

Deal Capsule

Transactions in Chemicals & Life Sciences

July 2019

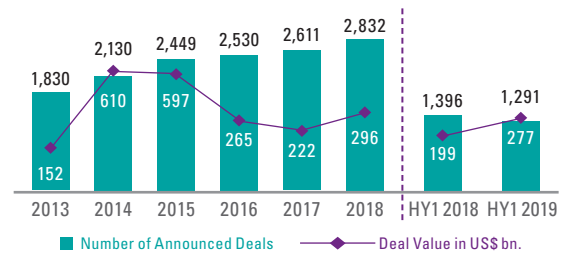
“Auf Wiedersehen – I would like to thank all our clients and readers for their support as I retire from KPMG after 20 years and hand Deal Capsule over to my colleague, Christian Klingbeil.”

VIR LAKSHMAN | HEAD OF CHEMICALS & PHARMACEUTICALS, KPMG IN GERMANY

HIGHLIGHTS

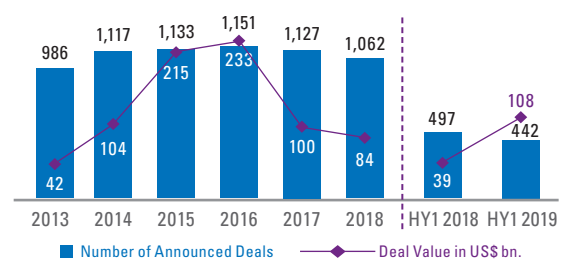
- A strong first half with blockbuster deals continuing to drive the M&A market.
- Strong growth prospects in the regenerative medicines market leading to large deals in gene therapy.
- Consolidation in paints and coatings drives chemicals M&A.
- US and China remain the most active countries in life sciences and chemicals.
- KPMG’s Deal Thermometer indicates that the environment for M&A activity will remain moderately strong in both life sciences and chemicals.

FIGURE 1: TRENDS IN LIFE SCIENCES M&A



Sources: Thomson One; KPMG, Germany, Analysis

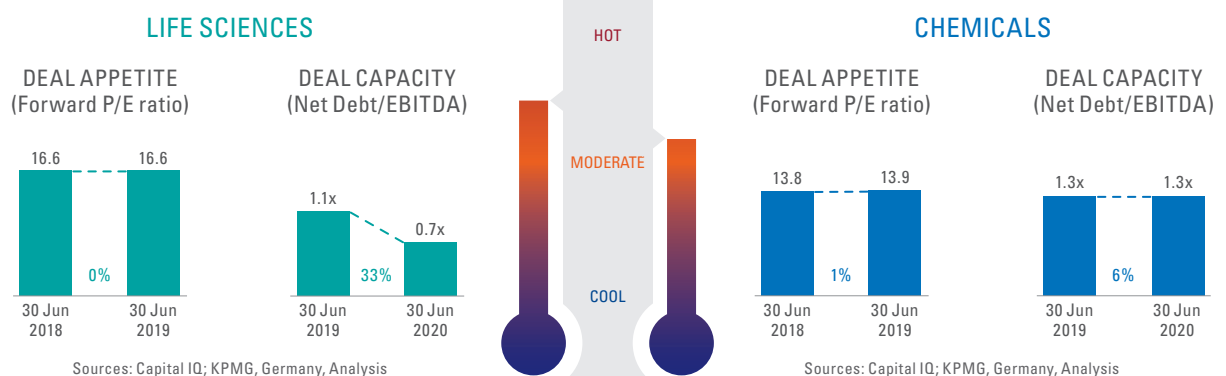
FIGURE 2: TRENDS IN CHEMICALS M&A



Sources: Thomson One; KPMG, Germany, Analysis

DEAL THERMOMETER HY1 2019

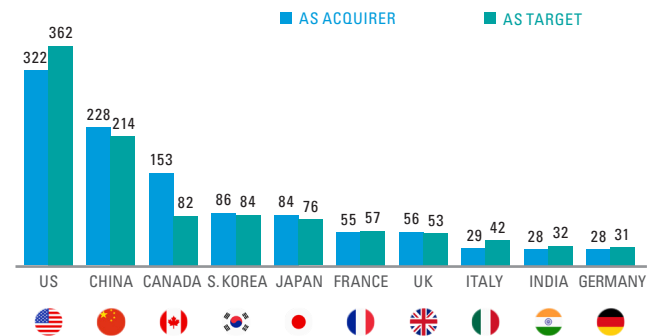
KPMG’s Deal Thermometer signals the environment for M&A deals in chemicals and life sciences. It combines the appetite for deals (changes in forward P/E ratios) with the capacity to fund deals (changes in Net Debt/EBITDA multiples). ‘Hot’ signifies an environment conducive to deal-making.



