

CASE VI

Makrolon: The High-Tech Material

People all over the world come into contact with polycarbonates every day. Ever since 1953, this plastic has built an impressive array of success in many different product. Today, countless producers all over the world rely on the properties of polycarbonates. And more products and applications are constantly being added. It is impossible to imagine the future without polycarbonates. One of these polycarbonates is Bayer's Makrolon.[®] The 45 billion or so CDs that have been produced from Makrolon since the birth of the compact disc in 1982 up to the beginning of 2008 would create a belt about 10,800,000 kilometers long. This is roughly equivalent to twenty eight times the mean distance between the Earth and the Moon.

In 2007, Makrolon had a brand awareness of 31 percent and was absolutely the best-known polycarbonate in the marketplace in Europe. In the United States Lexan from GE Plastics had the leading position.¹ The following case study describes Bayer's ingredient branding strategy for Makrolon in Europe. We focus on the rise of Makrolon and we broach the issue of developing this strategy for the future. In the end, awareness is not everything. Does branding pay off? What are the conditions that determine the benefit Bayer can achieve with Makrolon? All these questions are germane to successful management of the Makrolon brand.

When the Bayer Corporation from Leverkusen invented the polycarbonate Makrolon[®] in 1953, it did not cause any particular shockwaves. Bayer patented the invention in the same year. In the early days

Makrolon was primarily used as an **insulating plastic**, for example for switches and fuse boxes, but it is now recognized as a highly versatile material that can be used in many areas of life. With its high transparency, impact strength, and dimensional stability, even at high temperatures, Makrolon is versatile in the extreme. Makrolon continues to be used in electrical engineering applications but also, for instance, in headlamps and interior fittings for cars, transparent roofing for carports and swimming pools, UV protection for sports goggles and sunglasses, and packaging for reusable milk bottles and water dispensers. When Polygram, a subsidiary of Philips, made the first CD, they used Makrolon, which is now used by renowned manufacturers as a fixed component of many CDs, CD-ROMs, and DVDs. Recently it has also been adapted for blue-ray discs.

Bayer Polymers did not pursue an ingredient branding strategy until 2000, when it began marketing Makrolon as a brand in its own right and bringing it into the public eye (see Exhibit VI-1). Prior to this, it was largely unknown to consumers and only marketed to businesses as an application chemical.

Bayer has had little difficulty in finding ingredient branding partners to use and process

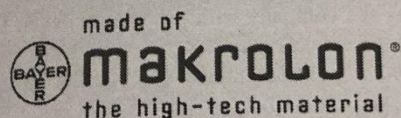


EXHIBIT VI-1 Makrolon Trademark/Logo

¹ On May 27, 2007 General Electric (USA) sold GE Plastics to Saudi Basic Industries Corp. (SABIC) for \$11.6 billion. In 2006, the Pittsfield, MA-based business employed 10,300 people and generated \$6.6 billion in sales and \$675 million in profits in that year. In 2002 they had started a branding campaign which improved Lexan's reputation outside the Americas.

the product, given that Makrolon has had a good reputation in the plastics processing industry. The strategy aims to make the consumer aware that both the manufacturer of the end product and the company that makes the most elementary component of the product stand for **flawless quality** and that the customer can trust this product.

But being a processor of Makrolon does not necessarily mean that the end product meets the same quality standards or reflects Bayer's level of prestige. The polycarbonate could be simply an ingredient, which cannot compensate for a manufacturer's poor reputation or the inferior quality of other ingredients used in the manufacturing process. To protect the reputation of Bayer and Makrolon and make sure it is not damaged by quality issues of this kind, Bayer tests all products that are destined to carry the Makrolon label.

Bayer also uses brand usage agreements to ensure the required level of quality and assumes the right to take samples during production to offer end consumers assurance of consistently high quality. But Bayer does not only consider a company's products when choosing its ingredient branding partners; it also scrutinises the company and its image as a whole. When it comes to ingredient branding the Leverkusen firm wants to know exactly with whom they are associating in the public eye and who is allowed to use the **Bayer cross** for their own marketing purposes. This process aims to avoid associating the company with partners engaged in "price wars"; a close association with the end product could potentially damage the image of Makrolon.

Becoming an ingredient branding partner is a coveted position amongst companies that process Makrolon. As a result, Bayer is signing brand usage agreements with more and more firms. At the present time, cycling, skiing, and sports goggles from UVEX Sports

GmbH & Co. KG, CD-ROMs and DVD-ROMs from MMore International BV, and ampoules for a needle-free injection system from Rösch AG all carry the Makrolon seal of quality.

