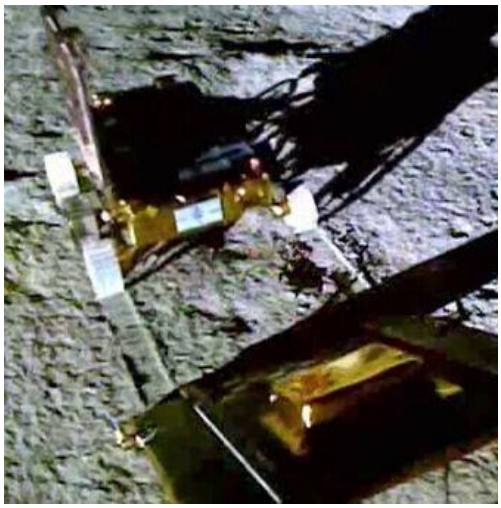
Analytical, Life Science & Diagnostics Association

Industry Market Assessment - Quarterly Review

August 2023

Second Quarter (Q2 2023)



Pragyan rover reaches lunar surface from Chandrayaan-3 lander
Photo Credit: ISRO

Prepared by

Strategic Directions International

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Preface

This issue of the ALDA Industry Market Assessment Quarterly (IMAQ) Review prepared by Strategic Directions International, Inc. (SDi) addresses industry results for the second quarter of 2023 (April to June). As in the reviews presented in previous years, 15 product categories of particular interest to ALDA are addressed, which generally align with certain product categories presented in the ***2023 SDi Global Assessment Report.*** The base year data in this review are derived from the 2022 market data from the most recent ***Global Assessment Report***, and the data for the second quarter stems from our analysis of the financial results of public companies in the space and our internal estimates of private company sales.

The ALDA Board selected SDi to provide industry growth and segmentation data on a quarterly basis as an aid to members for planning and performance measurement purposes based on current industry trends. SDi provides the IMAQ 2 months following the end of each calendar quarter. The next issue covering third quarter results will be published at the end of November.

SDi has been providing consulting and market intelligence to industry participants for 40 years. Together with its sibling organizations within Science and Medicine Group, we offer complete market research support for our clients in the life science, analytical, medical imaging and diagnostics industries. We are well-positioned to assess industry trends based upon our infrastructure for tracking market developments for both our consulting practice and our various publications including the ***2023 SDi Global Assessment Report—The Laboratory Analytical and Life Science Instrumentation Industry***. Other recent report topics include process analytical instrumentation, bioprocessing tools, and mass spectrometry. SDi also stays on top of industry events with its industry leading newsletter, ***IBO (Instrument Business Outlook)***.

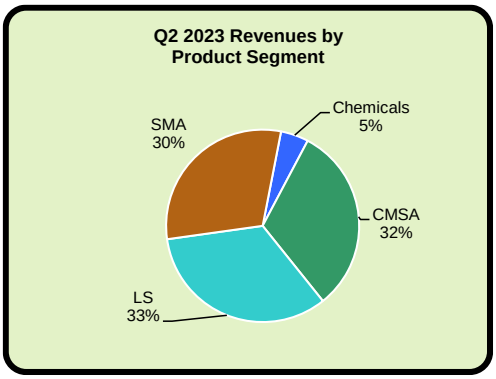
Many of our reports are published for the general industry reader, and in most cases on an annual basis. What differentiates this report is that it is specifically tailored to meet the needs of the ALDA membership. It is designed to present information on a more frequent quarterly timeframe, at a level of detail that is readily available and useful, and that focuses on the 15 technology markets most important to the membership. The aggregate market of these 15 ALDA segments represents about 75–80% of global industry revenues at end-user values. Of course, many ALDA member companies are involved in a number of technology areas, so multiple presentations are included to show the differences in market growth and regional and industrial prospects for those businesses.

PART A. SECOND QUARTER MARKET RESULTS

Q2 Revenues by Product Segment

$Mil	2023	2022	Growth
Chrom, Mass Spec & Automation (CMSA)	4,896	4,953	-1.2%
Spectroscopy and Materials Analysis (SMA)	4,701	4,436	6.0%
Life Science (LS)	5,202	5,375	-3.2%
Analytical Chemicals	726	701	3.6%
Total	**15,524**	**15,464**	**0.4%**

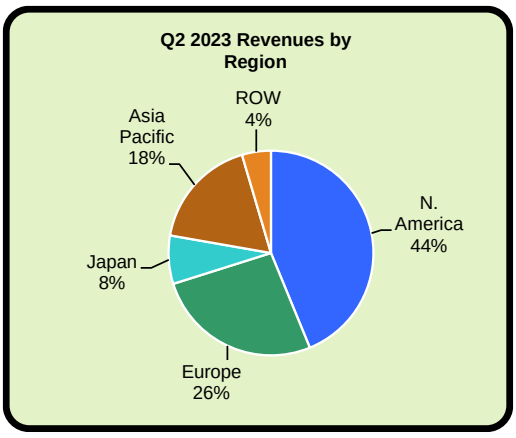
Total demand in the industry was flat in the second quarter, seeing a nominal overall increase of 0.4%. Spectroscopy and materials analysis (SMA) products experienced growth of 6.0%, while life science markets retreated 3.2%. Despite significant growth for mass spectrometry, the chromatography, mass spec and automation segment experienced an overall drop in demand. Once again, life science customers across biopharma had slackening demand, despite stronger growth from academic customers. Laboratory chemicals and solvents, the smallest segment, grew 3.6% in the quarter.



Q2 Revenues by Region

$Mil	2023	2022	Growth
N. America	6,801	6,628	2.6%
Europe	4,086	3,963	3.1%
Japan	1,184	1,171	1.1%
Asia Pacific	2,745	3,020	-9.1%
ROW	708	682	3.8%
Total	**15,524**	**15,464**	**0.4%**

In terms of regional growth, the most significant story was the decline in demand from the Asia Pacific region. A troubled Chinese economy combined with tentative outside investment, particularly for biopharma companies, produced declining demand in the region as a whole, despite some growth in smaller APAC markets. All of the other regions achieved positive growth, with Rest-of-World and Europe leading the charge. Europe benefitted slightly from currency effects, but on the whole, foreign exchange rates were a drag on reported growth; initial estimates suggest the effect was roughly -1.5% globally.

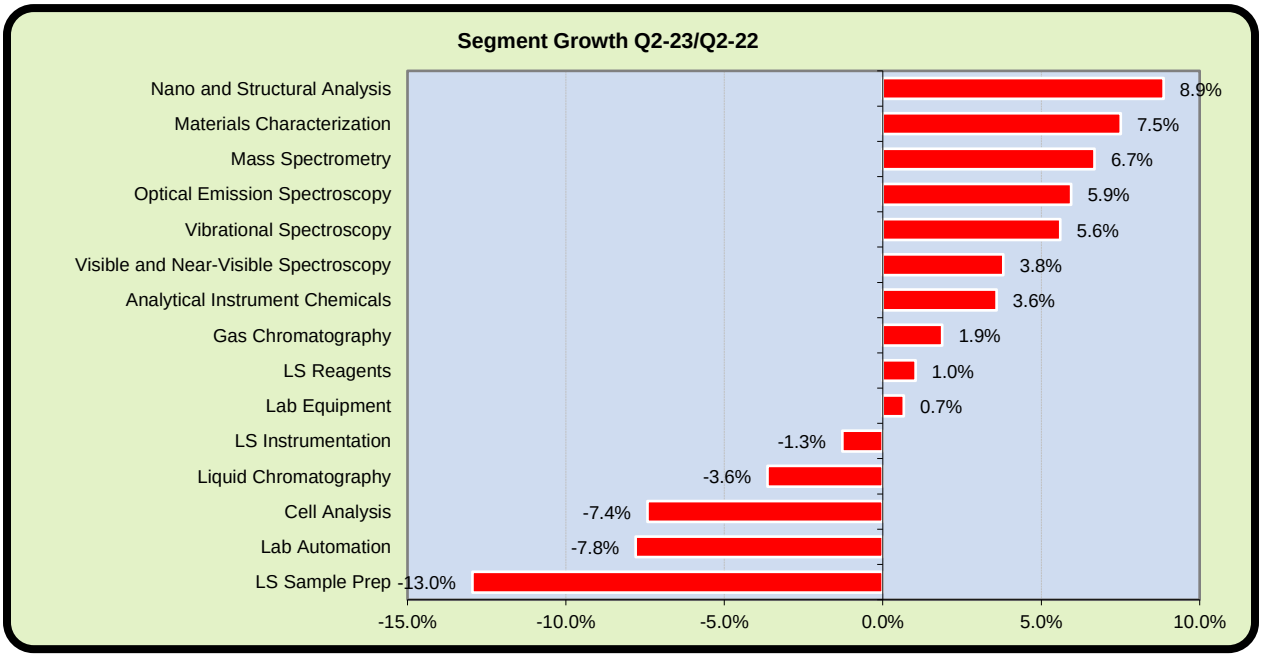


The market defined by ALDA consists of about 50 technology segments grouped into 15 reported segments, and accounts for 75–80% of the worldwide revenues for analytical and life science instrumentation. SDi regularly follows about 25 technology segments not included in the ALDA IMAQ Review, such as surface science techniques, informatics, separation techniques, physical testing, elemental analyzers, and several other technologies.