Life Sciences

Life sciences M&A activity remained stable compared to the previous year. The value of announced deals increased by almost 40%, mainly attributable to five life sciences blockbuster acquisitions surpassing the US\$ 10 billion mark. Due to promising market opportunities, life sciences players are bolstering their portfolios with gene therapy assets. US and China remained the most active countries.

FIGURE 3: TOP COUNTRIES IN LIFE SCIENCES M&A HY1 2019^(a)



Note: (a) Number of announced deals
Sources: Thomson One; KPMG, Germany, Analysis

DEAL FOCUS AREAS

Gene therapy

The global regenerative medicines market, comprising stem cell therapies, gene therapies and tissue engineering, is projected to exceed US\$ 50 billion in 2025.

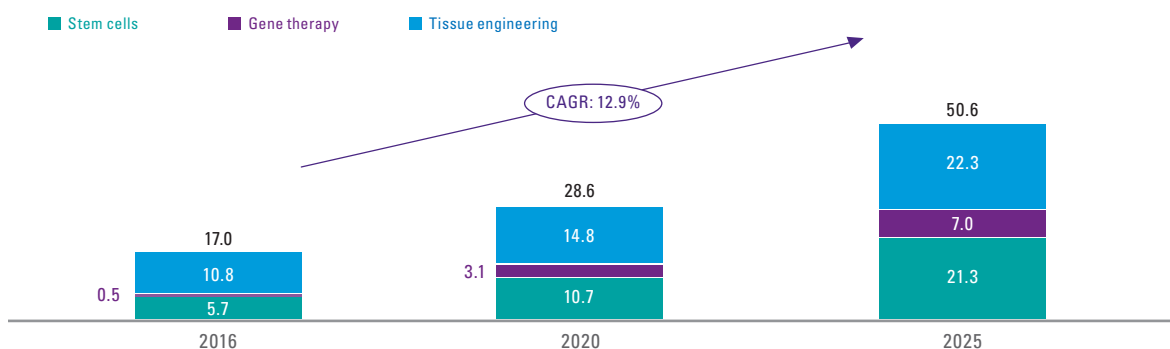
F. Hoffmann-La Roche AG announced the US\$ 4.3 billion acquisition of Spark Therapeutics, Inc., a company focused on the discovery, development and delivery of gene therapies. Under the terms of the merger agreement, Roche initiated a tender offer to acquire all outstanding shares of Spark Therapeutics at a price of US\$ 114.50.

Spark Therapeutics, with several other clinical assets, was the first company to receive approval by the Food and Drug Administration (FDA) for a gene therapy targeting a genetic disease in 2017.

Thermo Fisher Scientific Inc. announced the US\$ 1.7 billion acquisition of Brammer Bio, LLC, a leader in viral vector manufacturing for gene and cell therapies. Brammer Bio assists large pharma and biotech clients to accelerate the delivery of novel medicines to improve patients' health. Brammer Bio expects US\$ 250 million of revenues in 2019.

Catalent, Inc. announced the US\$ 1.2 billion acquisition of Paragon Bioservices, Inc., a leading contract development and manufacturing organization, focused on cutting-edge

FIGURE 4: GLOBAL REGENERATIVE MEDICINES MARKET BY THERAPY TYPE BETWEEN 2016 AND 2025 (IN US\$ BN.)^(a)



Note: (a) 2020 and 2025 figures are projected
Source: BIS Research. In Statista – The Statistics Portal. Retrieved July 2, 2019.

biopharmaceuticals. Paragon is specialized in adeno-associated virus vectors, the most commonly used delivery system for gene therapy. Paragon projects more than US\$ 200 million revenue in 2019.

Biogen Inc. completed the US\$ 800 million acquisition of Nightstar Therapeutics, a clinical-stage gene therapy company, focused on adeno-associated virus treatments for inherited retinal disorders. Thereby Biogen adds two mid- to late-stage clinical assets and preclinical programs to the portfolio.

Medtech

Medtech remains attractive for investors with a CAGR exceeding 5% between 2017 and 2024.