But the **ingredient branding family** also includes CDs and DVDs from other manufacturers (regionally separated), protective floor mats, water dispensers, flexible solar modules, and many other products. What Bayer and its partners are both aiming to achieve is to differentiate themselves from the competition and competing products by means of the branding strategy. It is important to highlight the advantages of Makrolon and transfer this positive image to the end product with the help of brand name. This differentiation gives the ingredient a **unique selling proposition**, or USP, and encourages the end customer to give preference to products with the Makrolon logo or even keep a lookout for this particular product when looking to make a purchase. The potential customer then may ask for a product manufactured with Makrolon.

But the pull effect cannot be achieved simply by adding the Makrolon quality seal to product, packaging, and advertising material. Quality and credibility must also be conveyed to the consumer, who must be able to build up a familiarity with the Makrolon brand. Bayer's ingredient branding partners label their products and brochures all over Europe with the words "Made of Makrolon[®]" and the Bayer umbrella brand (branded house). The partners explain the advantages of this special polycarbonate and why customers should choose products with this ingredient in print advertisements, brochures, catalogues, on their Web sites, and at trade fairs. To initiate the **pull effect**, Bayer uses advertising campaigns to appeal directly to (potential) end consumers and in 2000 it began targeting individual audiences with appropriate motifs, giving the brand the right

emotional associations for the particular segment. Bayer used PR in the print media and on television to convey its messages. The "fastest" and most conspicuous advertising medium was the intercity locomotives operated by Deutsche Bahn. Bayer was the first company to use intercity locomotives as advertising space.

The Makrolon brand was given five different motifs, which were partially oriented toward Bayer's partners UVEX, Legoland, and MMore. These locomotives proved extremely popular with railway fans, and a dedicated Web site set up by Bayer attracted **huge numbers of hits**. Model railway maker Märklin currently stocks a model of the locomotive featuring partner MMore, which is delivered with a computer mouse made of Makrolon.[®] This is another example of Bayer seeking to demonstrate the versatility of its plastic, and by partnering with Märklin, it aims to highlight the fact that the polycarbonate is used in many models from the Göppingen toy manufacturer.

The ingredient branding partnership between Bayer Makrolon and its customers is balanced because of its interdependence. The principle is based on synergies, that is, each partner integrates the other and refers to the partnership in their advertising, brochures, catalogues, Web sites, and other publications. This does not result in advertising cost allowances or similar benefits and concessions for either side.

As a relative newcomer to ingredient branding, Bayer is still in the early stages of establishing its high-tech plastic Makrolon as a brand with the user. Establishing a brand that has hitherto been completely unknown to consumers is an extremely difficult task and often incurs considerable advertising costs. So Bayer exploited its well-known name and **reputation** and incorporated the Bayer cross into the Makrolon logo. This had the effect of

making consumers associate the plastic from the outset with the Bayer Corporation, which already represents tradition and quality and has proven it with brands such as Aspirin. The positive image of the company can thus be transferred to the new Bayer brand. Demonstrating the link between the two brands cuts down on costs for introductory and ongoing advertising, partly because Makrolon benefits indirectly from product advertising for other Bayer products.

Background on Bayer AG

The History

The general partnership "Friedr. Bayer et comp." was founded on August 1, 1863, in Barmen—now a district of the city of Wuppertal—by dye salesman Friedrich Bayer (1825–1880) and master dyer Johann Friedrich Weskott (1821–1876). The object of the company was the manufacture and sale of synthetic dyestuffs. Between 1881 and 1913, Bayer developed into a chemical company with international operations. Although dyestuffs remained the company's largest division, new fields of business were joining the fold.

Of primary importance for Bayer's continuing development was the establishment of a major research capability by Carl Duisberg (1861–1935). A scientific laboratory was built in Wuppertal-Elberfeld—which was also the company's headquarters from 1878 until 1912—that set new standards in industrial research. Bayer's research efforts gave rise to numerous intermediates, dyes and pharmaceuticals, including the "drug of the century," Aspirin, which was developed by Felix Hoffmann and launched onto the market in 1899.

World War I interrupted Bayer's dazzling development. The company was largely cut off from its major export markets, and sales of dyes and pharmaceuticals dropped accordingly. Bayer was increasingly integrated into the war

economy and began to produce war materials, including explosives and chemical weapons. In 1917, during the war, Bayer launched its third production site in Dormagen.