1. Q2 2023 Revenues by Product

Q2 Revenues by Product

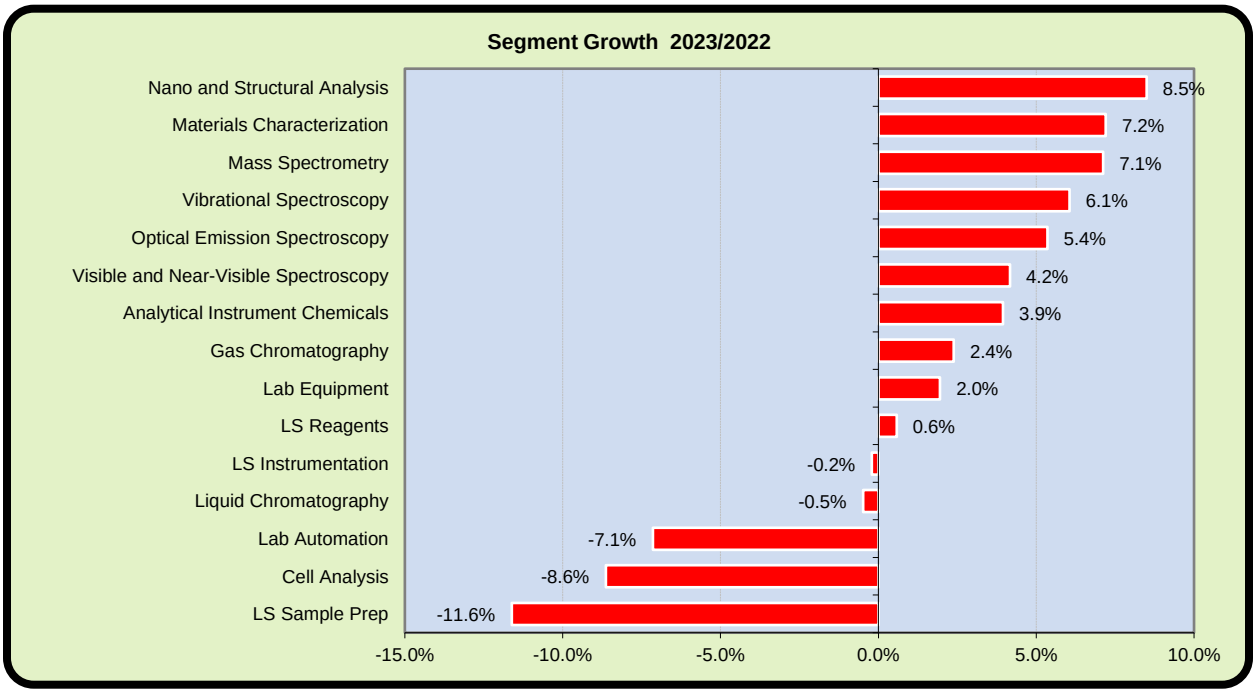
$Mil	2023	2022	Growth
Spectroscopy and Materials Analysis	**4,701**	**4,436**	**6.0%**
Laboratory Equipment	833	828	0.7%
Materials Characterization	640	595	7.5%
Nano and Structural Analysis	1,795	1,649	8.9%
Optical Emission Spectroscopy	379	358	5.9%
Vibrational Spectroscopy	538	509	5.6%
Visible and Near-Visible Spectroscopy	515	496	3.8%
Chrom, Mass Spec & Automation	**4,896**	**4,953**	**-1.2%**
Gas Chromatography	769	754	1.9%
Laboratory Automation	1,086	1,177	-7.8%
Liquid Chromatography	1,694	1,758	-3.6%
Mass Spectrometry	1,348	1,264	6.7%
Life Science	**5,202**	**5,375**	**-3.2%**
Cell Analysis	366	396	-7.4%
Life Science Instrumentation	1,180	1,195	-1.3%
Life Science Reagents	2,614	2,587	1.0%
Life Science Sample Prep	1,042	1,197	-13.0%
Analytical Chemicals	**726**	**701**	**3.6%**
Total	**15,524**	**15,464**	**0.4%**



2. 1H 2023 Revenues by Product

First Half Revenues by Product

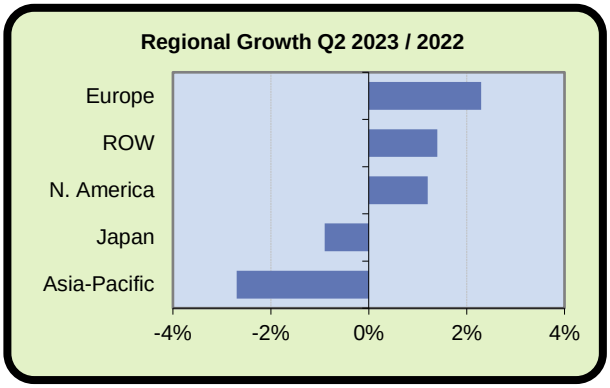
$Mil	2023	2022	Growth
Spectroscopy and Materials Analysis	**9,110**	**8,587**	**6.1%**
Laboratory Equipment	1,605	1,575	2.0%
Materials Characterization	1,281	1,195	7.2%
Nano and Structural Analysis	3,397	3,131	8.5%
Optical Emission Spectroscopy	740	702	5.4%
Vibrational Spectroscopy	1,080	1,018	6.1%
Visible and Near-Visible Spectroscopy	1,007	966	4.2%
Chrom, Mass Spec & Automation	**9,665**	**9,620**	**0.5%**
Gas Chromatography	1,633	1,595	2.4%
Laboratory Automation	2,020	2,175	-7.1%
Liquid Chromatography	3,325	3,341	-0.5%
Mass Spectrometry	2,687	2,508	7.1%
Life Science	**11,124**	**11,489**	**-3.2%**
Cell Analysis	767	839	-8.6%
Life Science Instrumentation	2,388	2,393	-0.2%
Life Science Reagents	5,541	5,509	0.6%
Life Science Sample Prep	2,428	2,748	-11.6%
Analytical Chemicals	**1,422**	**1,368**	**3.9%**
Total	**31,321**	**31,064**	**0.8%**



PART B. LAB EQUIPMENT

Overview

The lab equipment market is comprised of a group of relatively low-cost instruments including centrifuges, electrochemistry products, and laboratory balances. The market includes initial systems sales, aftermarket purchases and service. Lab equipment saw a 0.4% increase in demand for the quarter, with strength in food, beverage & agriculture, and environmental end markets.

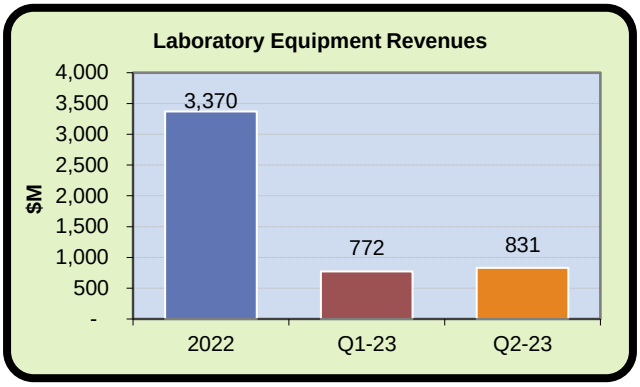


End-User Markets

While the pharma industry comprises almost a fifth of the total market, this quarter it displayed weakening demand due to tight budgets and limited instrument purchases impacting centrifuges. Academia, the largest end market in the second quarter, contributed to robust demand bolstered by stable funding across all regions. Similarly, food/agricultural testing remained strong in the quarter supporting electrochemistry equipment in particular.

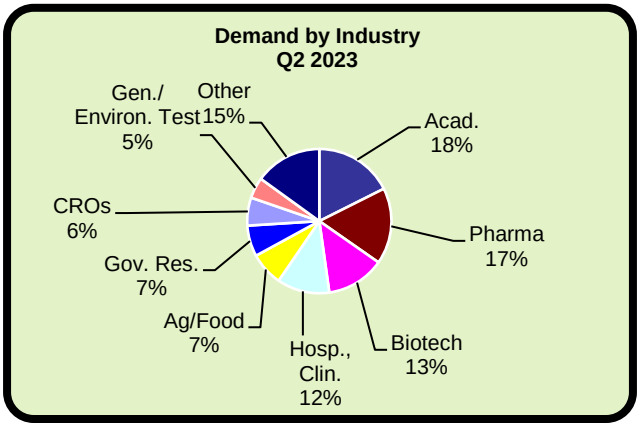
Market Developments

Hanna Instruments announced its Advanced Benchtop Meter series. There are three new models with one benchtop meter for pH testing, another dedicated to conductivity, and lastly one for measuring dissolved oxygen. Xylem also completed its acquisition of Evoqua Water Technologies resulting in the world's largest pure-play water technology company.



Regional Demand

Europe saw the highest growth for lab equipment, driven by food and environmental testing supporting the purchase of basic electrochemistry and balance products. North America saw a similar trend. Asia-Pacific experienced negative growth driven by decreased demand for centrifuges as pharma/bio continued to exhibit capital restraint. Growth in Japan stabilized with improved currency conditions.



