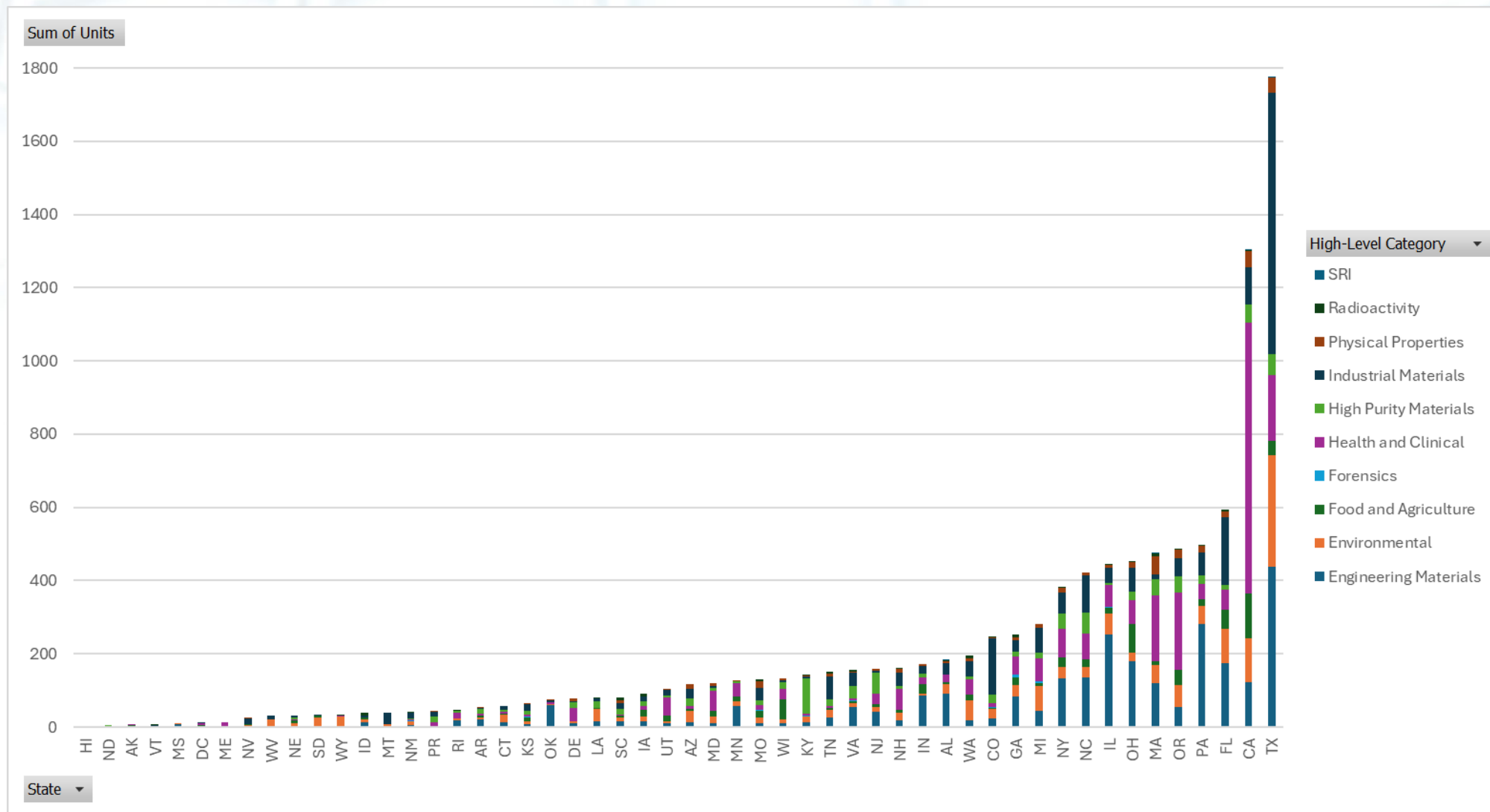


# SRM Price History

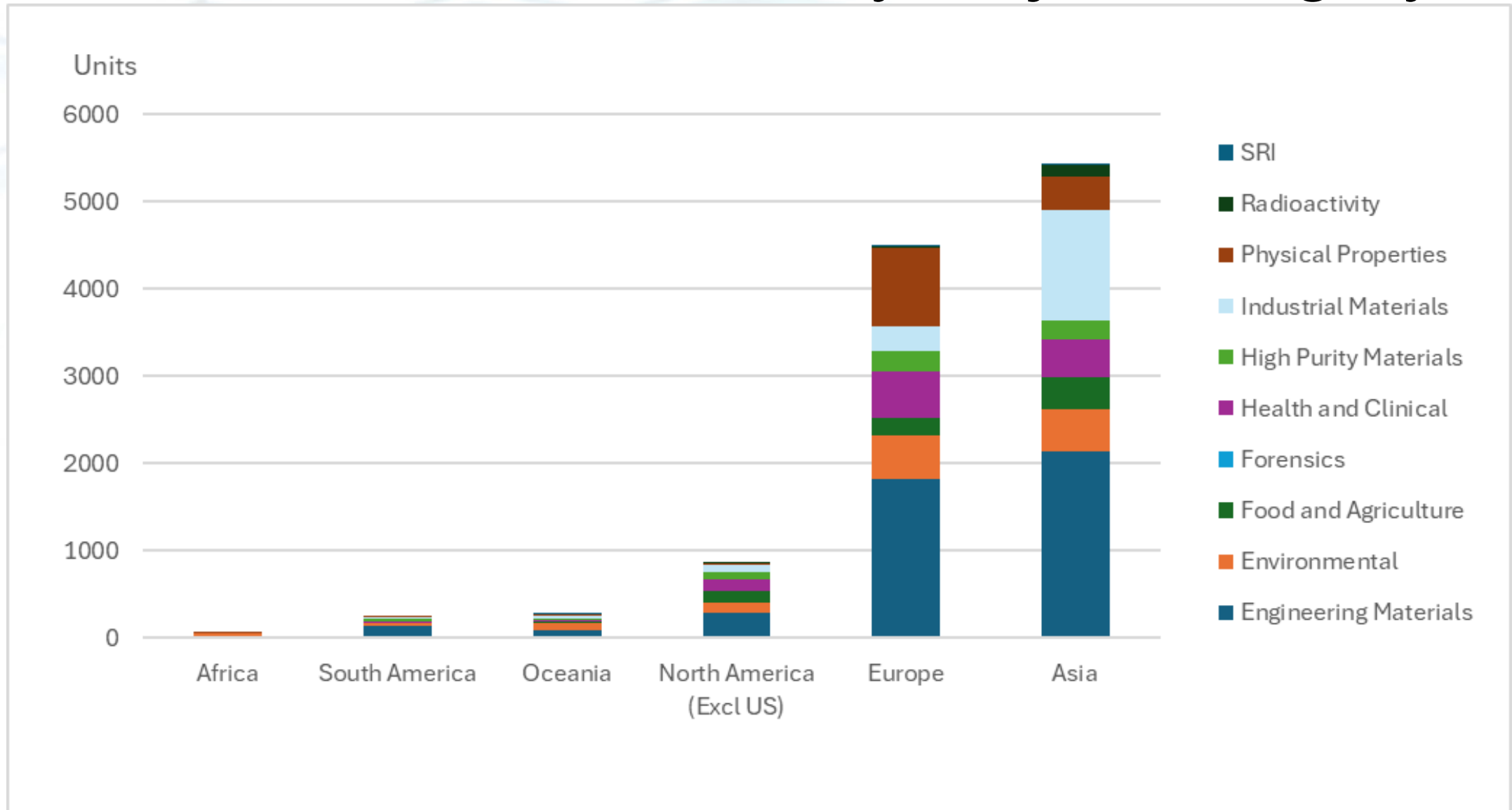


# U.S Sales by State and Major Category

(Excludes Distributor Sales)