A community of interests had already existed between Bayer, BASF, and Agfa since 1905. In order to regain access to the vital export markets, these and other companies of the German tar dyes industry joined together to the IG Farben AG in a larger community of interests in 1915–1916 on the initiative of Carl Duisberg. After World War II in November 1945, the Allied Forces confiscated the operations of IG Farben AG and placed all its sites under the control of Allied officers. The company was to be dissolved and its assets made available for war reparations. Yet the British permitted Ulrich Haberland (1900–1961), who had been in charge of the Lower Rhine consortium since 1943, to remain in his position. Soon they allowed production to resume as well, as the chemical industry's products were essential to supply the population. In the years that followed, Haberland worked to build up a new and competitive company in the successful Bayer tradition. The Allied military governments had initially planned to break up the IG Farben AG into as many small companies as possible. Yet these companies would hardly have been able to survive on the world market or even in Germany itself. The Allies finally came to this realization as well, and thus—on the basis of Allied law—twelve new thoroughly competitive companies were created in the Federal Republic of Germany. Thus in 1946, while still under Allied control, Bayer began to re-establish its sales activities abroad. By the 1950s, the company was allowed to acquire foreign affiliates as well. At first the United States and Latin America were the focus of these activities.

The reconstruction of Bayer was closely linked with the Wirtschaftswunder ("economic miracle"), in the Federal Republic of

Germany. As a result of World War II, Bayer for the second time had lost its foreign assets, including its valuable patents. It was clearly vital to rebuild Bayer's foreign business. Farbenfabriken Bayer AG was newly established on December 19, 1951. The Leverkusen, Dormagen, Elberfeld, and Uerdingen sites were allocated to the new company, and in 1952 Bayer also received as a subsidiary the newly established Agfa "joint stock company for photo fabrication," but lost their foreign subsidiaries.

The first mild recession in the Federal Republic of Germany occurred in 1966, but it was the oil crisis of 1973–1974 that ended the "economic miracle" once and for all. By the time Herbert Grunewald succeeded Kurt Hansen as Management Board chairman of the Bayer AG following the 1974 Annual Stockholders' Meeting, the global economy was undergoing a radical transformation. Within just a few months, prices for chemical raw materials based on oil had risen astronomically. Makrolon too was affected by these developments. The crisis reached its apex in the early 1980s as a severe global recession set in.

The 1990s saw another major structural transformation, with Bayer, like other companies, facing the challenge of globalization. In the wake of the radical political changes that took place in Germany and Eastern Europe after 1989, the company increased its focus on these promising markets. As early as 1992, Bayer broke ground on a new site in Bitterfeld in eastern Germany, where production of Aspirin began in 1994. The importance of North America to the Bayer Group continued to increase. In Canada Bayer acquired Toronto-based Polysar Rubber Corporation in 1990—the most significant acquisition in the company's history up to that point. The transaction made Bayer the world's biggest supplier of raw materials for the rubber industry.

Under the leadership of Dr. Manfred Schneider, Bayer acquired the North American self-medication (over-the-counter drugs) business of Sterling Winthrop in 1994—a milestone in the company's history, as the purchase also allowed the company to regain the rights to the "Bayer" company name in the United States. For the first time in seventy five years, Bayer could operate in the United States under its own name and with the Bayer Cross as its corporate logo.² In 1995 U.S.-based Miles, Inc., was renamed Bayer Corporation, and Makrolon could also use the Bayer Cross in their logo.

To better equip itself for the challenges of the future, Bayer set up a third pharmaceutical research center, this time in Japan, in addition to the locations in Europe (Wuppertal) and North America (West Haven, Connecticut). In 1995 the research center of Japanese pharmaceutical subsidiary Bayer Yakuhin Ltd. was dedicated at Kansai Science City near Kyoto. This marked the basic completion of Bayer's Europe–North America–Japan "pharmaceutical research triad." In the years that followed, these operations were supplemented by alliances with numerous innovative biotechnology companies.

In 2001, Bayer acquired Aventis Crop Science for €7.25 billion, making it a world leader in crop protection. In December of the same year, the company's management announces planned to establish independent operating groups. One year later Bayer CropScience AG was launched as the first legally independent Bayer subgroup. In 2003, the subgroups Bayer Chemicals AG and Bayer HealthCare AG and the service company Bayer Technology Services GmbH gained legal independence as part of the reorganization of the Bayer Group. The subgroup Bayer MaterialScience AG (which produces Makrolon) and the service companies Bayer Business Services GmbH and Bayer Industry Services GmbH & Co. OHG followed.