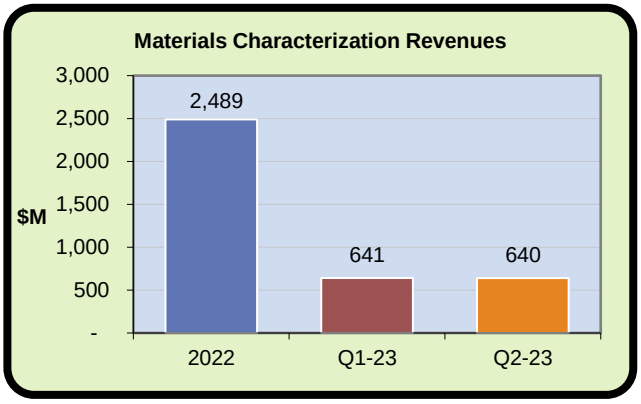
Near Term Prospects

Growth is expected to remain in the low single digits as limited spending in pharma/bio restricts purchases of centrifuges and related life science lab equipment, particularly in China. The applied sector and academic sectors are expected to continue stable growth patterns.

PART C. MATERIALS CHARACTERIZATION

Overview

The materials characterization market comprises thermal analysis, calorimetry, particle characterization (now including particle counters), and viscometry/rheometry. Revenue estimates encompass initial systems, components, consumables, and service, but exclude small amounts of life science reagents and analytical chemicals. Growth in demand is estimated at 7.5% due to solid demand from semiconductors and lithium battery research.

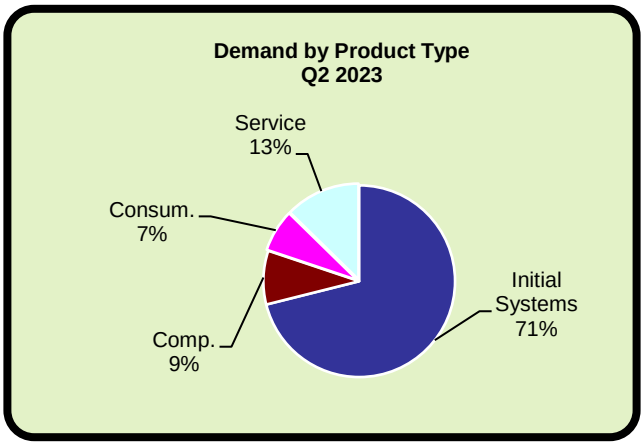


Regional Demand

European demand was bolstered by strong demand in green tech, particularly for advanced polymers and battery testing. In the Asia-Pacific region, macroeconomic conditions in China did not hinder demand as much as it did for life science technologies, while semiconductor demand continued strong for particle characterization. North American demand was solid, with broad strength across industries.

Product Segmentation

Materials characterization has seen relatively stable initial systems demand in the quarter and over the past several years, as new product innovations push new device adoption. Service growth among most of the sub segments has also been relatively stable. Most new systems are currently being adopted to study battery conductivity and semiconductor materials.



Market Developments

Mettler Toledo introduced the DSC 5+, a new calorimeter that brings performance and automation upgrades. The Verder Group, whose scientific division consists of particle characterization vendor Microtrac MRB, announced the acquisition of Formulaction of France. Formulaction will be integrated into Micro-Trac.

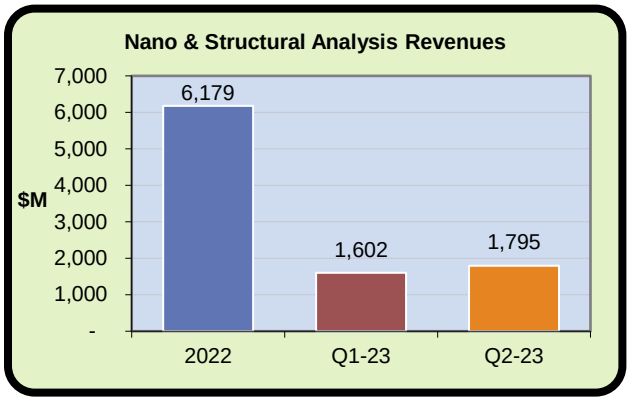
Near Term Prospects

The macroeconomic environment in China is likely to contribute to slowing demand for materials characterization instruments in the Asia-Pacific region. However, strong European demand and moderating demand in North America will keep growth positive heading into the next quarter.

PART D. NANO AND STRUCTURAL ANALYSIS

Overview

The nano and structural analysis market is composed of four segments: nuclear magnetic resonance (NMR), electron microscopy, X-ray diffraction (XRD) and X-ray fluorescence (XRF). Revenue estimates include initial systems, components, consumables, and service, but exclude small amounts of life science reagents and analytical chemicals, which are considered elsewhere. In the second quarter of 2023, total revenue grew 8.9% year over year, led by XRF and XRD.

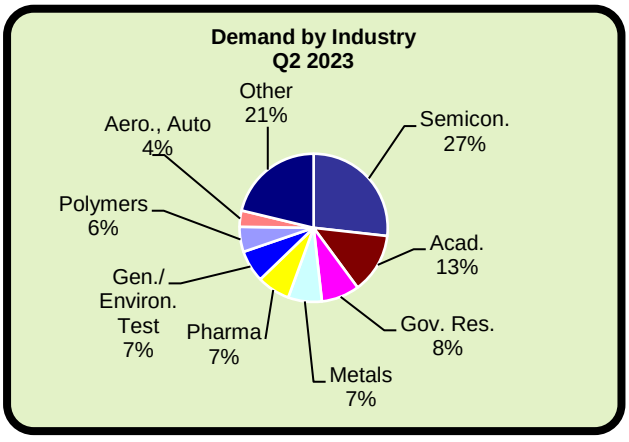


Regional Demand

Demand was strong across all regions for these technologies, with electron microscopy seeing brisk uptake in the developed world, and XRF stronger in the developing regions. Rest-of-World led in terms of growth, coming off a relatively weak comparison period. Mining and minerals activity was a strong source of demand throughout Latin America and Africa. Japan experienced strong demand from battery development. Asia-Pacific saw the least growth, deflated by an uncharacteristically weak Chinese market.

End-User Markets

Semiconductor labs (including electronics, battery technology and nanotechnology) made up the largest industrial segment in the second quarter, representing more than a quarter of sales. Although the semiconductor industry (narrowly defined) has seen some slowing, these adjacent areas of battery technology and nanotech continue to thrive, driving demand for electron microscopy, XRF and XRD. Inspection of electronics and consumer devices also engenders significant quality control demand for SEMs and XRF.



Market Developments

In June, Rigaku launched the ZSX Primus III NEXT WDXRF spectrometer ideal for industrial quality control. Bruker announced its D6 PHASER benchtop XRD platform designed with the analytical flexibility typically only available in larger, floor-standing systems.

Near Term Prospects

Pharma/bio spending will remain generally weak, representing a drag on NMR demand in particular, but the use of cryo-electron microscopy for protein analysis remains a hot growth area for life science applications.

PART E. OPTICAL EMISSION SPECTROSCOPY

Overview

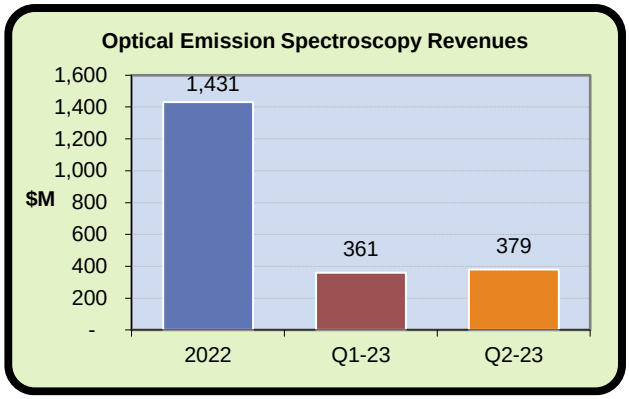
The optical emission spectroscopy market comprises atomic absorbance (AA), inductively coupled plasma (ICP) and arc/spark optical emission spectroscopy. Revenue estimates encompass initial systems, components, consumables, and service, but exclude analytical chemicals, which are considered elsewhere. In the second quarter, demand for these products increased 5.9%, driven by strong results from academic, environmental, and metals/mining customers.

End-User Markets

About a sixth of demand comes from environmental test labs and other general contract labs. The metals and mining segment is the next largest. This latter segment was particularly energetic in the second quarter. Demand was related not just to quality control testing with arc/spark, but also by greater environmental focus on mining operations, necessitating instrumentation to monitor potential hazards. AA and ICP can be applied in this way, as they are for environmental testing of waters and other samples.

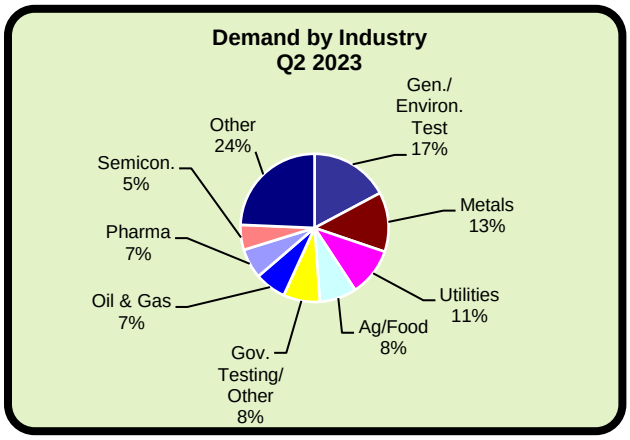
Market Developments

In April, Covalent Metrology, a provider of analytical services in North America, announced a major expansion of its analytical chemistry offerings to include ICP-OES on Thermo Fisher's iCAP 7400 platform. In June, SPECTRO Analytical Instruments (AMETEK) introduced the new SPECTROLAB S LAS02 high-end arc/spark OES metal analyzer for process control and research applications.



