MERGERS & ACQUISITIONS

C&EN looks back at M&A

How dealmaking shaped some of the chemical industry's major players

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A prominent part of C&EN's business coverage over the years has been stories about corporate mergers and acquisitions, or M&A. They are some of the most exciting stories that we write. We wake up to the news that a chemical company we have long known will be acquired and absorbed into another, usually bigger, firm. Transaction amounts are eye popping, in the tens of billions of dollars for big deals nowadays. And executives try to dazzle investors with explanations of why the two businesses will be stronger in combination than they are as separate entities.

Familiar names like Ciba, GE Plastics, Rohm and Haas, and Union Carbide disappeared from the scene through single large deals. Other companies, such as Hoechst and Imperial Chemical Industries (ICI), were whittled away through many transactions.

Other times, new companies are created when parts of large chemical makers are spun off or sold to investors. Chemours, Corteva Agriscience, and Trinseo, for example, are now prominent names in the chemical industry thanks to this process.

As part of C&EN's centennial celebration, we are highlighting the transformative nature of M&A with the following timeline infographics. They chronicle the dealmaking histories of six chemical companies that, through mergers, acquisitions, sales, and spin-offs, did much to reshape the structure of the industry.

Four of them are the traditional companies DuPont, Solvay, BASF, and Dow. All four originated before C&EN was born. All of them have humble beginnings in a single product line: gunpowder for DuPont, soda ash for Solvay, dyes for BASF, and bromine for Dow. All found themselves diversifying in the 20th century, particularly after World War II. And all once had pharmaceutical businesses.

We also selected two relatively new firms: Sabic and Ineos. C&EN covered the birth of both companies. Sabic grew as a development project of the government of Saudi Arabia. Ineos's beginning was entrepreneurial, and it grew almost entirely by acquiring businesses from more traditional chemical companies.

All six firms have been significantly remodeled over the years, but all are survivors in a consolidating industry. Of course, the timelines take us only to the present. We could wake up one day to find that one of these companies is the latest to be consumed in a merger.

DUPONT

In addition to being one of the foundational companies of the US chemical industry, DuPont's reach has extended far beyond chemistry. DuPont was an early investor in General Motors and owned a stake in the carmaker well into the 1960s. The companies collaborated in areas such as Freon refrigerant through their Kinetic Chemicals joint venture. DuPont's $7.4 billion takeover of the oil company Conoco in 1981 was the largest-ever transaction at the time. Recent years have seen DuPont shedding traditional businesses. Fibers went with its sale of Invista to Koch Industries in 2004. It spun off Chemours, a maker of titanium dioxide and refrigerants, in 2015. The merger and subsequent split with Dow Chemical took DuPont out of agricultural chemicals and seeds. Last year, DuPont sold Celanese its engineering polymer unit, which held the last vestige of its business in nylon 6,6.

▶ **Founded**
1802

▶ **Buys rival explosives company** Laflin & Rand Powder
▶ **Counterparty:** Laflin & Rand Powder
1902

▶ **Buys artificial leather company** Fabrikoid
▶ **Counterparty:** Fabrikoid
1910

▶ **Spins off gun powder makers** Hercules Powder and Atlas Powder
▶ **Counterparty:** Hercules Powder and Atlas Powder
1913

▶ **Buys 23% of automaker** General Motors' stock
▶ **Counterparty:** General Motors
▶ **Transaction price:** $49 million
1917–19

▶ **Forms Freon joint venture** Kinetic Chemicals
▶ **Counterparty:** General Motors
1931

▶ **Buys dye and organic chemical maker** Newport Chemical
▶ **Counterparty:** Newport Chemical
1931

▶ **Sells approximately 23%** of auto company General Motors' stock
▶ **Counterparty:** General Motors
▶ **Transaction price:** $1.2 billion
1965

▶ **Buys oil and gas firm** Conoco
▶ **Counterparty:** Conoco
▶ **Transaction price:** $7.4 billion
1981

▶ **Buys 20% stake** in seed maker Pioneer Hi-Bred International
▶ **Counterparty:** Pioneer Hi-Bred International
▶ **Transaction price:** $1.7 billion
1997