In 2005, Bayer completed the acquisition of the Roche consumer health business, advancing to become one of the world's top three suppliers of nonprescription medicines in the same year. Lanxess AG was spun off from the Bayer Group. This company now continues Bayer's chemicals business and parts of its polymers business.

In January 2005, an Extraordinary Stockholders' Meeting of Bayer Schering Pharma AG resolved to effect a "squeeze-out" of the remaining minority stockholders. Bayer Schering Pharma AG, headquartered in Berlin, now operates together with Bayer's existing pharmaceuticals business as a division of the Bayer HealthCare subgroup. Bayer is now one of the global leading enterprises with core competencies in the fields of health care, nutrition, and high-tech materials.

Organization

Bayer AG defines common values, goals, and strategies for the entire group. The three subgroups (HealthCare, CorpScience, Material Science) and three service companies (Business Services, Technology Services, Industry Services) operate independently, led by the management holding company. The Corporate Centre supports the Group Management Board in its task of strategic leadership (see Exhibit VI-2). The revenues of each business unit at the revenues of the whole Bayer Group is shown in Exhibit VI-3.

Bayer MaterialScience AG

Bayer MaterialScience is a renowned supplier of high-performance materials, such as polycarbonates and polyurethanes, and innovative system solutions, such as coatings, for a wide range of everyday uses. Products holding leading positions on the world market account for a large

² Prior to this time, Bayer had competed with GE in the United States through a subsidiary, Mobay Chemical. Mobay used the brand name "Merlon" for its polycarbonate.

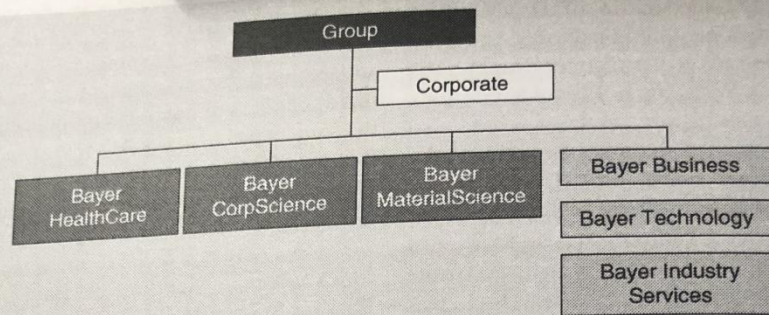


EXHIBIT VI-2 Bayer Group Organization

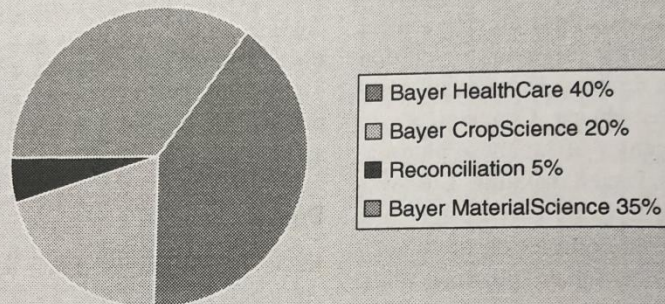


EXHIBIT VI-3 Revenues Per Business Unit of the Bayer AG 2007

proportion of its sales.³ The business unit of Bayer MaterialScience holds five subdivisions. Collectively, the subdivisions provide the basis for Bayer MaterialScience's operations. They develop and manufacture products within their focus. The subdivisions are

- **Coatings, Adhesives, Sealants (BU CAS)**
This business unit is responsible for the development and production of a broad range of raw materials for coatings, adhesives, and sealants.
- **Polycarbonates (BU PCS)**
Makrolon polycarbonate is a classic among Bayer MaterialScience's products.
- **Polyurethanes (BU PUR)**
Polyurethanes are one of the major materials used in the manufacturer of foams

for padding, furniture, and so on, and also of many durable industrial and commercial coatings.

- **Thermoplastic Polyurethanes (BU TPU)**
Thermoplastic polyurethanes have become simply indispensable. They make sure, for example that your car functions properly.
- **Inorganic Basic Chemicals (IBC)**
IBC is responsible for worldwide chlorine supplies at Bayer MaterialScience.