Regional Demand

Rest-of-World again provided the strongest growth in the quarter, driven by academic spending and metal production in Latin America. Despite continued underperformance from China, the Asia-Pacific region provided stronger than average growth. The industrialized regions all achieved growth in the mid single digits. Public sector spending supported all three regions, with Japanese growth nearly matching that of North America and Europe.



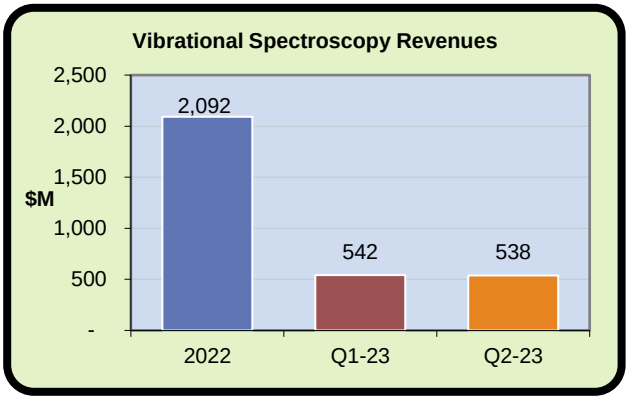
Near Term Prospects

Demand from public and industrial labs will slacken, but environmental testing should remain relatively stable. Life science labs have relatively small demand for these tools, but growth from these labs should strengthen, helping to blunt any falloff in overall growth in this product segment.

PART F. VIBRATIONAL SPECTROSCOPY

Overview

The vibrational spectroscopy market comprises infrared, near-infrared (NIR), and Raman spectroscopy, including both conventional and Fourier transform (FT) methods. Revenue estimates encompass initial systems, components, consumables, and service, but exclude analytical chemicals considered elsewhere. The market grew 5.6% year-over-year in Q2 2023, driven by academia and public utilities.

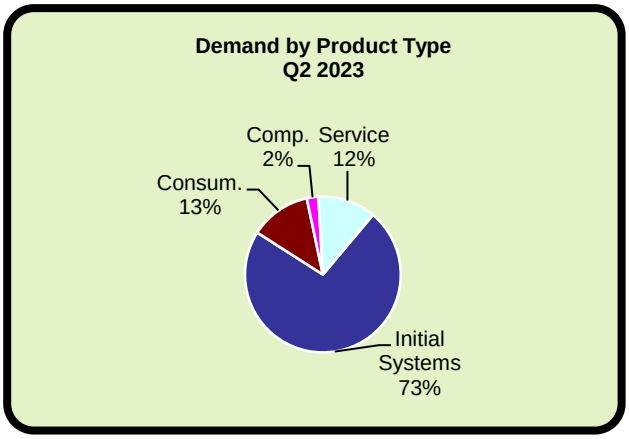


Regional Demand

APAC was the regional growth leader driven by strong environmental spending. Growth in China was affected by weak pharma/bio sales. However academia remained stable. Japan showed positive momentum in the second quarter. Small and mid sized biopharma was negatively affected, which created headwinds in North America and Europe. In these regions, growth is instead being supported by academia and public utility spending.

Product Segmentation

As the techniques in this market require minimal consumables to operate, initial systems dominate the market demand. There was a decline in sequential growth compared to Q1, due to weak pharma/bio sales in developed regions. Instead, initial system sales were driven by academia and public utility end users. Environmental also saw an uptick in sales, especially in developing markets. Consumables saw a decline in Q2 as customers actively destocked their inventories.



Market Developments

In May, Thorlabs expanded its spectroscopy product offering with the release of two vAperture Raman spectrometers, RASP1 and RASP2, for detecting low-intensity Raman signals. With the ability to measure fingerprints (500–1800 cm^{-1} for RASP1 and RASP2) and high-frequency regions (2600–3700 cm^{-1} for RASP2 only), the devices allow for chemical composition of both solid and liquid samples.

Near Term Prospects:

The market is expected to be driven by public labs, due to a freer funding environment, for these relatively lower cost items. The slackening of pharma/bio demand is expected to continue in the near term as companies reduce their spending. Currency effects were mild in Q2 and positive momentum is expected to continue in Japan.

PART G. VISIBLE AND NEAR VISIBLE METHODS

Overview

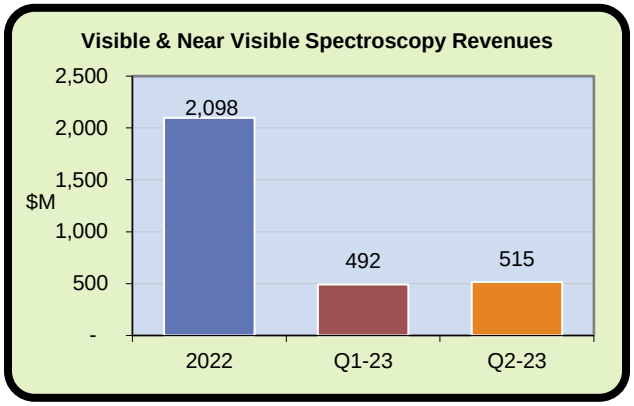
The visible and near-visible methods market comprises UV/Visible spectroscopy, fluorescence, color measurement, ellipsometry, polarimetry, and refractometry. Revenue estimates include initial systems, components, consumables, and service, but exclude life science reagents and analytical chemicals, considered elsewhere. Visible and near visible methods achieved 3.8% year over year growth in Q2 2023, led by academia and environmental applications.

End-User Markets

Although a large portion of the market, life science showed declines in the second quarter due to weak pharma/bio performance globally. UV/Vis spectroscopy has the largest life science exposure, with important applications in nucleic acid quantifications. Environmental applications showed increased growth in Q2 due to strong public sector funding. UV/Vis is critical for water testing and other environmental applications, while ellipsometry and color measurement has quality control applications for material analysis.

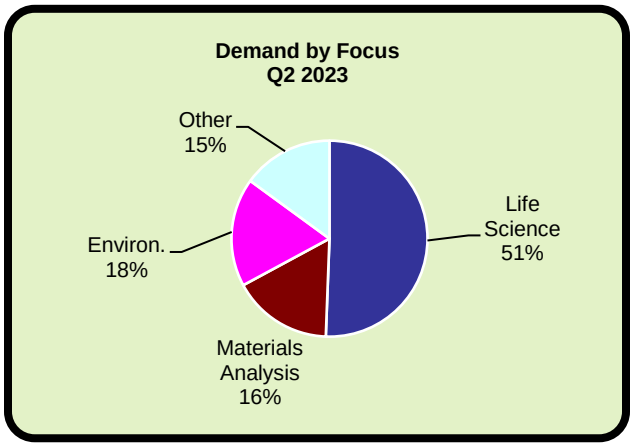
Market Developments

X-Rite and Pantone introduced in June new capabilities to their respective MA-T12 multi-angle handheld spectrophotometer and PANTORA desktop software that enable automotive, electronics and durable goods customers to measure and visualize a broader range of materials, including plastics, leather, fabrics and structured coatings.



Regional Demand

Growth in APAC was led by academia and public utilities. Although government stimulus helped support China's growth, overall economic momentum was slow. Likewise, pharma/bio sales were negatively affected in North America and Europe, but which was partially offset by strong academia and environmental spending. Despite a declining yen during the quarter, Japan achieved positive growth as organic demand was stronger than usual.



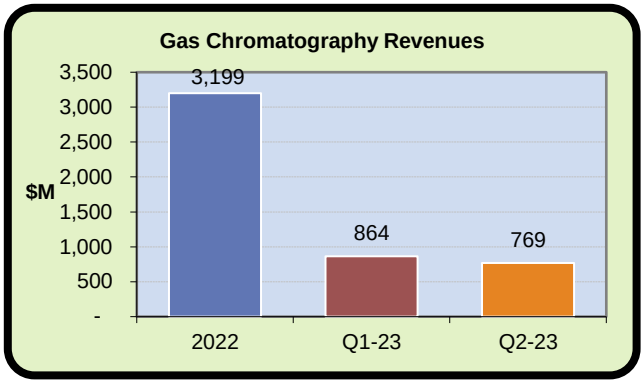
Near Term Prospects

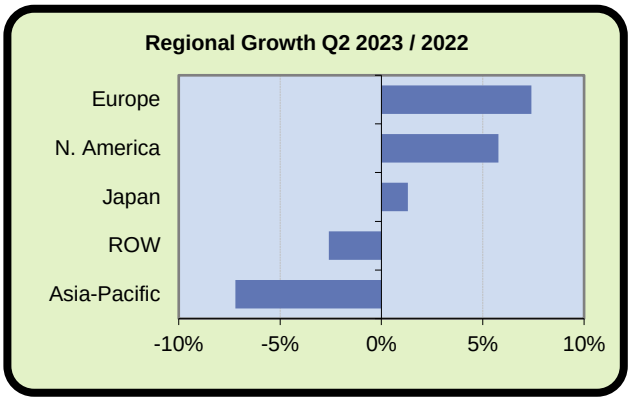
Growth will be led by academia and environmental applications. However academic spending will likely weaken as the year progresses. The current weakness in pharma/bio is expected to continue through the near term, especially in China. Japan's positive momentum should maintain good prospects there.

