

Discover Value IN THE FOUR BUSINESS AREAS

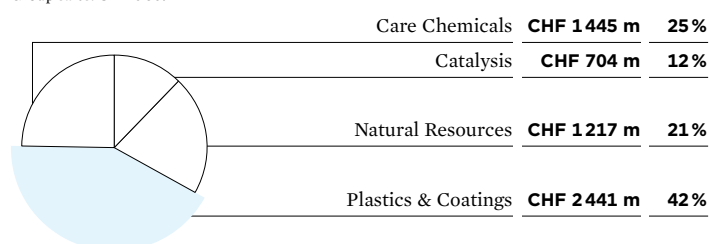
Each day, millions of people use Clariant products without even knowing it: when washing their hair, painting a home, while growing grain, de-icing an aircraft or preparing food. Why is the Clariant name not everywhere where Clariant products are used? Clariant is an innovative company that applies its expertise for the design, development and manufacture of specialty chemicals in cooperation with customers from various industries. Success lays in Clariant continuously creating value by translating customer and consumer needs into innovative technologies.

Focus on global trends

Clariant continuously develops and aligns the company portfolio with customers and markets that show good future prospects and above-average growth. The focus is on activities in which the Group has substantial price leverage resulting from a leading market position and outstanding innovative technologies. In doing so, the four Business Areas Care Chemicals, Catalysis, Natural Resources, and Plastics & Coatings primarily address long range global trends, such as mobility, resource conservation, energy efficiency and increasing urbanization in emerging markets. Each business area contributes to achieving corporate goals, be it in terms of sales growth, profitability, strengthening innovative capabilities or the strong commitment to sustainability.

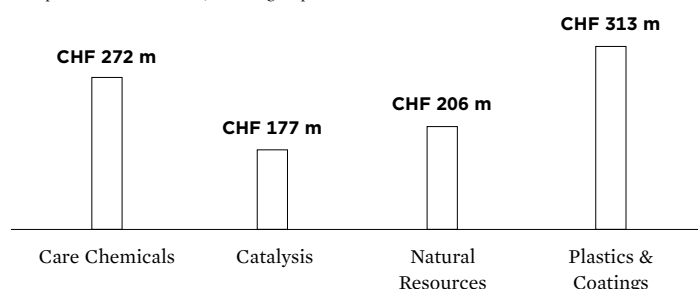
SALES BY BUSINESS AREA

Group sales: CHF 5 807 m



EBITDA BY BUSINESS AREA

Group EBITDA¹: CHF 853 m, including corporate costs: CHF 115 m



¹before exceptional items

»Clariant has a well-balanced portfolio with a very good profitability and substantial growth potential.«

CHRISTIAN KOHLPAINTNER

Member of the Executive Committee

The Business Area **Care Chemicals** unites Industrial & Consumer Specialties (ICS) with the operations of New Business Development and the promising Biotechnology business. This Business Area supports customers in improving product characteristics of personal care products or crop protection solutions, for example.



With GlucoTain®, Clariant offers an innovative product that makes personal care more pleasant and environmentally compatible.

→ **PAGE 62**

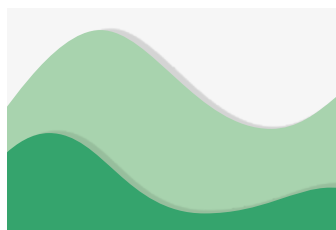
The Business Area **Catalysis** offers a broad portfolio of catalysts which allow the use of alternative raw materials such as natural gas, coal and biomass. 90% of all chemical processes require catalysts.



The catalyst AmoMax®-10 helps reduce CO₂ emissions and improve efficiency with regards to the manufacture of fertilizers.

→ **PAGE 70**

The Business Area **Natural Resources** comprises Oil & Mining Services and Functional Minerals. Oil & Mining Services supports customers on step change innovative solutions that ensures that oil and mining companies alike can produce more efficiently, economically and sustainably. Functional Minerals offers products and solutions for industrial manufacturing and purification processes, as in the refining of edible oils and metal casting.



Clariant helps to drastically reduce emissions in foundries with LE Technology.

→ **PAGE 78**

The Business Area **Plastics & Coatings** comprises the Business Units Additives, Masterbatches and Pigments. This Business Area develops products for customers in diverse industries – from the packaging industry to the electrical and electronics industry to the paint and coatings industry.



A typical application example of Easy Dispersible (ED) pigments are road markings.

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Business Area
CARE CHEMICALS



»High living standards and a strong focus on lifestyle products are growth drivers for the Business Area Care Chemicals.«

CHRISTIAN VANG

Head of Business Unit Industrial & Consumer Specialties

What do consumers expect from a shampoo or a dishwashing detergent? What is their purchasing decision based on? It is especially important that both clean well, smell good, feel good and protect the environment. The same goes for the new and environmentally compatible, sugar-based surfactants GlucoTain® and GlucoPure®.

The relevant market for Care Chemicals is growing by 4 % to 5 % each year. This is also the annual growth target for the Business Area. To meet this objective, close cooperation with customers, a high level of innovation and dedicated evidence of the greatest possible sustainability is necessary. In addition, sales growth should be accompanied by a sustainable profitability. The set goal is an EBITDA margin before exceptionals of 18 % to 19 %. Care Chemicals has achieved this for the first time with 18.8 % in 2015. It is important to maintain at least this level for the coming years. In 2015, Clariant also further reduced the scale of its involvement in operations with low margins.