▶ **Spins off oil and gas unit** Conoco
▶ **Counterparty:** Conoco
▶ **Transaction price:** $4 billion
1998

▶ **Buys remaining stake in seed maker** Pioneer Hi-Bred International
▶ **Counterparty:** Pioneer Hi-Bred International
▶ **Transaction price:** $7.7 billion
1999

▶ **Sells pharmaceutical business**
▶ **Counterparty:** Bristol-Myers Squibb
▶ **Transaction price:** $7.8 billion
2001

▶ **Sells nylon and spandex producer** Invista
▶ **Counterparty:** Koch Industries
▶ **Transaction price:** $4.2 billion
2004

▶ **Buys enzyme and bioscience specialist** Danisco
▶ **Counterparty:** Danisco
▶ **Transaction price:** $6.3 billion
2011

▶ **Sells industrial coatings business**
▶ **Counterparty:** Carlyle Group
▶ **Transaction price:** $4.9 billion
2013

▶ **Spins off industrial chemical unit** Chemours
▶ **Counterparty:** Chemours
2015

▶ **Merges with** Dow Chemical
▶ **Counterparty:** Dow Chemical
▶ **Transaction price:** $150 billion (market capitalization of the combined firm)
2017

▶ **Dow splits from** DowDuPont
▶ **Counterparty:** DowDuPont
2019

▶ **Agricultural chemical business** Corteva Agriscience splits from DowDuPont
▶ **Counterparty:** DowDuPont
2019

▶ **Sells nutrition and bioscience business**
▶ **Counterparty:** International Flavors & Fragrances
▶ **Transaction price:** $26.2 billion
2021

▶ **Sells engineering polymer unit**
▶ **Counterparty:** Celanese
▶ **Transaction price:** $11 billion
2022

SOLVAY

The Solvay synthetic soda ash process, developed in the 1860s, made Solvay a major chemical company by the turn of the century. It was family owned until its initial public offering in 1967. And the firm was pivotal to the founding of Allied Chemical, which is part of present-day Honeywell, and once owned a large stake in the British firm ICI. Solvay grew with Europe's recovery after World War II and got into polyvinyl chloride (PVC) and other polymers. In recent years it has been transforming into a specialty chemical maker. It divested PVC through transactions with Ineos. It purchased the French chemical giant Rhodia in 2011 and the US aerospace material specialist Cytec Industries in 2015. Solvay has retained the soda ash business all these years, though it has plans to split into two companies—one focused on commodities like soda ash and another on specialty chemicals.

Sales

Acquisitions

Joint Vetures

▶ **Founded**
1863

▶ **Forms** Allied Chemical & Dye in US
▶ **Counterparty:** Solvay Process and Semet-Solvay
1920

▶ **Forms polyvinyl chloride joint venture** Solvic
▶ **Counterparty:** Imperial Chemical Industries
1949

▶ **Makes a public offering of shares**
▶ **Counterparty:** Solvay
1967

▶ **Forms peroxide joint venture** Interox
▶ **Counterparty:** Laporte
1970

▶ **Buys high-density polyethylene plant in Deer Park, Texas**
▶ **Counterparty:** Celanese
1974

▶ **Buys fine chemical and animal health product maker** Philips-Duphar
▶ **Counterparty:** Philips-Duphar
1980

▶ **Breaks up peroxide joint venture** Interox
▶ **Counterparty:** Laporte
1992

▶ **Buys soda ash mine**
▶ **Counterparty:** Tenneco
▶ **Transaction price:** $500 million
1992

▶ **Sells animal health-care business**
▶ **Counterparty:** American Home Products
▶ **Transaction price:** $450 million
1997

▶ **Swaps polypropylene business for BP's engineering polymer unit and forms polyethylene joint ventures**
▶ **Counterparty:** BP
2001

▶ **Buys fluoropolymer business** Ausimont
▶ **Counterparty:** Montedison
▶ **Transaction price:** $1.2 billion
2002

▶ **Sells pharmaceutical business**
▶ **Counterparty:** Abbott Laboratories
▶ **Transaction price:** $6.2 billion
2010