PART H. GAS CHROMATOGRAPHY

Overview

The gas chromatography market comprises not just the chromatographs, but also associated detectors, including mass spectrometry (GC-MS). Revenue estimates encompass initial systems, components, consumables, and service, but exclude analytical chemicals, considered elsewhere. Market demand grew by 1.9% in the second quarter of 2023 compared to last year, driven by demand in academic/government labs and for food applications.



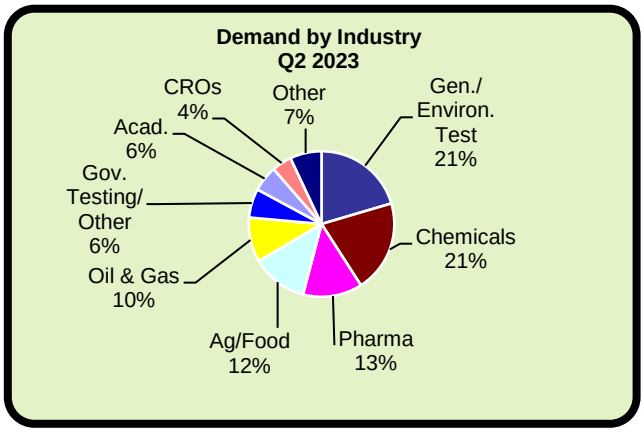


Regional Demand

Europe and North America led regional growth driven by stable government funding and strength in PFAS testing related to food and environmental monitoring. Nevertheless, sluggishness in the chemical sector was observed, consequently impacting new instrument purchases. Asia Pacific experienced a decline in growth as conditions in the Chinese market deteriorated across most end-markets. Outside of China, food testing remained strong in Asia-Pacific. Japan experienced modest growth aided by lessening currency headwinds.

End-User Markets

Gas chromatography is heavily used in general/environmental testing and the chemical industry with the former driving growth along with ag/food testing in support of PFAS analysis to meet stringent regulations in North America and Europe. However, the chemical and energy sector market softened due to current macro concerns contributing to budget cuts and impacting purchasing patterns. Meanwhile, the pharma market continued to be weighed down by economic uncertainty, particularly in China.



Market Developments

Shimadzu released the Peakintelligence for GCMS Ver.2 software for GC-MS/MS. The software enables anyone to analyze data acquired from a GC-MS/MS using Shimadzu's proprietary artificial intelligence algorithms.

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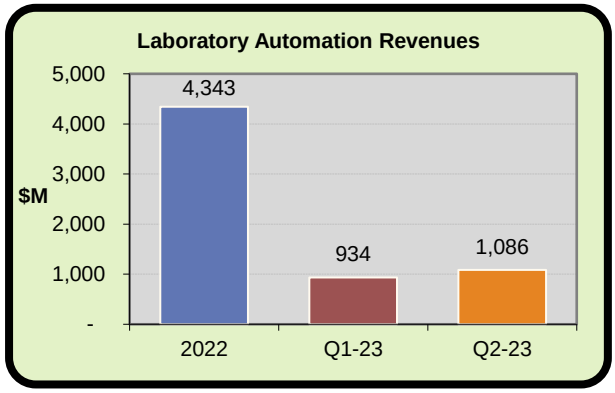
Near Term Prospects

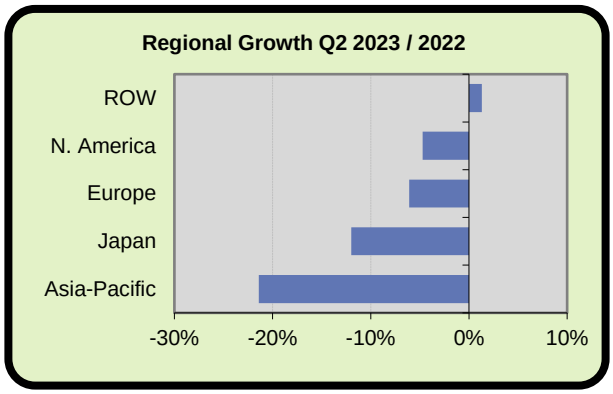
The market is expected to grow low-single-digit in the third quarter of 2023, driven by food and environmental end markets. The challenging macroeconomic environment is expected to persist, restricting budgets in the chemical and pharma/bio sector. China is expected to continue with a similar trend as seen in Q2 2023.

PART I. LAB AUTOMATION

Overview

The lab automation market is composed of liquid handlers, robots, microplate readers, and multiplex/high-throughput ELISA (Enzyme linked Immunosorbent Assay) systems. Revenue estimates encompass initial systems, components, consumables, and service, but exclude life science reagents considered elsewhere. The lab automation market declined approximately 8% due to a tough comparison. Multiplex ELISA and robotics partially offset declines.



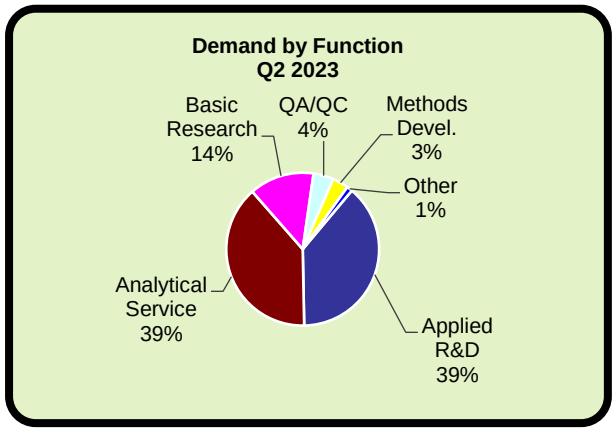


Regional Demand

Globally, automation faced a tough comparison. COVID-related demand has all but entirely evaporated. Pharma/Biotech stagnation particularly for small and mid-size biotech impacted all regions except for the rest of the world. APAC was the most affected by decreased demand, due primarily to China, which experienced double-digit declines. Asia ex-China grew modestly. Customer destocking and biopharma weakness created significant headwinds particularly in applied R&D, which correlates closely with biopharma declines.

End-User Markets

Automated systems are typically capital intensive. Applied R&D and analytical service are typical functions that utilize automated liquid handlers and robotics. While microplate readers are universally employed in multiple lab functions and multiplex ELISA experienced modest growth due to steady hospital & clinical labs, which includes academic research centers that partially offset COVID declines.



Market Developments

Bruker purchased ZONTAL, a digital platform for lab and process data management and storage, and workflow tools.Clinisys acquired LIMS firm Promium. Opentrons introduced its Opentrons Flex liquid handling robot.

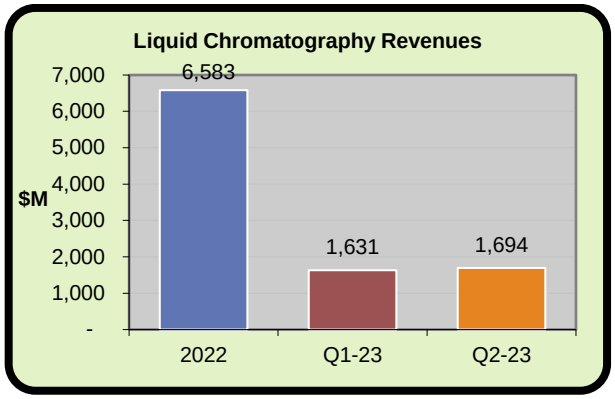
Near Term Prospects

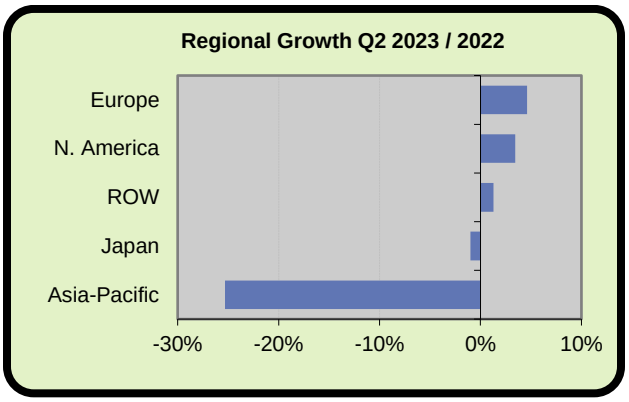
Negative currency effects are expected to be ameliorate. Liquid handling will continue to face a tough comparison due to weakness in small and medium sized biotech. Academic and public sector funding is expected to lead growth in the near term.

PART J. LIQUID CHROMATOGRAPHY

Overview

The liquid chromatography market comprises HPLC, IC, and LPLC. Revenue estimates encompass initial systems, components, consumables, and service, but exclude analytical chemicals, considered elsewhere. In the second quarter of 2023, demand for liquid chromatography declined by 3.6% compared to the same quarter last year due to continued capital restraint in the pharma/bio sector impacting instrument purchases.