Danaher Corp. announced the US\$ 21.4 billion blockbuster acquisition of General Electric Co.'s BioPharma business, which is focused on instruments, consumables and software supporting research, discovery and process development of biopharmaceuticals. This was just one of several medtech deals exceeding the US\$ 5 billion mark in HY1 2019.

3M Co. announced the acquisition of the medtech company Acelity Inc., valued at approximately US\$ 6.7 billion, thereby bolstering its Medical Solutions business. The enterprise value represents a multiple of 11x annual adjusted EBITDA for the first 12 months following completion of the transaction, and includes run rate cost synergies. Acelity is focused on advanced wound care and specialty surgical applications.

Johnson & Johnson's medical device franchise Ethicon, Inc. recently completed the US\$ 5.8 billion acquisition of Auris Health, Inc., a developer of robotic technologies, with

a focus on lung cancer. Johnson & Johnson enlarges its digital surgery portfolio across multiple surgical specialties through the transaction.

COLLABORATIONS IN LIFE SCIENCES

AstraZeneca PLC and Daiichi Sankyo Co., Ltd. announced a collaboration to develop and commercialize trastuzumab deruxtecan globally, a potential new medicine for cancer treatment. The collaboration excludes commercialization and development in Japan, where Daiichi Sankyo will maintain exclusive rights. AstraZeneca makes an upfront payment of US\$ 1.35 billion. Contingent payments, subject to several milestones, sum up to US\$ 5.6 billion.

Bayer AG and the biotechnology start-up Khloris Biosciences, a biotechnology company, announced that they have joined forces against cancer. They plan to develop novel vaccines based on human induced pluripotent stem cells.

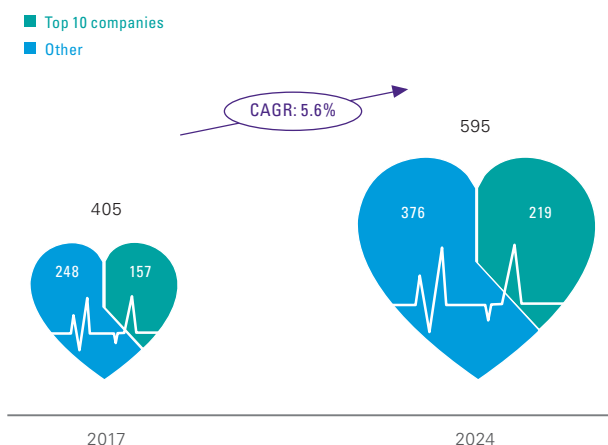
GlaxoSmithKline plc (GSK) announced a five-year collaboration with the University of California to establish a Laboratory for Genomics Research (LGR). GSK and the University of California aim to explore how gene mutations cause diseases, enabling the development of new technologies using CRISPR. As part of the deal, LGR is eligible to receive up to US\$ 67 million in funding over five years.

DIGITALIZATION AND INNOVATION

Merck & Co., Inc. completed the € 3.3 billion acquisition of Antelliq Corp., which provides devices for animal identification, monitoring and traceability. Antelliq's solutions, with sales of € 360 million in the 12-month period ending September 30, 2018, support farmers with real-time actionable information. Backed by 22 production sites, Antelliq serves customers in more than 100 countries. The assets to be acquired complement Merck's Animal Health portfolio.

Gilead Sciences Inc. and Insitro announced a three-year strategic collaboration to discover and develop therapies for the treatment of nonalcoholic steatohepatitis (NASH). Launched in 2018, Insitro is a data-driven company using machine learning to transform the development and delivery of drugs to patients. Insitro receives an upfront payment of US\$ 15 million and US\$ 35 million tied to the achievement of certain operational milestones. Additionally, Insitro is eligible to receive up to US\$ 200 million for the achievement of predefined milestones for each of the five Gilead targets plus royalties on net sales.

FIGURE 5: WORLDWIDE MEDTECH SALES 2017 VS. 2024 (IN US\$ BN.)