Background on Makrolon

Today's Makrolon production reaches an everyday use of more than 500 tons and a capacity of more than 740,000 tons in four existing subsidiaries. Bayer MaterialScience is increasing its market share based on high investments

³ The financial key data for the whole Bayer Group and its subdivisions are attached in the Exhibits VI.5 and VI.6.

and focusing on China in the future.⁴ With an expected growth of more than 8 percent per annum in polycarbonates Bayer chose China with Shanghai as location to strengthen its competitor advantage. Bayer MaterialScience is investing more than 720M € up to 1.1 billions from 2006 to 2012 in projects including polycarbonates. Makrolon has been crowned with success and is used by different segments, ranging from roofing, surface coating, and medical technology to car windows. Because of the great success and diversity Bayer has had with Makrolon they opted for the marketing tool “ingredient branding.” The key to Bayer Makrolon’s new ingredient

brandings concept was the requirement that the component was used for high-class care products labelled with the Makrolon logo. Within consumer’s faith in the core product and the qualitative ingredient, the new instrument of “ingredient branding” puts both the product and the component in an excellent competitive position by creating and communicating added value.

The locations for the Makrolon production are organized globally. There are seven production places: Newark and Baytown in the United States; Uerdingen, Antwerp, and Filago in Europe; and Caojing and Map Ta Phut in Asia (see Exhibit VI-4).

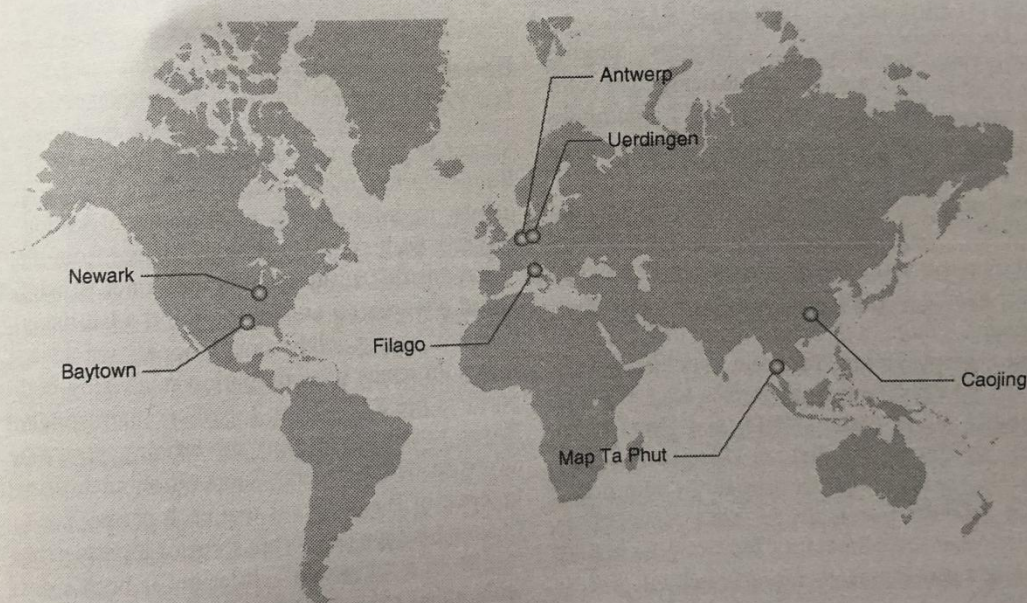


EXHIBIT VI-4 Local Production of Makrolon

⁴ As noted, Bayer also benefited from the sale of its largest competitor, the Plastics Group of General Electric. Until the sale to Saudi Industries Corp., GE had been a very strong competitor, dominating the U.S. market with its Lexan® Polycarbonate. In the 1970s, GE considered a consumer branding effort for its Lexan Polycarbonate, including filming of commercials (A Bull in a Lexan Shop) and tagline development (Lexan—A Good Name to Stand On), and logo. Deemed too expensive at the time, the full implementation of the project was abandoned, with a minor effort to tag products with the new logo (an elephant standing on a circus stand of Lexan). For greater understanding of how these companies competed, particularly in the arena for development of new applications of polycarbonate, see the case “Marketing Plastic Resins; BW and GE,” elsewhere in this book.

The Market for Polycarbonate

Polycarbonates (PC) were first prepared by Einhorn in 1898 and extensively researched until 1930 when they were discarded. Research was then started in the mid-1950s by General Electric and in 1958 the polycarbonate popularity expanded to a global community. Today, approximately 75 percent of the polycarbonate market is held by Bayer and GE Plastics, now acquired by Saudi Basic Industries (SABIC).⁵

Hollow sunlight panels are semistructural, corrugated (much like cardboard) panels that take advantage of the clarity and toughness of polycarbonate. They are often used instead of glass for greenhouses and other similar structures, as they are virtually unbreakable. Bayer pioneered this application in the 1970s in Europe, bringing the application to the United States by the early 1980s. GE entered the market in the middle of the decade, but this application has remained a major application for Bayer.