# International Sales by Major Category

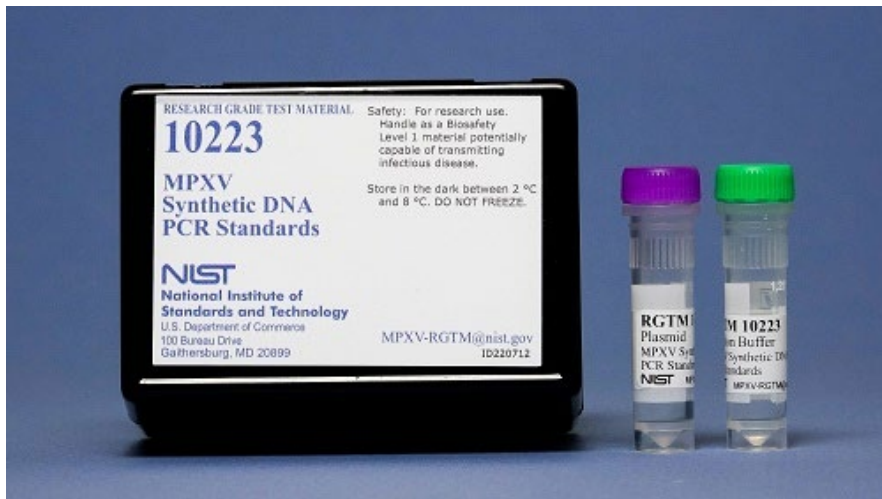


# Introduction to Research Grade Test Materials (RGTM)

Develop a new class of research-grade materials that have a significantly shorter development time compared to SRMs and RMs so that NIST can provide measurement tools that meet industry's rapidly changing needs on a timely basis.

## MML Strategic Plan 2014 - Get materials into hands of stakeholders rapidly

- To implement this strategy, MML will develop:
- Research materials as a class of reference materials with prescribed homogeneity and stability.
- A data submission process and repository so that outside stakeholders can continue to contribute to the characterization of the material.
- A process and knowledge base to engage stakeholders and identify 'trusted' laboratories for characterization and value-assignment.
- A business model that facilitates distribution to the public at low cost.
- A "graduation" approach for promoting quality research materials to SRM status as needed by the community.



# SRM Pipeline : Conversion of SD to Product

Of the Projects Funded in FY 2014, by FY 2018					
# FY 2014 Funded Projects	In SD Phase	In WCF Phase	In Inventory	Applied to Other Msmt Services	Work Stopped
28	4	1	4	6	13
	14%	4%	14%	21%	46%
		32%			

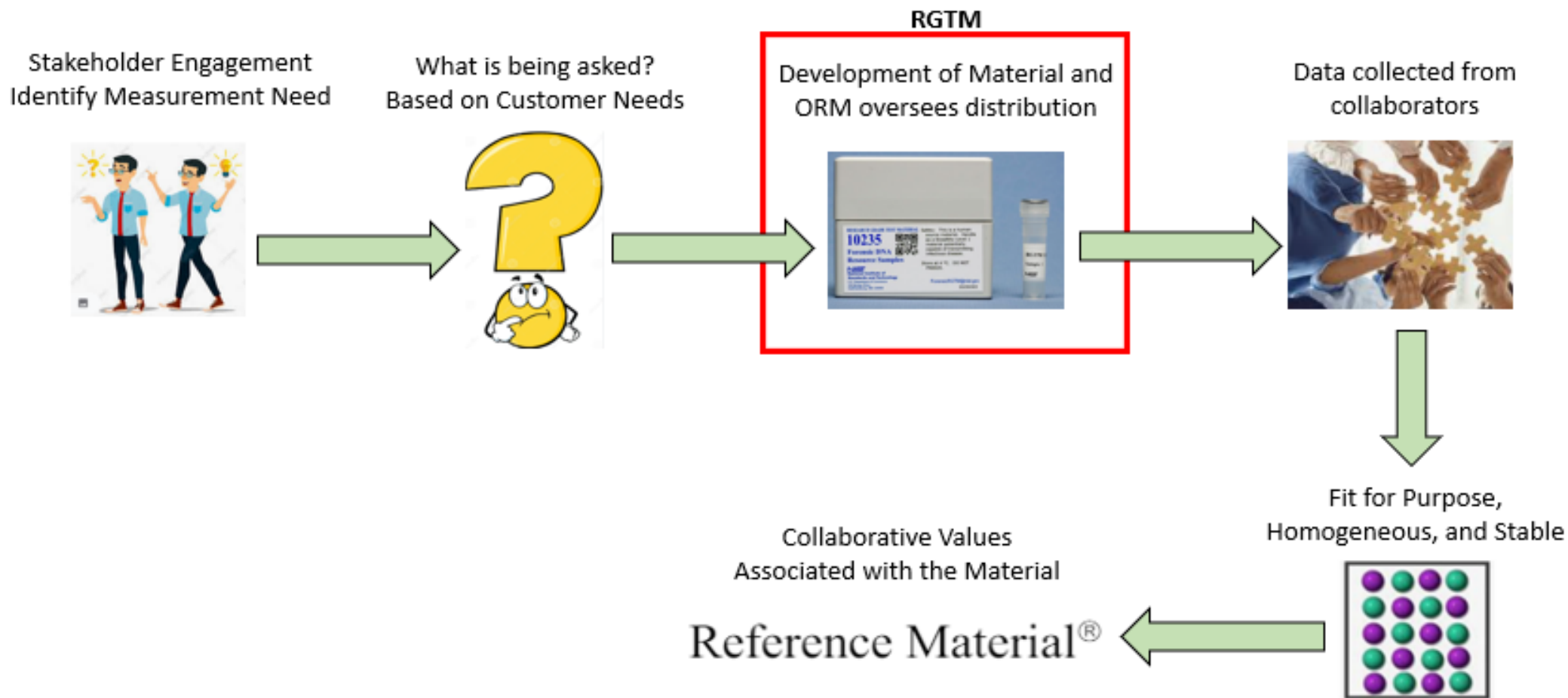
Prior to RGTMs, the conversion to product is low.