Growth driver urbanization

Increasing urbanization, the scarcity of arable land and the consequent need for productivity increases in agriculture are important drivers of growth for Care Chemicals. This also applies to the dynamically growing demand for environmentally compatible applications and

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KEY FINANCIAL FIGURES

1445

Sales in CHF m

272

EBITDA¹ in CHF m

18.8 %

EBITDA¹ margin

TARGETS

4 – 5 %

Growth potential per year

18 – 19 %

EBITDA¹ target margin

¹ before exceptional items

Discover Value GLUCOTAIN®



+ 4 - 6 %

projected growth for mild products in
hair and skin care segments by 2017

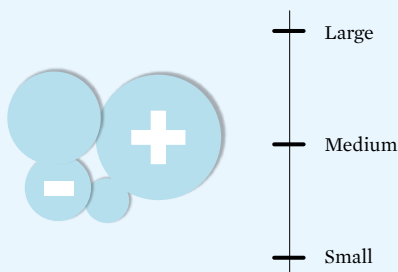
Stress reduction for skin and hair

Whether from heat, cold or UV rays – the skin and hair are subjected to a permanent stress test. At the same time, their function is to protect the human body from precisely these environmental factors. Of equal importance is good care, which should be both pleasant and mild, but also environmentally compatible. Clariant has developed a product family of sugar-based surfactants under the name GlucoTain® for this purpose.

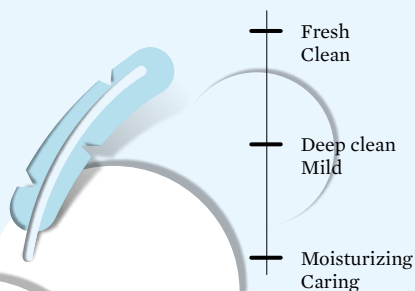
Discover the surfactants

GlucoTain® is an innovative range of sugar-based surfactants offering sensory benefits through individual foam structures.

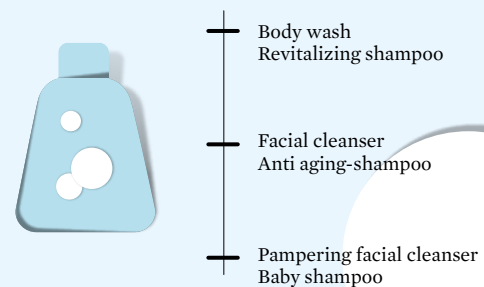
Bubble Size



Sensory



Application



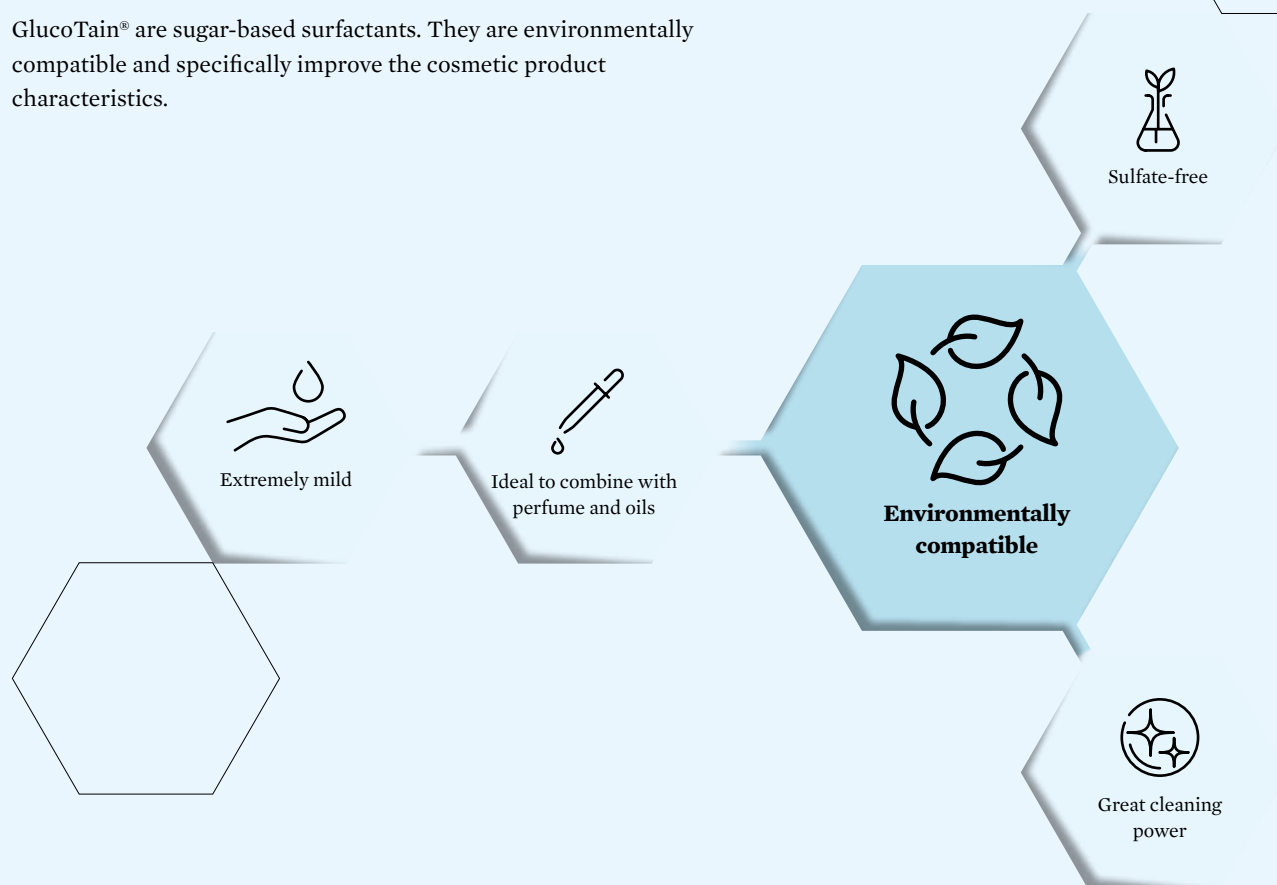
»We design our products to respond effectively to customer needs.«



—
KATARZYNA KITA
Global Application
Development
Manager Personal
Care

Value for money

Glucotain® are sugar-based surfactants. They are environmentally compatible and specifically improve the cosmetic product characteristics.