Sources: Evaluate Ltd.; KPMG, Germany, Analysis

Life Sciences

The deal value of the global top 10 announced deals in HY1 2019 was

US\$226.0 billion

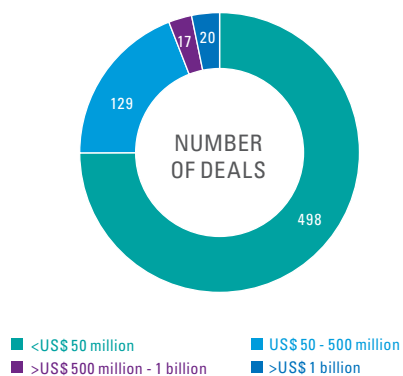
TABLE 1: GLOBAL TOP DEALS ANNOUNCED IN HY1 2019

BIDDER	TARGET	THERAPY AREA	DATE OF ANNOUNCEMENT	DEAL STATUS	TOTAL VALUE ^(a)
Bristol-Myers Squibb Co.	Celgene Corp.	Cancer and inflammatory diseases	3 Jan 2019	Pending	90.0
AbbVie Inc.	Allergan plc	Pharmaceutical, device, biologic, surgical and regenerative medicine products	25 Jun 2019	Pending	63.0
Danaher Corp.	General Electric Co. – BioPharma business	Instruments, consumables and software for biopharmaceutical drugs	25 Feb 2019	Pending	21.4
Pfizer Inc.	Array BioPharma Inc.	Discovery, development and commercialization of targeted small molecule medicines	17 Jun 2019	Pending	11.4
<i>Investor Group^(b)</i>	Nestlé Skin Health S.A.	Skin health	16 May 2019	Pending	10.1
Eli Lilly and Co.	Loxo Oncology, Inc.	Oncology	7 Jan 2019	Completed	8.0
3M Co.	Acelity Inc.	Wound care and specialty surgical applications	2 May 2019	Pending	6.7
Ethicon, Inc. (Johnson & Johnson)	Auris Health, Inc.	Surgical robotics	13 Feb 2019	Completed	5.8
Novartis AG	Takeda Pharmaceutical Co. Ltd. – assets associated with Xiidra	Ophthalmic pharmaceuticals	8 May 2019	Completed	5.3
F. Hoffmann-La Roche AG	Spark Therapeutics, Inc.	Gene therapy	25 Feb 2019	Pending	4.3

Notes: (a) All numbers are in US\$ billion – representing Enterprise Values where available *Financial investors are italicized*
 (b) Consortium led by EQT AB and Abu Dhabi Investment Authority

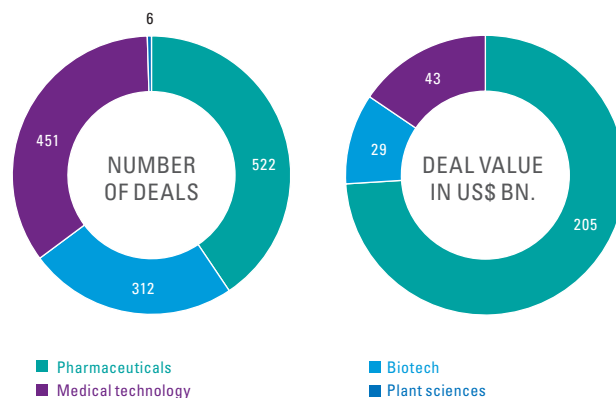
Sources: Thomson One; KPMG, Germany, Analysis

FIGURE 6: LIFE SCIENCES ANNOUNCED DEALS BY SIZE OF TRANSACTION HY1 2019^(a)



Note : (a) Includes deals with a disclosed deal value
 Sources: Thomson One; KPMG, Germany, Analysis

FIGURE 7: LIFE SCIENCES ANNOUNCED DEALS BY CATEGORY HY1 2019^(a)



Note: (a) Includes all deals with a disclosed and undisclosed deal value
 Sources: Thomson One; KPMG, Germany, Analysis