▶ **Buys specialty chemical producer** Rhodia
▶ **Counterparty:** Rhodia
▶ **Transaction price:** $4.8 billion
2011

▶ **Buys oil-field chemical supplier** Chemlogics
▶ **Counterparty:** Chemlogics
▶ **Transaction price:** $1.3 billion
2013

▶ **Forms polyvinyl chloride joint venture** Inovyn
▶ **Counterparty:** Ineos
2015

▶ **Buys composite material and specialty chemical maker** Cytec Industries
▶ **Counterparty:** Cytec
▶ **Transaction price:** $5.5 billion
2015

▶ **Sells 50% stake in polyvinyl chloride joint venture** Inovyn
▶ **Counterparty:** Ineos
▶ **Transaction price:** $400 million
2016

▶ **Sells polyamide business**
▶ **Counterparty:** BASF
▶ **Transaction price:** $1.5 billion
2020

BASF

We create chemistry

When BASF became independent again in 1952 after 27 years as part of IG Farben, it was centered on a single production site, in Ludwigshafen, Germany. What is today the world's largest chemical maker wasn't even the largest chemical producer in Germany at the time. That was Bayer. Acquisitions helped BASF grow, diversify, and internationalize. The Dow Badische Chemical joint venture, formed in 1958, and the Wyandotte Chemicals acquisition in 1969 established a US infrastructure for BASF. For the past 25 years, the company has been honing its portfolio. It sold its pharmaceutical business to Abbott Laboratories in 2001. A series of transactions put its polyolefin and styrenic resin businesses in the hands of LyondellBasell Industries and Ineos, respectively. Major purchases during this period—including Engelhard in 2006 and Ciba in 2009—emphasized value-added chemistry rather than commodities.

▶ **Founded**
1865

▶ **Merges with dye suppliers** Knosp and Siegle
▶ **Counterparty:** Knosp and Siegle
1873

▶ **Forms German chemical cartel** IG Farben
▶ **Counterparty:** Bayer, Hoechst, and others
1925

▶ **Splits from** IG Farben
▶ **Counterparty:** IG Farben
1952

▶ **Forms joint venture** Dow Badische Chemical
▶ **Counterparty:** Dow
1958

▶ **Buys pharmaceutical maker** Nordmark-Werke
▶ **Counterparty:** Nordmark-Werke
▶ **Transaction price:** $25 million
1968

▶ **Buys oil, gas, and potash maker** Wintershall
▶ **Counterparty:** Wintershall
▶ **Transaction price:** $150 million
1969

▶ **Buys** Wyandotte Chemicals
▶ **Counterparty:** Wyandotte Chemicals
▶ **Transaction price:** $95 million
1969

▶ **Buys pharmaceutical maker** Knoll
▶ **Counterparty:** Knoll
1975

▶ **Buys 50% stake in chemical complex Dow Badische in Freeport, Texas**
▶ **Counterparty:** Dow
1978

▶ **Buys polyurethane chemical maker** Synthesewerk Schwarzheide
▶ **Counterparty:** Synthesewerk Schwarzheide
1990

▶ **Buys crop protection chemical business** American Cyanamid
▶ **Counterparty:** American Home Products
▶ **Transaction price:** $3.8 billion
2000

▶ **Forms polyolefin joint venture** Basell
▶ **Counterparty:** Shell
2000

▶ **Sells pharmaceutical business**
▶ **Counterparty:** Abbott Laboratories
▶ **Transaction price:** $6.9 billion
2001

▶ **Sells** Basell, **a polyolefin joint venture with** Shell
▶ **Counterparty:** Access Industries
Transaction price: $5.4 billion
2005

▶ **Buys catalyst maker** Engelhard
▶ **Counterparty:** Engelhard
▶ **Transaction price:** $5.6 billion
2006

▶ **Buys specialty chemical maker** Ciba
▶ **Counterparty:** Cibal
▶ **Transaction price:** $5.5 billion
2009

▶ **Buys personal care chemical specialist** Cognis Holding
▶ **Counterparty:** GS Capital Partners, Permira Funds, and SV Life Sciences
▶ **Transaction price:** $3.8 billion
2010