Mrs. Kita, what differentiates GlucoTain® from other specialty chemicals for personal care?

KATARZYNA KITA Consumers are becoming more demanding. They expect improved products – milder and with good cleansing and foaming properties, to deliver a uniquely pleasant sensory experience, in a nature-friendly way. GlucoTain® does an outstanding job fulfilling these criteria.

And comparable products cannot?

KATARZYNA KITA Most cleansing products contain sulfates and/or polyethylene oxide derivatives, that could stress skin and hair. GlucoTain® contains neither of these, is particularly mild to the body's own proteins and lipids and can be blended excellently with oils or perfumes.

What does the product development depend on, exactly?

KATARZYNA KITA It is crucial to precisely analyze the skin and hair structures as they are very complex. Thanks to its capacity for innovation and the expertise of many scientists, Clariant has succeeded in developing sugar-based surfactants that satisfy a variety of consumers' needs.



ECOTAIN®

Glucotain® is labeled EcoTain® as it has an excellent sustainability profile over the entire life cycle, from raw material to disposal, that Clariant screens based on 36 precisely defined criteria.

Would you like to learn more about EcoTain®?



www.clariant.com/en/Solutions/EcoTain-Products

Would you like to learn more about this Discover Value story?



www.clariant.com/en/Company/DiscoverValue/Glucotain

1

Aviation
(de-icing)

2

Crop
Solutions

3

Personal
Care

4

Industrial &
Home Care**BROAD RANGE OF APPLICATIONS**

- Personal care
- Crop solutions
- Industrial and home care
- Industrial applications (aviation, brake fluids, heat transfer fluids, industrial lubricants, paints & coatings)
- Bioethanol and alternative fuels
- Bio-based specialties and enzymes
- Food supplements (fats and oils, special carbohydrates, preservatives, antioxidants and sweeteners)

- Expansion of market share in consumer products and crop protection solutions
- Increasing demand for products for personal and home care
- Increasing need for sustainable and efficient crop protectants
- Trend towards chemicals from renewable raw materials with an improved ecological toxicity profile
- Future market of biotechnology
- Increasing demand for sustainable building materials
- Expanding of the innovation pipeline
- Reducing of the importance of activities with lower margins
- Increasing use of multifunctional additives for the colors and coatings industry
- Greater use of synthetic base fluids for long-life lubricants
- High demand for performance-enhancing process aids in the manufacturing industry

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innovations from renewable substances and raw materials. The regional growth focus is on emerging markets in Latin America, India and China as well as on the steadily growing North American market.

Various applications from personal care to aircraft de-icing

The Business Unit Industrial & Consumer Specialties (ICS) is the operational nucleus of Care Chemicals, Clariant's second largest Business Area. With 14 production sites and five application and development centers, ICS covers various working areas in which similar technologies and common production capacities are used.

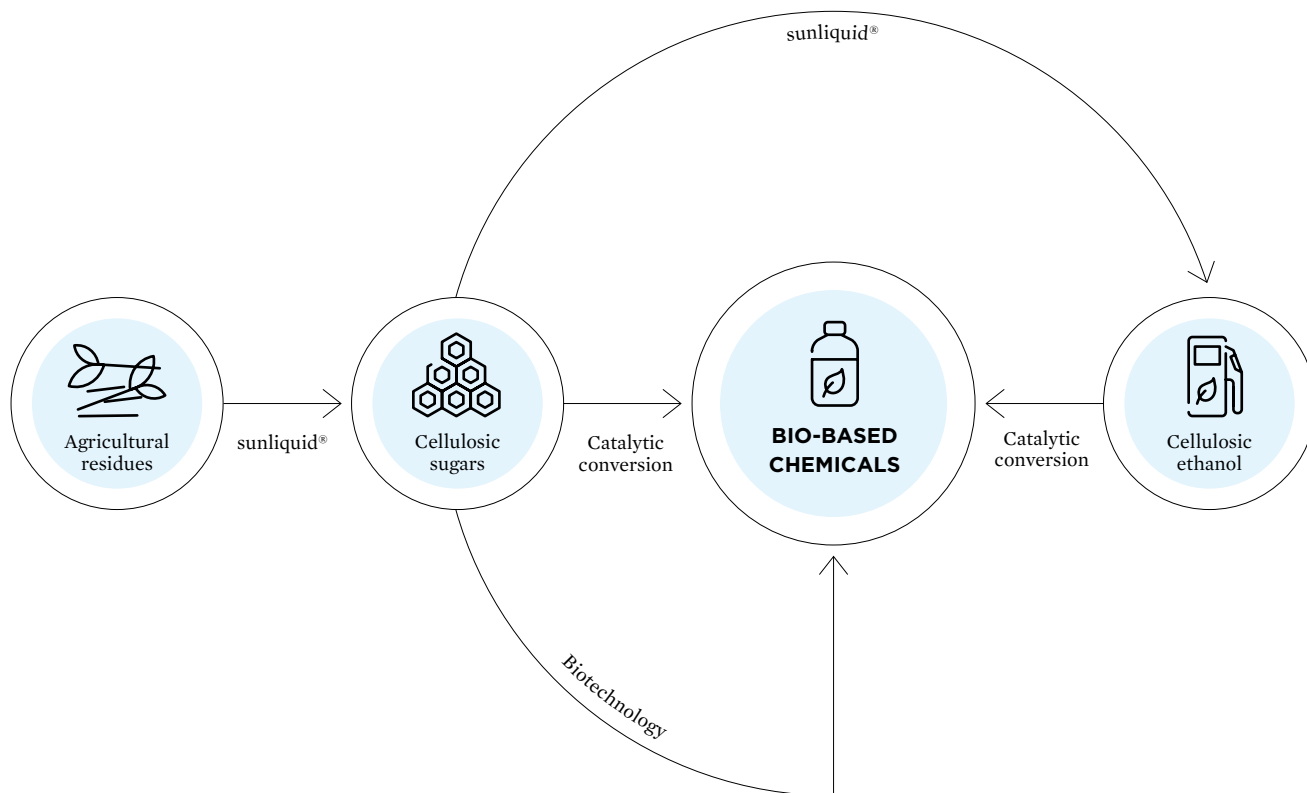
Consumer Specialties, with specialty chemicals for personal care, home care and agricultural markets, have significant growth potential, minimal cyclical effects and above-average margins. In addition, ICS's industrial markets are supplied with components for lubricants, additives for paints and coatings, brake fluids for the automotive industry, as well as de-icing agents for the aviation industry. The raw material amines and amine derivatives, which are key to ICS, are produced by »The Global Amines Company« in Singapore, a joint venture between Clariant and Wilmar.