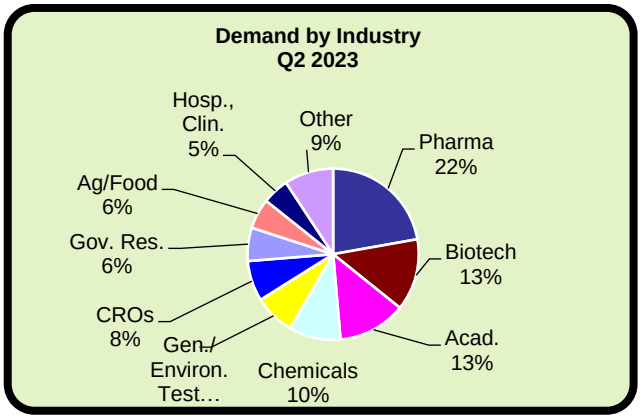


Regional Demand

North America and Europe led growth this quarter supported by lackluster but stable demand in pharma/bio and robust growth in the applied sector. Growth was offset by Asia-Pacific, particularly in China where spending deteriorated through the quarter across all end-markets. On the other hand, in India growth was strong due to strengthening of its domestic pharma market. Overall, currency headwinds have tapered, contributing to near flat growth in Japan.

End-User Markets

In Q2 2022, growth was centered around the public and applied markets with government funding supporting academia and research applications and strict environmental regulations impacting PFAs testing, especially in Europe and North America. Pharma and biotech, the largest end-markets for LC continued to be impacted by the challenging macro-economic environment contributing to softened demand for LC instrumentation.



Market Developments

In March, Waters introduced Alliance iS, the next generation intelligent HPLC System, which can detect and eliminate common errors. The new system is tailored to help QC laboratories consistently meet their goals. In June, Agilent announced a full workflow solution for PFAS. The new workflow includes Agilent's 6495 LC/TQ system along with specific PFAS consumables that provide the best recoveries while eliminating PFAS contamination and background.

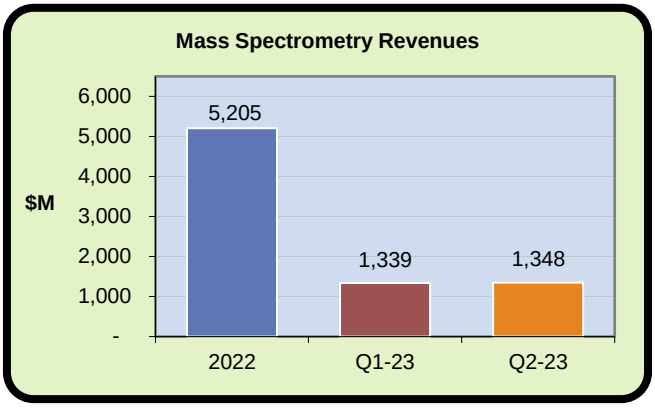
Near Term Prospects

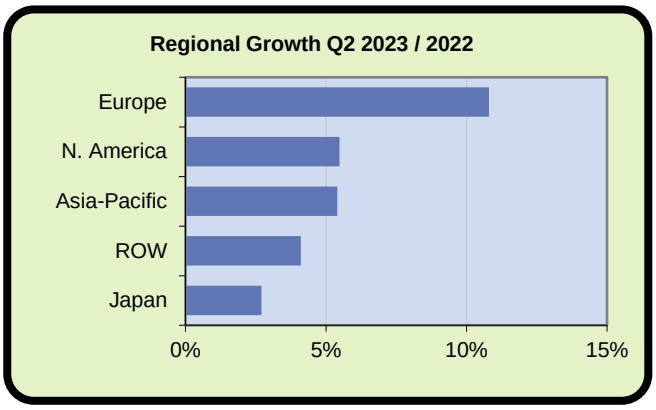
The market is expected to grow low-single-digits in the third quarter of 2023 as current market dynamics are expected to persist in China and hinder overall growth. Additionally, large and medium sized pharma are deferring capital purchases, resulting in a continued slump in system purchases. However, the large installed base and recent system releases will sustain demand supported by servicing and aftermarket products resulting in positive growth in Q3.

PART K. MASS SPECTROMETRY

Overview

The mass spectrometry market comprises LC-MS, MALDI-TOF, SIMS, ICP-MS, magnetic sector and FT-MS instrumentation. Revenue estimates encompass initial systems, components, consumables, and service, but exclude analytical chemicals, considered elsewhere. Market demand increased by 6.7% in the second quarter due to strong academic and environmental demand.



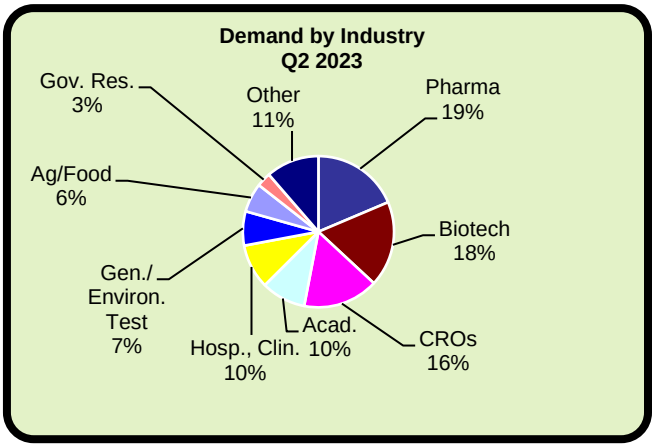


Regional Demand

Europe experienced substantial growth this quarter across several markets, with environmental and academic markets being particularly strong. North America pharma remained conservative, but growth in semiconductors and environmental demand steadied growth. China was a mixed bag, with the academic environment being strong but pharma/bio experiencing a market correction. Japan showed slow but modest growth as currency conditions improved.

End-User Markets

Pharma, biotech, and CROs make up a sizeable portion of the mass spec market, but are currently experiencing slow growth due to lack of investment in biotech, delayed spending in pharma, and decreased outsourcing to CROs, previously a driving force of growth in China. Meanwhile, academic labs have experienced substantial growth for mass spec, with discovery techniques like TOF LC/MS seeing excellent growth. Environmental labs continue to invest in triple quad LC/MS as they utilize these devices for PFAS testing.



Market Developments

ASMS 2023 brought several new product introductions: Agilent's 6495D LC/TQ and Revident LC/QTOF; Bruker's timsTOF Ultra, IMPACT II VIP, HRMS qTOF, and the EVOq DART-TQ+; SCIEX' Intabio ZT system, with a new icIEF-UV sample introduction system; Thermo Scientific's Orbitrap Astral; Waters' DESI XS targeted imaging system utilizing the XEVO TQ Absolute MS.

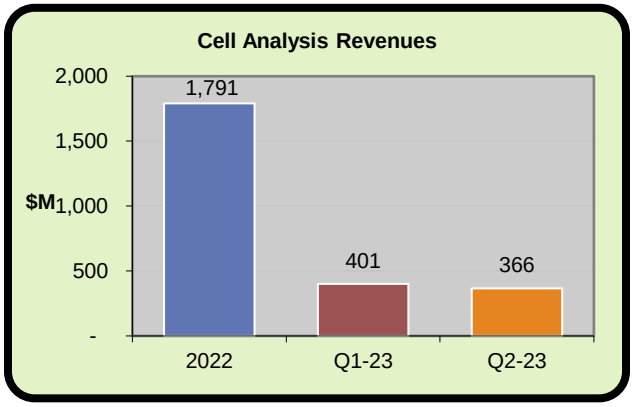
Near Term Prospects

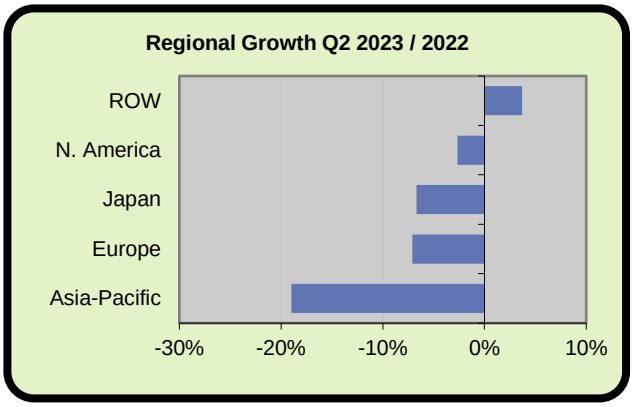
Continued slow growth in the pharma/bio sector will continue to affect the market, with slower growth overall expected in the next quarter. The macroeconomic conditions in China will also bring growth down despite pockets of success in that market. Meanwhile, the academic and environmental markets will still see good growth globally.

PART L. CELL ANALYSIS

Overview

The cell analysis market comprises flow cytometers, transfection, high content screening, and patch clamp systems. Revenue estimates encompass initial systems, components, consumables, and service, but exclude life science reagents considered elsewhere. Globally, the market for cell analysis contracted by 7.4% largely due to changes in COVID product demand. Flow cytometry bucked the trend and grew modestly despite mild currency and supply chain headwinds.