▶ **Forms styrenic resin joint venture** Styrolution
▶ **Counterparty:** Ineos
2011

▶ **Sells stake in styrenic resin joint venture** Styrolution
▶ **Counterparty:** lIneos
▶ **Transaction price:** $1.5 billion
2014

▶ **Buys business in glufosinate and other agricultural chemicals**
▶ **Counterparty:** Bayer
▶ **Transaction price:** $9.0 billion
2018

▶ **Forms oil and gas venture** Wintershall Dea
▶ **Counterparty:** LetterOne
2019

Dow isn't a serial dealmaker, but the transactions it has made have been transformative. Buying Union Carbide in 2001 strengthened Dow's petrochemical and polyethylene operations. Rohm and Haas made it a huge player in specialty chemicals. And the merger with DuPont allowed Dow to divest its agricultural chemical unit to form Corteva Agriscience while gaining DuPont businesses that paired well with its own, such as DuPont's packaging resin franchise. All the while, Dow cleaned up its portfolio with divestitures, such as the sale of its chlorine chemical business to Olin and its styrenic resin unit to a private equity firm to form what is now called Trinseo.

▶ **Founded**
1897

▶ **Merges with bromine maker** Midland Chemical
▶ **Counterparty:** Midland Chemical
1900

▶ **Buys chlorine maker** Great Western Electro-Chemical
▶ **Counterparty:** Great Western Electro-Chemical
▶ **Transaction price:** $10 million
1939

▶ **Forms silicone joint venture** Dow Corning
▶ **Counterparty:** Corning
1943

▶ **Forms agricultural chemical joint venture** DowElanco
▶ **Counterparty:** Eli Lilly and Company
1989

▶ **Buys pharmaceutical maker Marion Laboratories to form** Marion Merrell Dow
▶ **Counterparty:** Marion Laboratories
▶ **Transaction price:** $2.2 billion
1989

▶ **Sells pharmaceutical business** Marion Merrell Dow
▶ **Counterparty:** Hoechst
▶ **Transaction price:** $7.1 billion
1995

▶ **Buys remaining 40% stake in agricultural chemical maker** DowElanco
▶ **Counterparty:** Eli Lilly and Company
▶ **Transaction price:** $1.2 billion
1997

▶ **Buys specialty chemical maker** Sentrachem
▶ **Counterparty:** Sentrachem
▶ **Transaction price:** $446 million
1997

▶ **Sells consumer product business** DowBrands
▶ **Counterparty:** S.C. Johnson & Son
▶ **Transaction price:** $1.1 billion
1998

▶ **Buys nitroalkane maker** Angus Chemical
▶ **Counterparty:** TransCanada Pipelines
▶ **Transaction price:** $350 million
1999

▶ **Buys petrochemical maker** Union Carbide
▶ **Counterparty:** Union Carbide
▶ **Transaction price:** $11.6 billion
2001

▶ **Sells ethanolamine business**
▶ **Counterparty:** Ineos
2001

▶ **Forms two joint ventures: MEGlobal for ethylene glycol and Equipolymers for polyethylene terephthalate**
▶ **Counterparty:** Petrochemical Industries Company
2004

▶ **Buys specialty chemical maker** Rohm and Haas
▶ **Counterparty:** Rohm and Haas
▶ **Transaction price:** $19 billion
2009

▶ **Sells styrenic resin and polycarbonate business**
▶ **Counterparty:** Bain Capital
▶ **Transaction price:** $1.6 billion
2010

▶ **Sells nitroalkane maker** Angus Chemical
▶ **Counterparty:** Golden Gate Capital
▶ **Transaction price:** $1.2 billion
2015

▶ **Sells chlorine and derivatives business**
▶ **Counterparty:** Olin
▶ **Transaction price:** $5 billion
2015