Group Biotechnology – think tank for the future

In addition to ICS, Care Chemicals also includes Clariant's activities in the growing field of biotechnology. The company recently earned positive headlines for its second-generation biofuel, so-called cellulosic ethanol, which is produced from agricultural residues, for instance from straw, which is nearly CO₂ neutral and overcomes the food-versus-fuel debate. This makes cellulosic ethanol suitable as an alternative fuel for the automotive industry.

For the future of the company a particular focus in this field is on investments in technology and innovation. The use of renewable raw materials for new and sustainable products is a research focus of Group Biotechnology. Sales are still very low and the start-up costs are high, as is often the case with start-up projects. This currently has a negative effect on the profitability of the entire Business Area, but in the long run, this area has enormous potential.

In addition, New Business Development markets food supplements such as fats and oils, special carbohydrates, preservatives, antioxidants, and sweeteners to the dairy, baking and meat industries.



INVESTMENT

BIOTECH CENTER

Ultramodern laboratories with more than 6000 square meters of space for over 100 employees – the new Clariant Biotechnology Center was opened at the

beginning of October 2015 in Planegg, Germany. With it, the company continues to invest in one of the key industries of the 21st century.

EXTERNAL RECOGNITION & CERTIFICATION

GREENTEC AWARDS 2015

- sunliquid® has been awarded third place in the automobility category
- 2nd generation biofuel offers 95% savings in greenhouse gas emissions
- Cellulosic ethanol from agricultural residues does not compete with food or feed production

US FOOD AND DRUG ADMINISTRATION STANDARDS

- The US Food and Drug Administration (FDA) documented high standards for R&D, manufacturing and logistics processes of the Clariant locations in the US

GOOD MANUFACTURING PRACTICE

- 22 Clariant locations in Europe, Asia and Mexico, specialized in the production of ingredients for the cosmetic industry, were certified for Good Manufacturing Practice (GMP) by the European Federation for Cosmetic Ingredients (EFFCI)

ACQUISITIONS

AEROCHEM AB

- Improved market position in the de-icing industry
- Sales of CHF 20 million annually
- Excellent market access in Northern Europe
- Complementation of Clariant's sustainability focus

ALLIANZ BERACA

- Acquisition of a 30% stake in Beraca's health and personal care business
- Expansion of the market position in Brazil
- Focus on natural and organic raw materials for more sustainability

VIVIMED LABS

- Synergies with the existing Personal Care portfolio
- Improved market position in the emerging markets of Asia
- Indian market shows dynamic growth

»The Indian market for personal care products shows dynamic growth in the double-digit percentage range.«

R. KUMARESAN
Head of ICS India

Business Area
CATALYSIS



»The Business Area
Catalysis offers innova-
tive catalyst solutions
that help reduce energy
consumption and green-
house gas emission,
despite growing chemi-
cal production.«

STEFAN HEUSER

Head of Business Unit Catalysts

Business Area CATALYSIS

In the manufacture of chemical products, the use of catalysts is indispensable for the efficient use of raw materials and energy, and necessary for optimized chemical reaction processes. As a market and technology leader, the Business Area Catalysis delivers solutions that add value for customers in the petrochemical, chemical, fuel and plastics industry.

Innovative capabilities and high-margin activities are paying off

For the 2015 reporting year, the Business Area Catalysis showed solid growth in local currencies of 4 % and EBITDA margin before exceptional items of 25.1%, the best profitability of all Business Areas again despite challenging conditions, such as the market situation in China. In the medium term, Catalysis targets an annual organic growth of 6 % to 7%. This will be achieved by a solid position in gaining new large-scale projects with technology licensing partners, growth in new applications through strong innovation power and the further strengthening of the activities in China.

In addition to generating significant growth potential, the strategic focus of this business area was to optimize the allocation of existing resources on core business with strong market position and differentiation potential. To this end, Clariant divested the loss-generating

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KEY FINANCIAL FIGURES

704

Sales in CHF m

177

EBITDA¹ in CHF m

25.1%

EBITDA¹ margin

TARGETS

+ 6 – 7 %

Growth potential per year

24 – 26 %

EBITDA¹ target margin

¹ before exceptional items



500 000 t

of CO₂ were avoided so far by shifting
the currently 100 ammonia production
facilities to AmoMax®-10

To feed the world in a more environmentally compatible way

The United Nations estimated that the world population will grow from 7.2 billion people in 2014 by 15% to 8.1 billion in 2025. Over the same period of time, the global arable land is expected to expand by only 4% – less than one third of the population increase. The great challenge of the future therefore is to close the gap by using the arable land more efficiently. Additionally, manufacture of fertilizers requires a lot of energy and generates substantial CO₂ emissions. Clariant has introduced a highly active catalyst, the innovative AmoMax®-10 catalyst, with substantially higher efficiency. As a result, significantly less energy is needed to produce ammonia as a fertilizer in food production.