Chemicals

The deal value of the global top 10 announced deals in HY1 2019 was

US\$98.7 billion

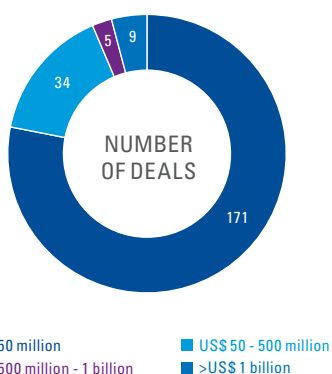
TABLE 2: GLOBAL TOP DEALS ANNOUNCED IN HY1 2019

BIDDER	TARGET	BUSINESS AREA	DATE OF ANNOUNCEMENT	DEAL STATUS	TOTAL VALUE ^(a)
Saudi Arabian Oil Co.	Saudi Basic Industries Corp. (70% stake)	Petrochemicals	27 Mar 2019	Pending	69.1
Merck KGaA	Versum Materials, Inc.	Specialty materials	12 Apr 2019	Pending	6.6
Berry Global Group, Inc.	RPC Group Plc	Plastic packaging	8 Mar 2019	Pending	6.5
Parker Hannifin Corp.	LORD Corp.	Adhesives, coatings and specialty materials	29 Apr 2019	Pending	3.7
Advent International Corp.	Evonik Industries AG – Methacrylates business	Methacrylates	4 Mar 2019	Pending	3.4
Nippon Paint Holdings Co., Ltd.	DuluxGroup Ltd.	Decorative paints	17 Apr 2019	Pending	3.0
Sika AG	ParexGroup SA	Mortar solutions	8 Jan 2019	Completed	2.5
Danhua Chemical Technology Co., Ltd.	Jiangsu Sailboat Petrochemical Co., Ltd.	Petrochemical products	30 May 2019	Pending	1.6
Zhejiang Renzhi Co., Ltd.	Ningbo Keyuan Fine Chemicals Co., Ltd.	Fine chemical products, styrene products and asphalt products	25 Mar 2019	Withdrawn	1.5
Kingspan Group Plc	Recticel NV – Insulation and Flexible Foams division	Insulation and flexible foam	16 Apr 2019	Offer rejected	0.8

Notes: (a) All numbers are in US\$ billion – representing Enterprise Values where available *Financial investors are italicized*

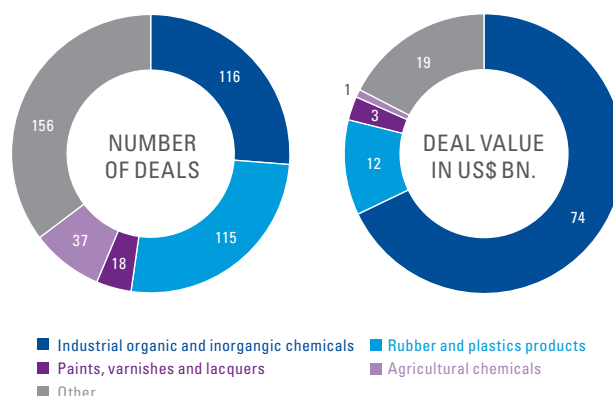
Sources: Thomson One; KPMG, Germany, Analysis

FIGURE 8: CHEMICALS ANNOUNCED DEALS BY SIZE OF TRANSACTION HY1 2019^(a)



Note : (a) Includes deals with a disclosed deal value
Sources: Thomson One; KPMG, Germany, Analysis

FIGURE 9: CHEMICALS ANNOUNCED DEALS BY CATEGORY HY1 2019^(a)



Note: (a) Includes all deals with disclosed and undisclosed deal value
Sources: Thomson One; KPMG, Germany, Analysis

Chemicals

In comparison to HY1 2018, the value of announced chemical deals rose from US\$ 39 billion to US\$ 108 billion. The plastics subsector not only drives chemical M&A, but also collaborations in the area of sustainability. China, followed by the US, was the most active country in HY1 2019 chemicals M&A.

DEAL FOCUS AREAS

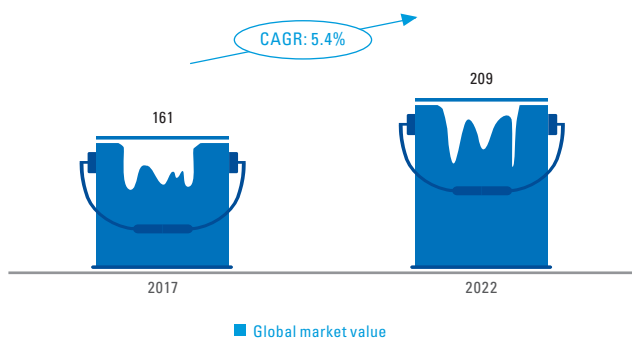
In HY1 2019, chemicals investors had a strong appetite for transactions in paints and coatings, adhesives, sealants and pigments.

Paints & coatings deals enabling growth

Consolidation in paints and coatings is continuing rapidly, especially in Western markets with limited organic growth opportunities.