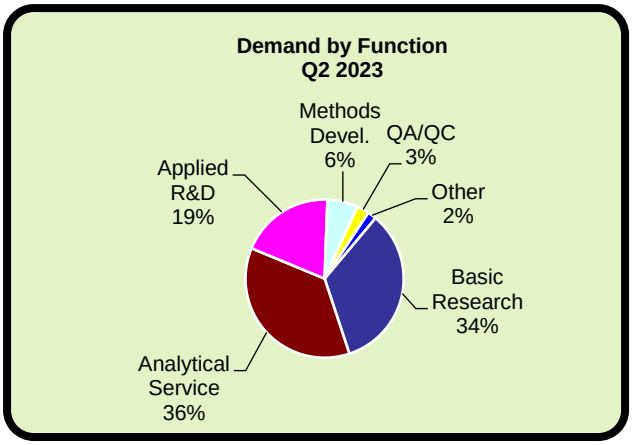


Regional Demand

Regional demand was predominantly negative during the quarter. In most regions growth was mixed. However, pharma/bio headwinds hampered growth in most regions. In the US, flow cytometry sales increased modestly after Q1 order delays were fulfilled. Growth in the US was offset by lower biotech funding and destocking. In APAC, China faced significant headwinds in every technology area but cytometry.

End-User Markets

Flow cytometry systems helped drive demand for research functions, partially offsetting declines in other technologies. Cell analysis faced a tough prior year comparison particularly in analytical service and applied R&D lab functions. Basic research, however, was steady during the second quarter led by broad-based demand from public and CRO lab uses of cell analysis systems.



Market Developments

Randox Labs acquired impedance-based flow cytometry firm, Cellix. Bio-Techne acquired Lunaphore, automated single-cell and high-throughput COMET platform provider. BD introduced the BD FACS Discover S8 Cell Sorter. ZEISS announced an investment in Zomp, a whole cell 3D imaging and flow cytometry instrument start-up.

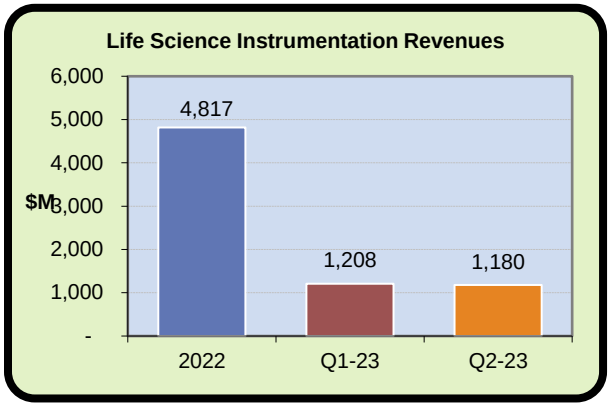
Near Term Prospects

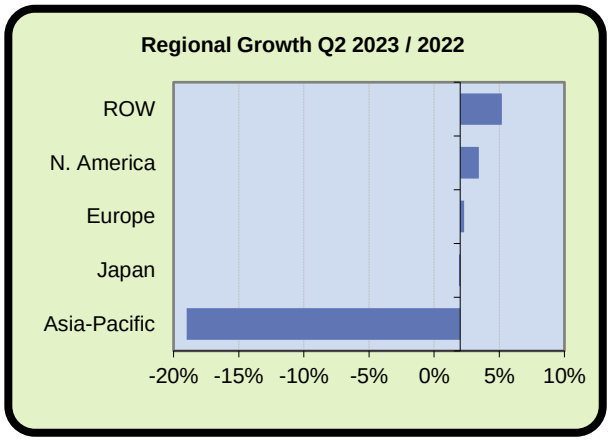
COVID-19-related demand is expected to be negligible in the second half of the year. Non-COVID immune-oncology and gene-based products continue to buoy demand for flow cytometry systems and consumables, particularly dyes.

PART M. LIFE SCIENCE INSTRUMENTATION

Overview

The life science instrumentation market comprises nucleic acid amplification/PCR, microarrays, sequencers, and electrophoresis hardware. Revenue estimates encompass initial systems, components, consumables, and service, but exclude life science reagents, considered elsewhere. The market for life science instrumentation was negatively impacted by several factors in Q2, including weakness in biotech funding, destocking, and a difficult comparison to the previous year. Demand decreased 1.3%.



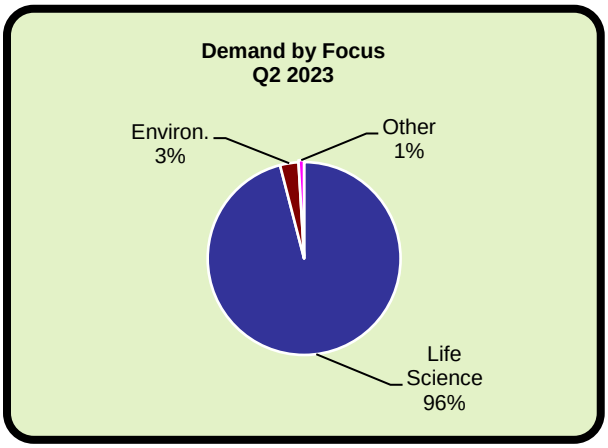


Regional Demand

Worsening economic conditions in China led to a major decline in the Asia-Pacific region. Post-pandemic recovery has stalled, strongly impacting the pharma/bio sector, while limited stimulus programs have ended. The delay of annual funding programs has caused further uncertainty, prompting labs to conserve their spending. North America and Europe saw moderate growth, led by the public sector. However, the biotech industry contraction was felt across all regions.

End-User Markets

Life science instrumentation is primarily used in life science-related research and development applications. Academia is the single leading end market conducting basic and applied life science research, with applied research enjoying strong growth in recent years. Though it represents only a small fraction of the market, environmental testing has enjoyed consistently steady growth in the mid-single digit range over the past two years.



Market Developments

In July, Bio-Rad and QIAGEN announced an agreement to settle their patent dispute relating to digital PCR technology. The settlement provides a cross-licensing agreement between the companies granting each mutual rights to their respective dPCR technologies.

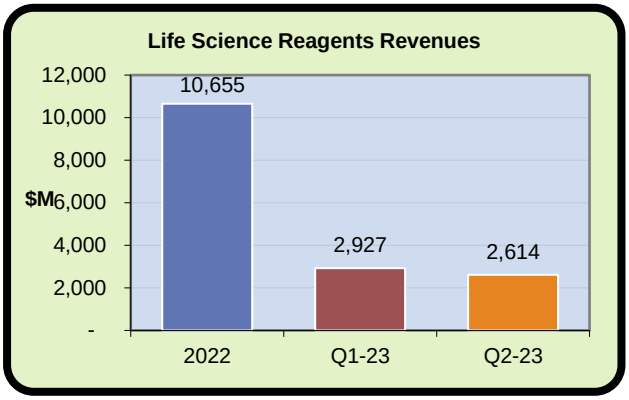
Near Term Prospects

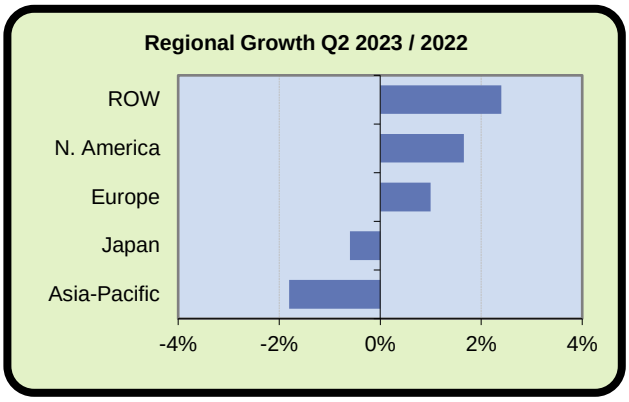
The difficulties of Q2 are largely expected to persist through the second half of the year. Many market participants have lowered their guidance for 2023. Funding challenges will likely turn around later in the year.

PART N. LIFE SCIENCE INSTRUMENT REAGENTS

Overview

Products considered in this section are primarily consumables used with life science instrumentation, cell analysis, and laboratory automation systems. Second quarter revenue grew just 1.0%, mainly on the strength of academic and government life science research, as the biopharma sector saw generally weak spending in the quarter.



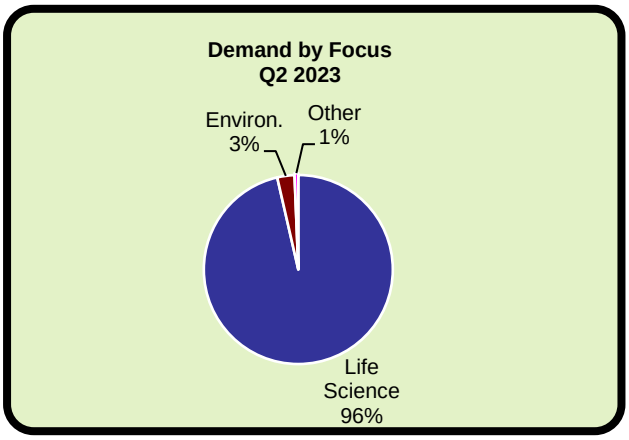


Regional Demand

Growth was anemic at best across regions, but Rest-of-World, North America and Europe achieved positive growth. Japanese growth fell into negative territory, despite mild constant currency growth; although currency headwinds have lessened, they are still negative. However, Asia-Pacific demand saw the largest drop, primarily due to the weakness in Chinese biopharma and the Chinese economy in general.