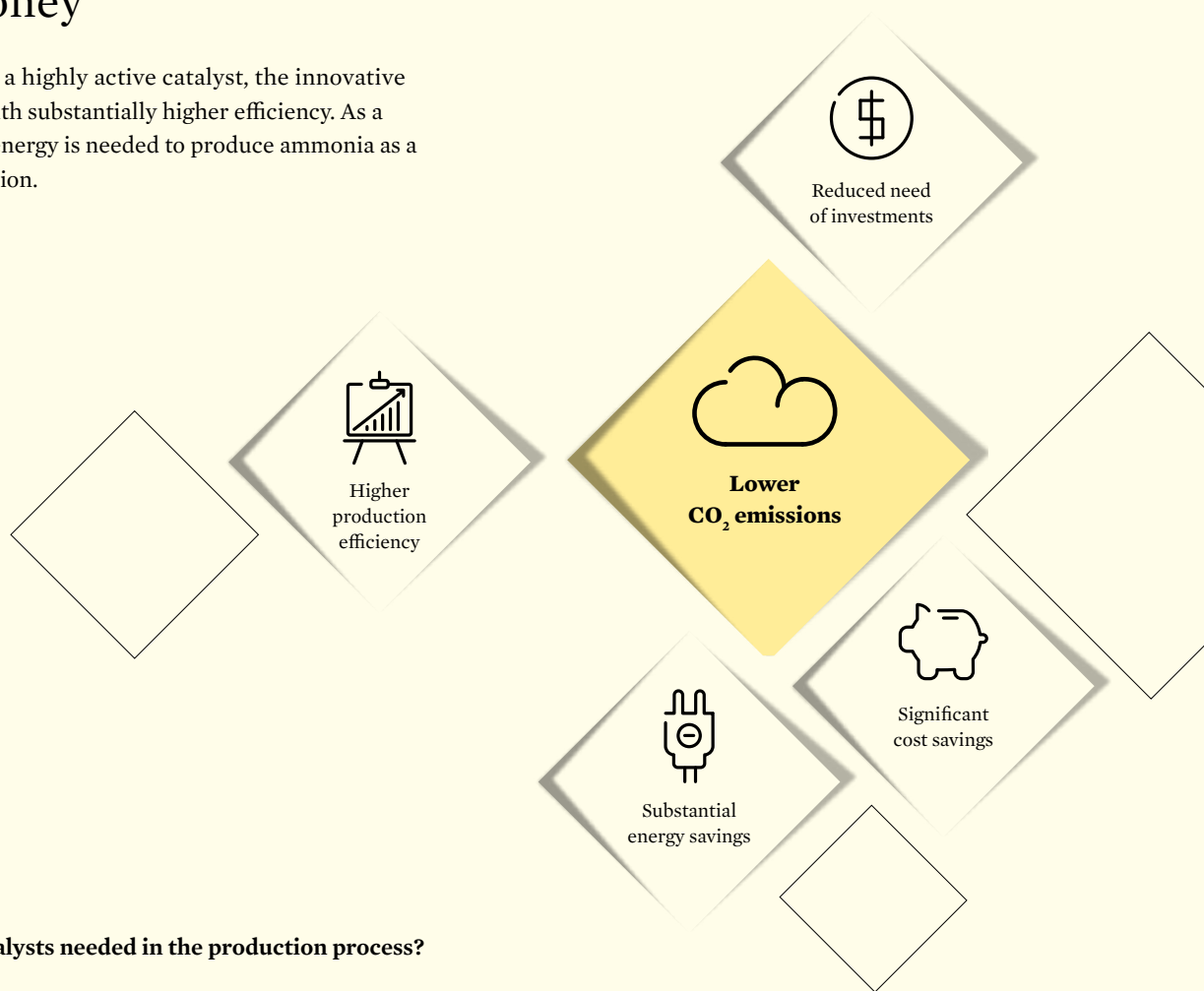
»In the production of crop fertilizers you need a catalyst like AmoMax[®]-10 which is substantially more efficient and environmentally compatible.«



–
TAYLOR ARCHER
Global Director of Sales and
Product Management –
Ammonia and DRI Catalysts

Value for money

Clariant has introduced a highly active catalyst, the innovative AmoMax®-10 catalyst, with substantially higher efficiency. As a result, significantly less energy is needed to produce ammonia as a fertilizer in food production.



Mr. Archer, why are catalysts needed in the production process?

—
TAYLOR ARCHER With a catalyst, reactions occur faster and require less activation energy. Because catalysts are not consumed in the catalyzed reaction, they can continue to catalyze the reaction of further quantities of reactant. For example, by using Clariant's innovative and highly active AmoMax®-10 catalyst, significantly less energy is needed to produce ammonia.

For which industries does it make sense to use these catalysts?

—
TAYLOR ARCHER AmoMax®-10 catalysts are already very successfully used in the production of crop fertilizers, as approximately 80 % of ammonia is used to manufacture fertilizers. At the end of August, Clariant won the 100th global reference client strengthening our leading position in the ammonia catalysts industry.

How can customers benefit from these catalysts?

—
TAYLOR ARCHER AmoMax®-10 stands out from other catalysts because it consists mainly of iron oxide containing mineral wustite and other specific promoters which improve its effectiveness. As a result, its activity is 20 % higher compared to catalysts based on magnetite which had been common before. The 100 ammonia production facilities that have switched to AmoMax®-10 so far have been saving around 1 000 gigawatt hours annually, which equals the energy consumption of a city with roughly 80 000 households and a saving of approximately 500 000 tons of CO₂ equivalents.