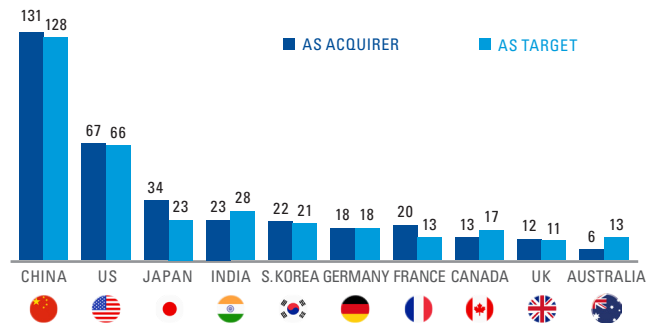
Parker Hannifin Corp. announced the US\$ 3.7 billion acquisition of the diversified technology and manufacturing company LORD Corp., offering adhesives, coatings, specialty materials and vibration and motion control technologies. With 3,100 people across 17 manufacturing and 15 R&D facilities, LORD generates

FIGURE 10: MARKET VALUE OF PAINTS & COATINGS INDUSTRY WORLDWIDE (IN US\$ BN.)



Sources: MarketsandMarkets. In Statista – The Statistics Portal. Retrieved July 2, 2019.

FIGURE 11: TOP COUNTRIES IN CHEMICALS M&A HY1 2019^(a)



Note: (a) Number of announced deals

Sources: Thomson One; KPMG, Germany, Analysis

annual sales of approximately US\$ 1.1 billion. Parker projects pre-tax run-rate cost synergies of around US\$ 125 million by full-year 2023.

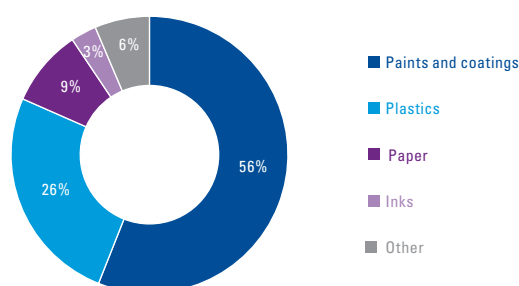
Nippon Paint Holdings Co., Ltd. announced the A\$ 4.2 billion acquisition of DuluxGroup Ltd., a leading player in the decorative paint market in the Pacific region. Based on DuluxGroup’s FY18 EBITDA of US\$ 257.7 million, the transaction value represents a 16.1x EV/EBITDA multiple. The acquisition contributes to Nippon’s global growth ambitions, strengthening its position in the Asia & Pacific region. Nippon also recently announced the acquisition of Betek Boya ve Kimya Sanayi A.S., a Turkish decorative paint for construction company, and 9 group companies of Betek. The transaction grants a leading position in the Turkish market.

PPG Industries, Inc. completed the acquisition of Hemmelrath Lackfabrik GmbH, a German manufacturer of automotive coatings. Hemmelrath is a global market leader in environmentally friendly hydro fillers for the automotive industry. The German coatings manufacturer supplies more than 50 automotive plants and more than seven million vehicles are coated with its products each year.

Pigments

INEOS Enterprises completed the acquisition of the North American business of The National Titanium Dioxide Company Ltd. from Tronox Holdings plc for US\$ 700 million, enabling INEOS to enter the pigment market. The transaction includes two plants located in Ohio, US. Titanium dioxide is a widely used white pigment, found in a broad range of applications.

FIGURE 12: DISTRIBUTION OF TITANIUM DIOXIDE PIGMENT CONSUMPTION WORLDWIDE (2017)^(a)



Note: (a) by end use
Sources: European Coatings. In Statista – The Statistics Portal. Retrieved July 2, 2019.

Brenntag AG announced the acquisition of New England Resins & Pigments Corp. (NERP), which services the coatings and construction, adhesives and other specialty industries and generated 2018 sales of approximately US\$ 28.6 million. With NERP’s portfolio comprising color pigments, functional minerals, resins and additives, Brenntag broadens its Material Science business.

PERFORMANCE MATERIALS AND PLASTICS

Advent International Corp. announced the acquisition of Evonik Industries AG’s Methacrylates business, comprising the Methacrylates, Acrylic Products, CyPlus and methacrylate resins business lines, for € 3 billion. The business to be acquired by Advent generated sales of approximately € 1.8 billion per year between 2016 and 2018 and operates 18 production sites, with around 3,900 employees globally.