End-User Markets

Labs that focus on the life sciences naturally represent the source of the vast majority of the demand. Growth from the public sector helped to counterbalance weakness in the life science research market in private labs. Academic and government labs continue to invest in life science research, supporting brisk reagent sales. In the private sector, destocking was reportedly to blame for lower demand in biopharma and other end markets.



Market Developments

In June, MilliporeSigma announced the expansion of its production capacity for highly-purified reagents at its site in Nantong, China, adding a new plant expected to be operational by 2026. In July, Tecan announced the first in a series of specialist reagent kits for its MagicPrep NGS library preparation system. The first kits are tailor-made for the Singular G4 Sequencing Platform (Singular Genomics). Other partnerships are expected in the series.

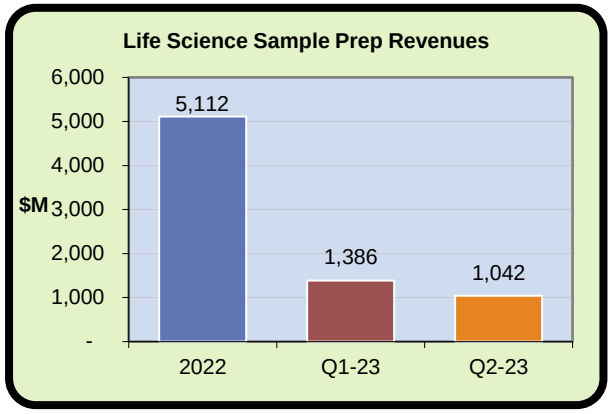
Near Term Prospects

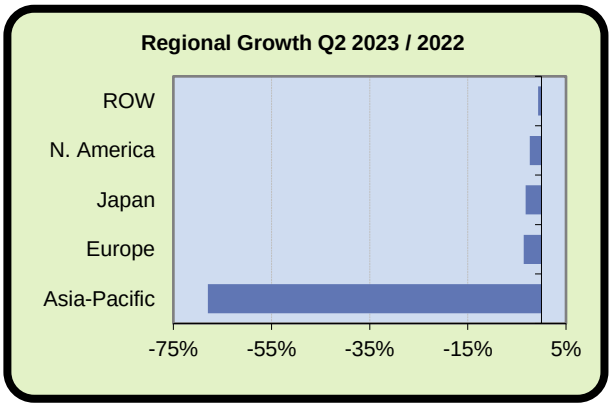
The large installed base of life science instrumentation will support stable demand for associated reagents, but the near-term outlook continues to appear pessimistic, with global biopharma underperforming until perhaps early next year, when growth will rise back toward historical averages for these products.

PART O. LIFE SCIENCE SAMPLE PREPARATION

Overview

Life science sample preparation includes both automated purification systems and magnetic bead purification systems, in addition to related components, consumables, and service. This segment does not include diagnostic applications, but instead focuses on life science research. Declining COVID-related sample preparation continued to dramatically direct the market, coupled with customer destocking, weakened biotech spending, and stalled post-pandemic recovery in China.



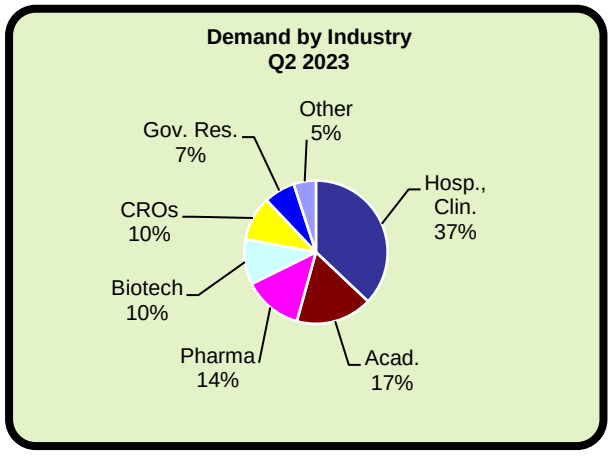


Regional Demand

The need for NA prep continued to decline in Q2, following the reversal of China's zero COVID policy, causing a dramatic contraction for the Asia-Pacific region. In other regions, shrinking COVID-related demand also contributed to declines, as demand for non-COVID related applications saw slight declines or flat demand in most regions. Currency effects were mildly negative in Q2.

End-User Markets

Sample prep for non-COVID *in vitro* diagnostics is experiencing strong growth as advanced molecular methods gain wider use in clinical labs. Despite plummeting demand, COVID-driven applications still continue to contribute some revenues. The biotech industry experienced difficulties across all regions, stemming from a combination of reduced demand for COVID products and vaccine production, as well as reduced availability of funding, which impacted earlier stage companies.



Market Developments

Recovery of the market in China stalled in part when the annual funding of new programs from the Chinese government did not occur as it usually does during the April-May timeframe. At this time, it is not clear when government funding of new programs in life sciences will resume.

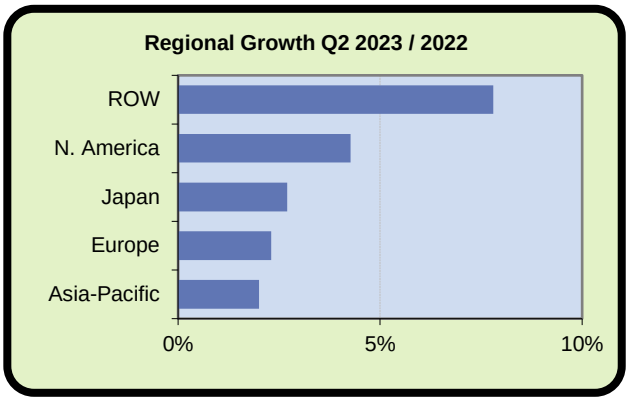
Near Term Prospects

The challenges and market dynamics that impacted Q2 are expected to continue throughout 2023. China's extensive use of COVID diagnostics, which lasted through 2022, is causing difficult comparisons in 2023; this effect will finally subside after Q4.

PART P. ANALYTICAL CHEMICALS

Overview

Total demand for analytical chemicals and solvents increased 3.6% year-over-year, marking a sequential decline in growth, but still a welcome positive sign. Due to its size, weakness in the chromatography market dragged growth down. Meanwhile, mass spectrometry and spectroscopy applications saw continued positive demand through the quarter. This section includes chemicals used directly in concert with the instrumentation considered in other sections.

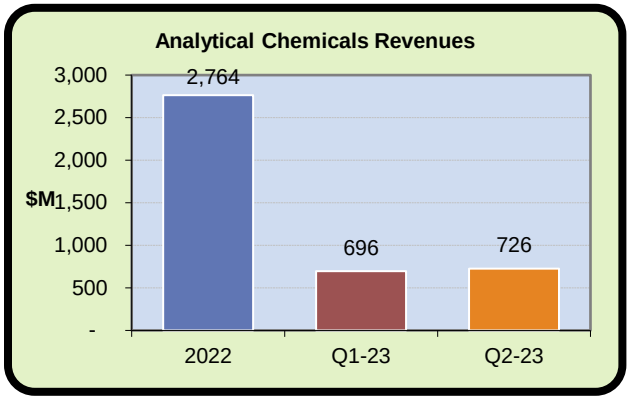


End-User Markets

Life science applications made up the majority of demand in the second quarter; however, this segment, heavily dependent on liquid chromatography, saw the least growth in the quarter by focus segment. Although academic spending on life sciences was strong in the quarter, the biopharma industry suffered from weakened demand globally. Environmental labs had the strongest growth among the major segments in the quarter, followed by materials analysis.

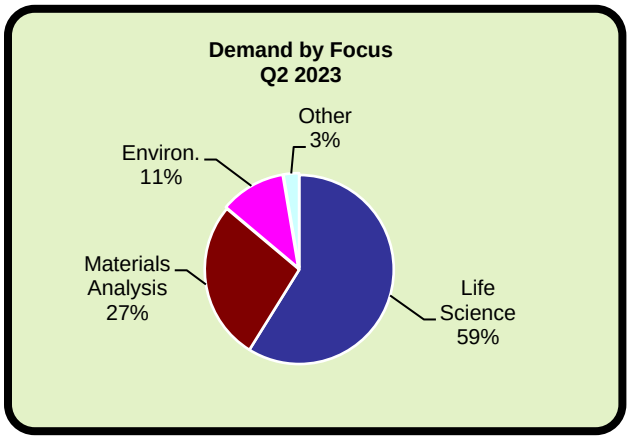
Market Developments

Simple Solvents, a niche provider of high-quality solvents, announced in April it entered into a strategic partnership with Thomas Scientific, a distributor of laboratory supplies. IBI Scientific announced in July the launch of its Specialty and Custom Blending Department. IBI Scientific is now capable of providing privately labeled, custom-blended chemicals.



Regional Demand

Rest-of-World demand was quite strong in the quarter, supported by academic spending and environmental testing applications, including those associated with extractive industries in the region. Weak Chinese growth resulted in Asia-Pacific being the slowest growing region, despite solid demand from other APAC countries like South Korea and India. European and Japanese growth was also lackluster in the quarter, falling below the overall average rate.



Near Term Prospects

Near-term forecasts appear relatively stable. The current growth from the public sector is likely to dissipate to lower levels over the rest of the year, while the pharma/bio sector should return to growth before the end of the year, helping to moderate the situation so that growth is modest but positive.