—
AMOMAX-10
Highly effective catalyst to produce fertilizers more efficiently

Would you like to learn more about this product innovation?



www.clariant.com/Innovation/Innovation-Spotlight-Videos/Reformax-Amomax

LEADING MARKET POSITIONS

1

Petrochemical catalysts

2

Syngas catalysts

2

Chemical catalysts

4

Polypropylene catalysts

TRENDS AND DRIVERS

- Maintain innovation leadership, licensing partnerships and customer focus culture
- Execute specific growth strategies for key regions (China, North America and Middle East)
- Continuous operational improvement and upgrade capabilities along the value chain
- Creating value through sustainable products and services

BROAD RANGE OF APPLICATIONS

- Ammonia
- Methanol
- Gas processing
- Fuel cell
- Steam cracker/Olefin purification
- Ethylene derivatives
- Styrene & BTX
- On-purpose propylene
- Polypropylene
- Hydrogenation
- Oxidation
- Custom catalysts
- Refinery hydrogen
- Fuel upgrading
- Refinery stream purification
- Gasoline desulfurization
- Zeolite powders
- Offgas treatment for chemical plants and stationary engines

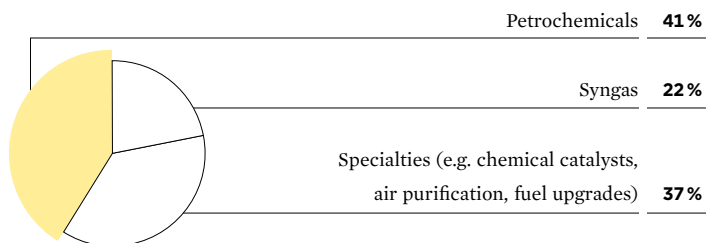
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energy storage business that was previously part of this Business Area in 2015. The target margin for Catalysis is to remain at the high level reached in 2014 and 2015.

Emerging catalyst technologies minimize the environmental impact of the increasing chemical production worldwide

The readily addressable market for the Business Area Catalysis is roughly CHF 4 billion. The biggest growth potential is seen in the petrochemical, the polymerization and the environmental activities. The general market growth is driven by an increasing chemical production and the need for improving efficiency. The global production for the largest 20 chemical companies is expected to grow from roughly 800 million tons to 1.2 billion tons in 2020 and 2.3 billion tons in 2050. The energy consumption will more than double during this period. This challenge with incalculable environmental risks can be solved by using emerging catalyst technologies.

SHARE OF SALES BY BUSINESS SEGMENT



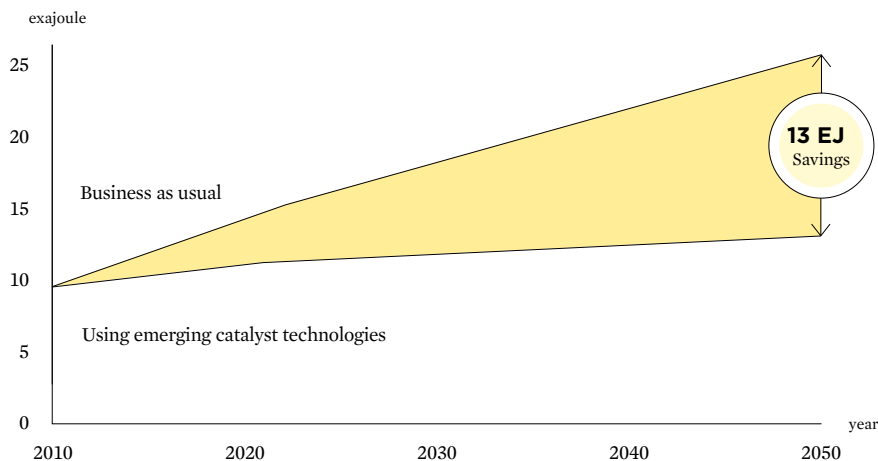
ENERGY AND GREENHOUSE GAS REDUCTION VIA CATALYTIC PROCESSES

CATALYST AND PROCESS IMPROVEMENT IS CRITICAL

The manufacture of 18 products (among thousands) from the chemical industry accounts for 80% of energy demand in the chemical industry and 75% of greenhouse gas (GHG) emissions. Catalysts and related process improvements could reduce energy intensity¹ for these products by 20% to 40% as a whole by 2050 combining all scenarios. In absolute terms, such improvements could save as much as 13 exajoules (EJ) and 1 gigatonne (Gt) of carbon dioxide equivalent (CO₂-eq) per year by 2050 versus a »business-as-usual« scenario.²

¹ Energy used per unit of product produced

² An exajoule is 10¹⁸ joules. In 2010, the United States used 93 EJ of primary energy and Germany 13.7 EJ



Source: www.iea.org

INNOVATION HIGHLIGHTS

HIGHER EFFICIENCY IN VAM PRODUCTION

- VAMax™ makes the manufacture of vinyl acetate monomers (VAM) significantly more efficient
- Application areas include dispersions, polymer powders, solid resins and solutions for the construction, paints and coatings industries, as well as for use as a raw material for the adhesives, paper and textile industries
- The catalyst supports the reaction of ethylene and acetate with oxygen

CATALYST FOR PROPANE DEHYDROGENATION

- First Catofin® propane dehydrogenation plant in China to use Heat Generation Material (HGM) with excellent performance
- HGM is an innovative metal-oxide material which is designed to significantly increase selectivity and yield of Catofin® units
- Catalytic technology developed in co-operation with CB&I is now producing over 1.5 million tons of light olefins only in China

90% LESS GREENHOUSE GAS

Clariant's ENVICAT® catalysts help to prevent environmentally harmful nitrogen monoxide in a particularly efficient manner. Nitrogen monoxide is jointly responsible for the so-called greenhouse effect and also causes massive damage to the Earth's ozone layer. As an example, ENVICAT® is used in the manufacture of nitric acid, whereby 90% of greenhouse gas emissions can be avoided.