Experts predict that the demand of computers and home appliances will continue to grow in the next few years, and the demand for PC from this sector will increase at an annual rate of 10–12 percent. For the railway, highway, airport, and urban construction sectors, it is expected that they will also have a strong demand for hollow sunlight panels. In the past few years, enterprises located in the Yangtze River Delta (YRD) and Pearl River Delta (PRD) regions that use PC to manufacture panels greatly outperformed those enterprises that produce panels from other resins. It is anticipated the demand for PC from the hollow sunlight panels manufacturing sector will grow at

an annual rate of 12–15 percent. Moreover, experts forecast that PC-based blend alloy composite material suppliers will become one of the largest consumers for PC, as the automotive industry has a great demand for their product.⁶ The main competitors in the marketplace for Bayer MaterialScience polycarbonate are

- SABIC (GE Plastics Lexan®)
- Dow (Calibre®)
- Teijin
- Mitsubishi Chemical Group
- Idemitsu
- Sam Yang
- Chi Mei
- Formosa
- Policarbonatos do Brasil

Bayer's Branding Strategy for Makrolon

To get in touch with consumers and retailers, Bayer started with ingredient branding campaigns to inform end users about Makrolon. Bayer's multistage marketing differs from the "Intel-Inside" strategy. Whereas Intel is using brand advertising and cooperation advertising, Bayer is almost solely using cooperation advertising. In terms of cooperation marketing both partners are advertising together. Interestingly, Bayer is not paying any advertising grants to advertise with partners. Cooperation advertising in terms of Bayer means that each partner has to finance his own part. This form of a partnership results in a "win-win" situation of both sides, with added value for both without sharing costs.

⁵ General Electric sold its plastics division to Saudi Basic Industries, Saudi Arabia's largest industrial firm, for \$11 Billion. General Electric's plastics unit reached \$6.6 billion in revenue in 2006. The division had struggled to meet aggressive margin and share goals amid inflation in natural gas and raw materials like benzene, and profits at the unit fell about 22 percent, to \$674 million 2006 from \$867 million in 2005. The sale has always been controversial, but it is not unusual for GE to leave markets when the major offerings reach the mature stage. (Such as phenolic plastics, consumer electronics, television, small appliances, etc.)

⁶ By the late 1970s, the competition between GE and Bayer was a global battle. The 1985 European Ford Sierra and some Fiats were the first to use Polycarbonate blended with polyesters for energy-absorbing bumpers. In 1986, the U.S. Ford Taurus and Mercury Sable used the PC blend for bumpers. These blended derivatives of PC were developed specifically for these applications by GE Plastics.

Bayer is furthermore expecting good reputation with high quality and good image of the end product. With signing license contracts the partner has to agree with pre-product tests before labelling the ingredient on the core product, the allowance of samples taken by Bayer to secure the quality.⁷ The Makrolon logo is labelled on the core product or packages. The integration of Bayer Makrolon logo is further extended to exhibitions, advertising campaigns, events, and sponsoring activities.

With Bayer's ingredient branding campaign of cooperation advertising from 2001, Bayer targeted the selected end user groups for products such as CD/DVD, sunglasses, and medical products. Bayer and its partners were pushing the message to consumers to call attention to Makrolon, the labelled polycarbonate, and create the pull effect. Bayer and its partners communicated the new branded ingredient in magazines, journals, and popular magazines. The campaign was launched in Germany, Great Britain, Spain, and other countries.

In collateral materials, the chosen partners educated the end user of the ingredient through advertising campaigns, flyers, Web sites, and exhibitions. The integration of advertising and public relation pushes the message to more consumers' minds. Today Makrolon is a well-known brand to many end users in most of the world, with consumers in the United States still lagging behind. For Bayer Material Science, brand management became an important part not only for B2B customers but also for addressing end users. Makrolon created a competitive advantage through communication with the end user, and it showed that ingredient branding can properly improve the brand value of polycarbonate.

Bayer's aim is to communicate Makrolon's benefit to the end user. This could lead the end users to be more willing to pay more for the products labelled with the Makrolon ingredient as well as demand the ingredient in core products.

The communication process usually starts with partner campaigns, using the Bayer cross and "made of Makrolon." The communication process also includes "point of sale" marketing activities. In addition public relations is helping to inform the target customers. End user surveys help to define consumer wants and needs. Building partnerships and the resulting "win-win" situation is an important step in implementing an ingredient branding strategy. The "win-win" situation can occur through reduction of prices for the core product manufacturer or support in advertising campaigns.