# Research Grade Test Material (RGTM) definition

- Prepared to be **homogeneous and stable** but typically has not been quantitatively evaluated for all properties of potential interest.
- Intended to **support measurand discovery and characterization**
- May be distributed to external stakeholders in a NIST-sponsored interlaboratory study (ILS) to determine its **fit for purpose** as a candidate SRM/RM or harmonization material

# RGTM → RM



# SRM Pipeline : Conversion of SD to Product

## Of the SD Projects Funded in FY 2023, by Start of FY 2025

# of FY 2023 Funded Projects	In Development Phase	In Production Phase	No More Work
28	13	12	3
	46%	43%	11%
	89%		

The requirement for stakeholder feedback via an Interlaboratory Study, is showing increased success.

# SRM Counts by Unit Sales Bin

	<u>FY2014</u>	<u>FY2015</u>	<u>FY2016</u>	<u>FY2017</u>	<u>FY2018</u>	<u>FY2019</u>	<u>FY2020</u>	<u>FY2021</u>	<u>FY2022</u>	<u>FY2023</u>	<u>FY2024</u>	
ORM Ops												
Full Surcharge	\$162	\$185	\$162	\$175	\$170	\$170	\$170	\$175	\$175	\$180	\$180	
Lab Ops Auth (\$M)	\$1.5	\$1.7	\$3.5	\$4.0	\$3.9	\$3.9	\$3.9	\$3.6	\$4.3	\$3.7	\$3.4	
Unit Sales (excl SRI)	32,636	33,487	31,915	32,326	31,485	29,943	27,312	28,057	28,768	27,384	28,699	
Count	1,311	1,262	1,209	1,194	1,188	1,154	1,139	1,141	1,137	1,130	1,106	
Median	5	5	6	6	5	6	5	5	5	5	5	
Average (Mean)	25	27	26	27	27	26	24	25	25	24	26	
Std Dev	87.8	91.4	88.0	90.8	93.7	92.4	88.8	97.5	100.0	94.9	117.5	
<i>Bin</i>	<u>FY2014</u>	<u>FY2015</u>	<u>FY2016</u>	<u>FY2017</u>	<u>FY2018</u>	<u>FY2019</u>	<u>FY2020</u>	<u>FY2021</u>	<u>FY2022</u>	<u>FY2023</u>	<u>FY2024</u>	
<=3	535	530	450	474	493	459	472	495	488	496	491	44%
>3 and <=9	291	273	293	239	253	254	255	233	227	237	243	22%
>9 and <=49	342	308	326	341	309	319	304	304	314	293	275	25%
>49 and <=99	81	77	67	76	66	64	49	54	57	60	48	4%
>99 and <=500	55	67	66	56	59	52	53	46	42	36	38	3%
>500 and <=1000	5	5	5	6	6	3	3	6	5	4	6	1%
>1000	3	2	2	2	2	3	3	3	4	4	5	0%
	1,312	1,262	1,209	1,194	1,188	1,154	1,139	1,141	1,137	1,130	1,106	

Prepared by the  
NIST/MML/Office of Reference Materials

Questions?  
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