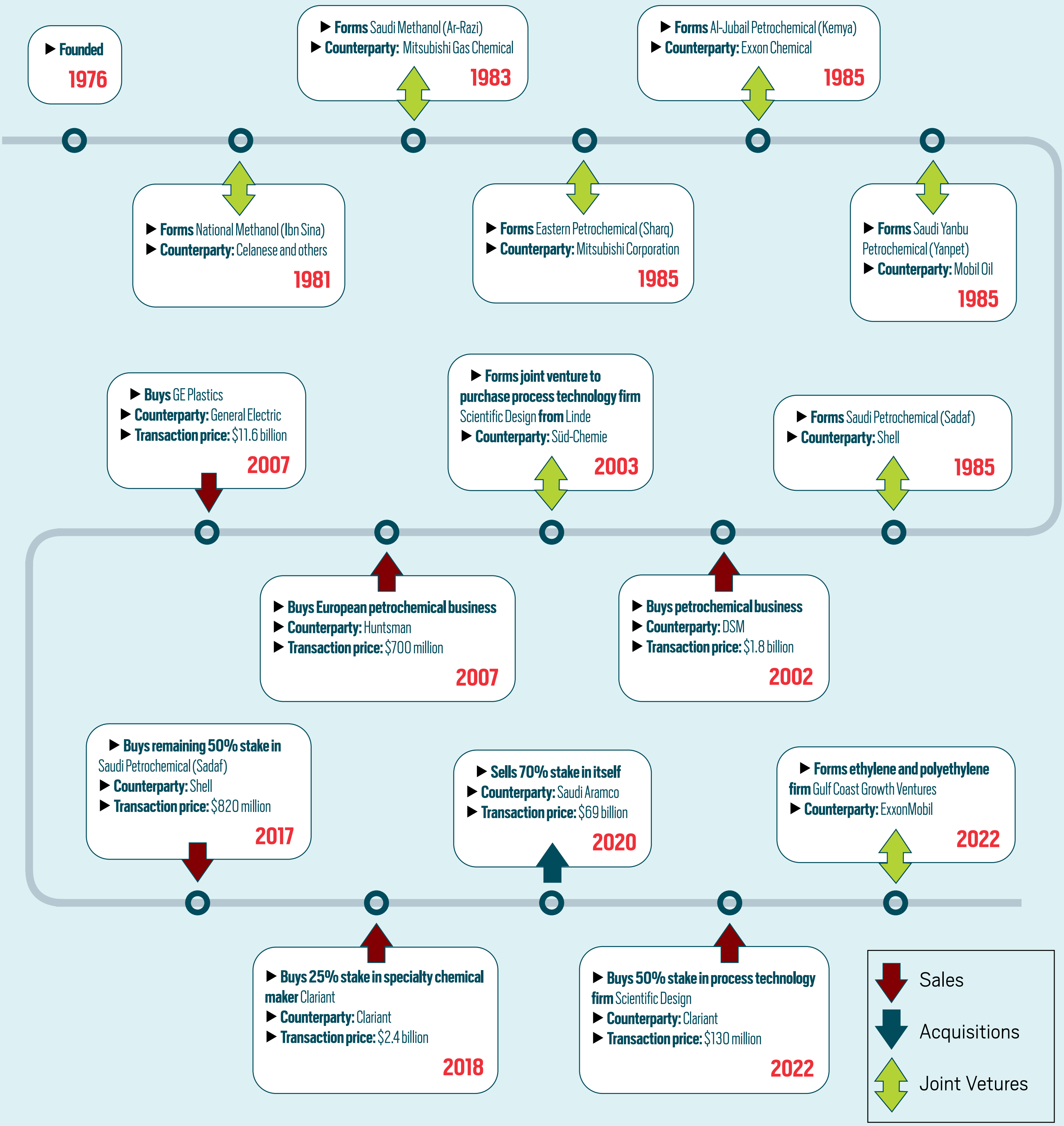
▶ **Buys remaining 50% stake in silicone maker** Dow Corning
▶ **Counterparty:** Corning
▶ **Transaction price:** $4.8 billion
2016

▶ **Merges with** DuPont
▶ **Counterparty:** DuPont
▶ **Transaction price:** $150 billion (market capitalization of the combined firm)
2017