SHIFTMAX® 820S

CATALYST FOR SOUR GAS SHIFT

Clariant newly introduced its pre-sulfided ShiftMax® 820S Sour Gas Shift (SGS) catalyst with the successful start of a commercial methanol production facility of Shanghai Huayi Energy Chemical Co. Ltd. This is of particular significance as it is the first industrial application of this catalyst in China.

ShiftMax® 820S increases operational efficiency while reducing risks, costs and complexities for the chemical industry worldwide. The new SGS process for example reduces capital expenditure for the shift system by up to 20% and optimizes operating costs with up to 30% lower catalyst volume.

»Our innovative catalyst ShiftMax® 820S adds significant value for Chinese coal-to-chemical customers.«

HARALD DIALER

Head of Business Segment Syngas

Business Area

NATURAL RESOURCES



»The Business Area
Natural Resources
creates special chemicals
which help to keep
the global economic
engine fueled.«

SVEN SCHULTHEIS

Head of Business Unit Functional Minerals

Business Area

NATURAL RESOURCES

The longer-term outlook for energy demand remains high and forecasts a narrowing of the supply-demand balance and the continued rise in the demand for hydrocarbon and metal ore-based materials with the global demand for oil increasing over the next 20 years. The oil and mining industries remain committed to ensuring that supply is maintained to meet the future demand. The Business Area Natural Resources is focused on step change innovative solutions that ensure that oil and mining companies alike can produce more efficiently, economically and sustainably.

Ensure the supply of resources

The management of the Business Area Natural Resources aims to achieve sales growth of 6 % to 7 % and an increase in EBITDA margins before exceptional items of 15 % to 17 %. With Oil & Mining Services and Functional Minerals, Natural Resources brings together two complimentary business units under one roof.

Functional Minerals is a leading global supplier of bentonite-based specialty products for various applications. Key markets include edible oil refining, metal casting and special civil engineering and tunneling. In addition, Functional Minerals also offers additives for animal feed, stabilizers for the plastics industry as well as additives for paper and detergent. The strategic strength of Functional Minerals comes from a fully integrated value chain, from exploration to operation of the mines as well as processing the natural resource bentonite to industrial and customized solutions. Sediment process-

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KEY FINANCIAL FIGURES

1217

Sales in CHF m

206

EBITDA¹ in CHF m

16.9 %

EBITDA¹ margin

TARGETS

6 – 7 %

Growth potential per year

15 – 17 %

EBITDA¹ target margin

¹ before exceptional items

Discover Value LE TECHNOLOGY



of harmful emissions in the foundry industry

Innovative technology to reduce environmental impact

Progressive industrialization has led to significant environmental pollution in many places. The public demands massive environmental precautions to counteract this promptly. With Ecosil® LE (Low Emission), Clariant provides the possibility to reduce the generation of harmful emissions in the foundry industry by up to 80%. This creates value for the environment and Clariant's customers.

What is bentonite?

Bentonite is a mix of various clay minerals and is characterized by an especially high ability to absorb water, a high swellability, and thus a good bonding capacity for heavy metals and toxic substances, for example.

Areas of application for bentonite-based additives:

Civil engineering, drilling, metal casting, ceramics, detergents, papermaking, pharmaceuticals, cosmetics, feed, edible oil purification