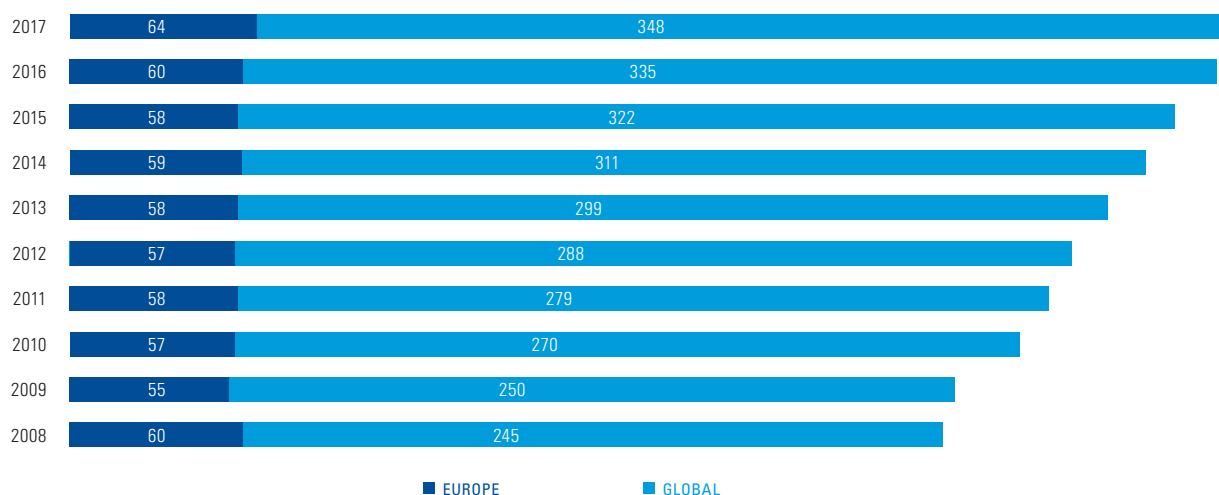
With an increase of more than 100 million metric tons between 2008 and 2017, the global plastic production increasingly attracts investors.

Berry Global Group, Inc. announced the acquisition of RPC Group Plc, a leading European plastic and recycled packaging manufacturer, for approximately US\$ 6.5 billion. RPC serves more than 10,000 customers across 33 countries. Berry expects US\$ 150 million annual cost synergies.

Despite the attractive investment opportunities in plastics, the chemical industry has started to react to the issues with plastics waste and its environmental impact.

LyondellBasell Industries Holdings B.V. and SUEZ SA announced a collaboration with Samsonite International S.A. to create recycled plastic suitcases. LyondellBasell and SUEZ convert post-consumer plastic into high-quality polypropylene. Samsonite, one of the world’s largest luggage companies, uses the recycled plastic to make the outer shell for a new suitcase collection.

FIGURE 13: GLOBAL PLASTIC PRODUCTION IN MILLION METRIC TONS (2008 – 2017)



Source: PlasticsEurope (PEMRG). In Statista – The Statistics Portal. Retrieved July 2, 2019.

BASIS OF DATA PREPARATION

Values and volumes used throughout the report are based on announcement date as provided by Thomson Reuters' database Thomson One as of 30 June 2019, extracted up to and including 1 July 2019, and supplemented by additional independent research. Data available after publication date is incorporated in subsequent editions. This edition presents revised data for the years 2013 to 2016. This report includes disclosed and undisclosed values for M&A transactions including minority stake purchases, acquisitions of remaining interest, and recapitalizations and it explicitly excludes self-tenders and spinoffs. The published numbers of deals and deal values are based on the analysis of target companies which operate in the following subsectors:

Life Sciences

- Medicinal chemicals & botanical products
- Pharmaceutical preparations
- In vitro and in vivo diagnostic substances
- Biotechnology – biological products, except diagnostic substances
- Pharmaceutical wholesale
- Medical devices and diagnostics
- Plant sciences

Chemicals

- Clay, kaolin, ceramic & refractory minerals
- Chemical and non-metallic mineral mining, except fuels
- Fertilizers and agricultural chemicals
- Industrial gases
- Specialty chemicals
- Chemical wholesale
- Plastics and rubber components

KPMG's Deal Thermometer is based on financial data as provided by S&P Capital IQ of public companies in the same sector as noted above with a market capitalization at quarter end of at least a US\$ 1 billion. For the life sciences sector, this comprises 269 public companies. For the chemical sector, this comprises 188 public companies.

Sources

Online databases:

- Thomson One (Thomson Reuters)
- S&P Capital IQ
- Various companies' press releases

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