The different partnership campaigns made the ingredient as well as the core product known. Advertisements on intercity train locomotives had been a communicator in pushing the messages and they strengthen Makrolon's profile.⁸ By applying this seal of quality, branding partners like MMore, HiSpace, and DataTrack convey the message that the material used for their recordable CDs and DVDs guarantees optimum storage quality and security. Through CDs, automotive headlights,⁹ eyeglass lenses, helmets, household appliances, and water bottles almost everybody comes into contact with Makrolon at least once a day. Makrolon is about to become a well-known brand, like Aspirin,[®] the other big Bayer brand.

To accompany the labelling of their products, the partners also use ads, flyers, Web sites, and exhibition stands to draw attention to

⁷ Horizont 2002, Zeitschrift für Marketing, Frankfurt, S. 26.
⁸ Ironically, by the 1970s, one of the major U.S. applications for polycarbonate was in commuter train windows, primarily for safety reasons. Though initially more expensive, the lower replacement frequency and added passenger safety overcame the initial costs. Today, polycarbonate glazing (windows) are the standard in all passenger rail applications.
⁹ See "Automotive Headlamps II: The Paradigm Shift from Standardized Glass Beams to Today's Plastic Custom Designs" elsewhere in this book.

OEM	End Product Brand	Product Categories
RS Office	Rollsafe, Roll-o-Grip u.a.	Flor cover mats
BNL Eurolens	BNL Eurolens	Eye glasses
Euro Digital Disc Manufacturing	Data Track	CDs
MMORE	MMORE	CDs/DVDs
Tera Media Corporation	Nashua	CDs/DVDs
Videolar	EMTEC/Nipponic	CDs/DVDs
Luceplan	Constanza	Design-lamps
Salman Plastik	Saiblend, Salflex	Electronic
Spirit of Golf	Laser Line Tee	Golf equipment
Matsuzaki Industry Co. Ltd.	Maruem	Suitcases
G+B Pronova	Holo Pro	Holographische Projektionsscheiben
Geomag SA	Geomag	Magnet-Toys
Societe Bourgeois	Galaxy	Optical Lenses
Alurunner GmbH	Alurunner	sleigh
Sunovation	Sunovation	Solar modules
UVEX	UVEX	Sports equipment
Goldwell Enterprises Inc.	Goldwell	Water bottle
Watertek	Watertek	Water bottle
Capsnap Europe	Capsnap	Water bottle
Portola Packaging Inc.	Portola, Garafón	Water bottle

EXHIBIT VI-5 OEMs Using Makrolon for Their End Product

Makrolon.[®] Other co-branding partners include water bottle producers Capsnap in Austria and Watertek in Turkey, and Makroform GmbH, a member of the Bayer Group whose products include polycarbonate sheeting for high-quality roofing.

Exhibit VI-5 shows selected OEMs which use Makrolon in their end product. All these companies further show the ingredient by using the Makrolon brand on their final product. For additional information regarding Bayer Group's earning see Exhibit VI-6.

The Example UVEX

UVEX was one of the early participants in the ingredient branding activities of Makrolon. Since the company was founded in 1926, UVEX has always focused on its mission "Protecting People" at work, sport, and leisure activities and Makrolon was the perfect

material to help to achieve this mission. UVEX WINTER HOLDING comprises four international subsidiaries under one roof:

- UVEX SECURITY, for protection at work: eyewear, helmets, gloves, hearing protection, foot, and workwear.
- UVEX SPORTS, for sport and leisure: helmets for skiing, cycling, and motorcycling; sunglasses and goggles for skiing, cycling, motorcycling, and protective clothing and boots for motorcyclists.
- ALPINA, for sport, leisure, and the optical trade: ski and cycle helmets, ski goggles, cycle and sports sunglasses, optical frames, and sunglasses.
- FILTRAL, Fashion sunglasses and reading glasses.

Bayer's partner for the ingredient branding strategy is UVEX SPORTS. This business unit offers products for motor sports, cycling,

and skiing that are sold in specialist shops throughout the world. As well as distributing to all major world markets, the company has subsidiaries in Switzerland, Austria, the Netherlands, the United States, and Japan.

UVEX SPORTS is known as a professional supplier of protective equipment in international top-class sports. Far-reaching sponsorship activities in bobsledding, luge, snowboarding, and both downhill and cross-country skiing increase the company's market presence and significance. Top professionals such as ski jumpers Janne Ahonen, Sigurd Pettersen, and Kazuhiro Funaki; racing skiers such as Michaela Dorfmeister, Renate Götschl, Sonja Nef, Fritz Strobl, Andi Schifferer, and Sammi Uotila; luger Georg Hackl and bobsledder Christoph Langen; and many more represent the UVEX winter sports team.