▶ **Splits from** DowDuPont
▶ **Counterparty:** DowDuPont
2019

Sales
Acquisitions
Joint Vetures

Sabic has an origin unlike that of any other major chemical company. In the 1970s, Saudi Arabia was a big oil exporter. But the country didn't have a market for the ethane and methane that came out of the ground along with the oil. Saudi Basic Industries Corporation was established in 1976, in part to end the practice of flaring these gases by upgrading them into exportable chemicals. During its first decade, Sabic formed joint ventures with major foreign firms such as Exxon Chemical, Shell, and Mitsubishi Corporation to build massive petrochemical complexes in Saudi Arabia. In the aughts, the company grew internationally with the acquisition of European petrochemical businesses from DSM and Huntsman. The purchase of GE Plastics was a major leap internationally and added specialty materials to Sabic's offerings.



INEOS

Founded in 1998, the British company is one of the youngest of the world's major chemical makers. Ineos's rapid growth is primarily the result of acquisitions of older operations cast off by more established firms. But Ineos doesn't purchase chemical plants willy-nilly; its transactions over the years fit logical patterns. For example, through a series of deals, the company has reassembled the old BP Chemicals. The biggest of those deals was its $9 billion purchase of BP's petrochemical and polyolefin business Innovene. It was followed by purchases of BP's aromatics business and a 50% stake in the petrochemical complex Shanghai Secco Petrochemical in China, originally a BP joint venture with Sinopec. Ineos has also been a consolidator in polyvinyl chloride (PVC) and styrenic resins. Major PVC acquisitions include EVC and Solvay's PVC business. In styrenics, it has purchased assets from Lanxess and BASF.

1998
- **Founded via management buyout of ethylene oxide, ethylene glycol, and derivatives facility in Antwerp, Belgium**
- **Transaction price:** $140 million

2001
- **Buys fluorochemical, chlorochemical, and silicate businesses**
- **Counterparty:** ICI
- **Transaction price:** $470 million

2001
- **Buys ethanolamine business**
- **Counterparty:** Dow

2001
- **Buys majority of polyvinyl chloride maker** EVC
- **Counterparty:** EVC
- **Transaction price:** $70 million

2001
- **Buys Phenolchemie**
- **Counterparty:** Degussa
- **Transaction price:** $378 million

2005
- **Buys remaining interest in polyvinyl chloride** EVC
- **Counterparty:** EVC

2005
- **Buys polystyrene business in US and Canada**
- **Counterparty:** BASF

2005
- **Buys petrochemical and polyolefin unit** Innovene
- **Counterparty:** BP
- **Transaction price:** $ 9 billion

2007
- **Buys 50% stake in ethylene cracker** Noretyl
- **Counterparty:** Borealis
- **Transaction price:** $380 million

2007
- **Buys 51% stake in acrylonitrile-butadiene-styrene business**
- **Counterparty:** Lanxess
- **Transaction price:** $48 million

2008
- **Buys polyvinyl chloride business and remaining 50% stake in ethylene cracker** Noretyl
- **Counterparty:** Norsk Hydro
- **Transaction price:** $913 million

2008
- **Buys ethyl acetate and vinyl acetate business**
- **Counterparty:** BP

2010
- **Sells fluorine chemical unit**
- **Counterparty:** Mexichem

2011
- **Forms styrenic resin joint venture Styrolution**
- **Counterparty:** BASF

2014
- **Buys remaining 50% stake in the styrenic resin joint venture** Styrolution
- **Counterparty:** BASF
- **Transaction price:** $1.5 billion

2015
- **Forms polyvinyl chloride joint venture** Inovyn
- **Counterparty:** Solvay

2016
- **Buys remaining 50% stake in polyvinyl chloride joint venture** Inovyn
- **Counterparty:** Solvay
- **Transaction price:** $400 million

2019
- **Buys composite resin business**
- **Counterparty:** Ashland
- **Transaction price:** $1.1 billion

2021
- **Buys aromatics business**
- **Counterparty:** BP
- **Transaction price:** $5 billion

2022
- **Buys 50% stake in** Shanghai Secco Petrochemical
- **Counterparty:** Sinopec