Makrolon can be transparent or opaque, is resistant to impact and weathering, and withstands high and low temperatures. These attributes linked to the Makrolon brand are major aspects for high-quality sport products. The partnership between these two brands embodies similar or complementary attributes to the end user.

UVEX product portfolio is an excellent example. UVEX offers products in which Makrolon can be used to build flexible eyewear frames, breathable coated textiles, transparent shells for ski shoes, transparent high impact resistant cases for bindings, and lightweight and attractive surfaces for skis and snowboards as possible applications.

Bayer and UVEX have created a promotion campaign together. Both companies communicate the brands not only on the

Bayer Group Key Data		
	2005 (in € million)	2006 (in € million)
Bayer Group		
Net sales	24,701	28,956
EBITDA ⁱ	4,122	4,675
EBITDA before special items	4,602	5,584
EBIT ⁱⁱ	2,514	2,762
EBIT before special items	3,047	3,479
Income before income taxes	1,912	1,98
Net income	1,597	1,683
Earnings per share (€) ⁱⁱⁱ	2,19	2,22
Gross cash flow ^{iv}	3,114	3,913
Net cash flow ^v	3,227	3,928
Capital expenditures	1,21	1,739
Research and development expenses	1,729	2,297
Dividend per Bayer AG share (€)	0,95	1
Bayer HealthCare		
Net external sales	7,996	11,724
EBITDA ⁱ	1,28	1,947
EBITDA before special items	1,487	2,613
EBIT ²	923	1,313

EXHIBIT VI-6 Bayer Group Key Data

Bayer Group Key Data		2005 (in € million)	2006 (in € million)
		1,177	1,715
EBIT before special items		923	1,72
Gross cash flow ⁴		1,087	1,526
Net cash flow ⁵		225	576
Capital expenditures			
Bayer CropScience		5,896	5,7
Net external sales		1,284	1,166
EBITDA ¹		1,273	1,204
EBITDA before special items		690	584
EBIT ²		685	641
EBIT before special items		964	900
Gross cash flow ⁴		904	898
Net cash flow ⁵		201	197
Capital expenditures			
Bayer MaterialScience			
Net external sales		9,446	10,161
EBITDA ¹		1,721	1,499
EBITDA before special items		1,764	1,677
EBIT ²		1,25	992
EBIT before special items		1,293	1,21
Gross cash flow ⁴		1,254	1,166
Net cash flow ⁵		1,337	1,281
Capital expenditures		642	753

EXHIBIT VI-6 (continued)

¹ EBITDA = EBIT plus amortization of intangible assets and depreciation of property, plant, and equipment. EBITDA, EBITDA before special items, and EBITDA margin are not defined in the International Financial Reporting Standards and should therefore be regarded only as supplementary information. The company considers underlying EBITDA to be a more suitable indicator of operating performance since it is not affected by depreciation, amortization, write-downs/write-backs, or special items. The company also believes that this indicator gives readers a clearer picture of the results of operations and ensures greater comparability of data over time. The underlying EBITDA margin is calculated by dividing underlying EBITDA by sales.

² EBIT as shown in the income statement.

³ Earnings per share as defined in IAS 33 = net income divided by the average number of shares.

⁴ Gross cash flow = income after taxes from continuing operations plus income taxes, plus/minus non-operating result, minus income taxes paid, plus depreciation, amortization and write-downs, minus write-backs, plus/minus changes in pension provisions, minus gains/plus losses on retirements of noncurrent assets, plus noncash effects of the remeasurement of acquired assets. The change in pension provisions includes the elimination of non-cash components of the operating result. It also contains benefit payments during the year.

⁵ Net cash flow = cash flow from operating activities according to IAS 7.

products but also in sports events or in image brochures. Both companies perform together in fairs and shows, illustrating the use of the raw material polycarbonate. They also use these events to show other possible applications for Makrolon. However, the UVEX sport products are made for high-performance sportsmen. These products symbolize the high-performance standards that bring the consumer closer to the ingredient Makrolon thereby enabling both companies to achieve a win-win situation.

Questions for Discussion

1. What was the original motivation behind Bayer's decision to launch the Makrolon ingredient branding concept?
2. What factors were responsible for the success and failure of the efforts?
3. What was the brand promise and how was it materialized?
4. How did they manage the ingredient branding concept and what other options does the management have?