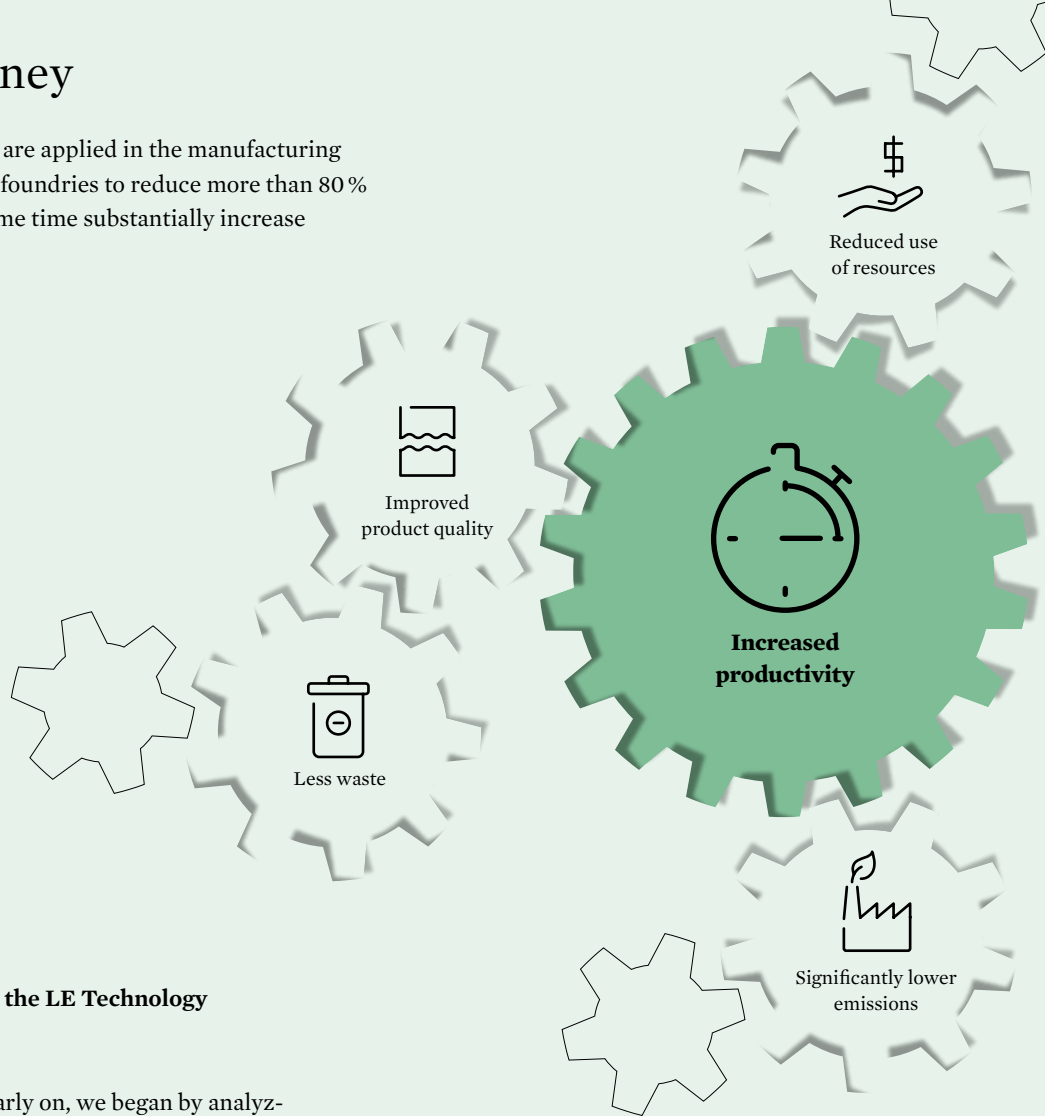
»Our customers have
monetary benefits.«



—
**THOMAS
ENGELHARDT**
Lab Head Appli-
cation Develop-
ment EMEA and
inventor of the
LE Technology

Value for money

Bentonite based additives are applied in the manufacturing of casting molds and help foundries to reduce more than 80 % of emissions and at the same time substantially increase productivity.



Mr. Engelhardt, how was the LE Technology developed?

THOMAS ENGELHARDT Early on, we began by analyzing where the most harmful substances were created in the foundry process and how they could be avoided. What we discovered is that the green sand from which the molds are made for the foundry process can be manufactured in a much more environmentally compatible and efficient manner with special bentonite-based additives.

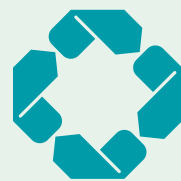
Which emissions does this include and how many of them can you actually avoid?

THOMAS ENGELHARDT The foundry process is conducted at temperatures of up to 1500°C and in doing so, produces a variety of BTEX¹ emissions, which are all considered to be carcinogenic. These harmful emissions can be reduced by more than 80 % when using bentonite-based LE additives.

Does LE Technology have other positive properties?

THOMAS ENGELHARDT In addition to the environmental factor, our customers benefit from increased efficiency in the production process, improved product quality and less waste. Those are monetary benefits.

¹ BTEX stands for benzene, toluene, ethylbenzene, and xylenes



ECOTAIN[®]

Ecosil[®] LE meets the requirements of Clariant EcoTain[®] product screening and was given the label for outstanding sustainability properties.

Would you like to learn more?



[www.clariant.com/en/Solutions/
EcoTain-Products](http://www.clariant.com/en/Solutions/EcoTain-Products)

Would you like to learn more about this Discover Value story?



[www.clariant.com/en/Company/
DiscoverValue/LETechnology](http://www.clariant.com/en/Company/DiscoverValue/LETechnology)

- 1 Adsorbents
- 2 Refinery Services
- 3 Oil Services
- 4 Mining Services

- Exploration/stimulation, production and EOR/production optimization
- Mining and fertilization industries
- Processing and blending chain
- Oil refining
- Metal casting
- Civil engineering and construction
- Plastic processing
- Feed additive
- Export packaging

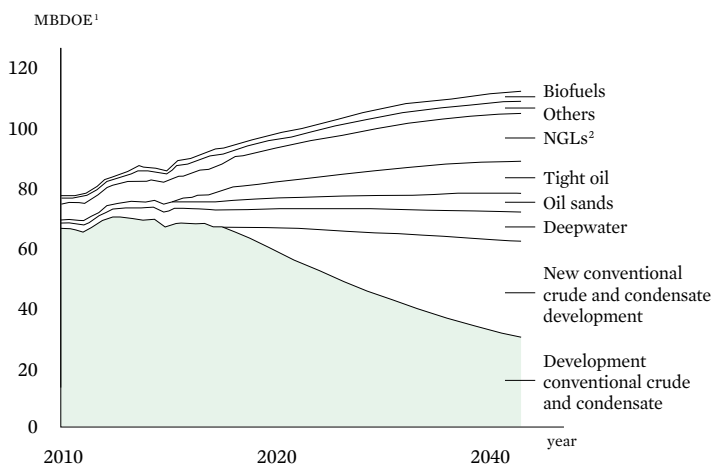
- Trends in exploration and production are focused on new sources of oil and gas
- New technology is focused on new hydrocarbon sources, such as unconventional as well extended asset life through prolonging the productivity of existing wells/infrastructure, including enable enhanced recovery as well as deeper hotter wells, including deep water
- Data management »big data and the digital oilfield« can reduce oil and gas companies operating costs and will increase uptime, expand capabilities and improve safety
- Expansion of market leadership in the areas of iron/copper ore flotation and development of new markets through innovation
- Increasing profitability for Functional Minerals through optimized cost and technology platforms
- Growth in the areas of sediment management and feed additives, as well as in the emerging markets for metal casting and refining of edible oils

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ing and feed additives in particular should generate global growth in the future. Additional growth initiatives come from the areas of metal casting and edible oil refining in emerging markets. A further increase in profitability will be pursued through increased cost efficiency, optimized technology platforms and a focus on more profitable application areas.

Oil & Mining Services provides innovative technology and service solutions that are tailored to meet customer needs. Oil Services is a world leader in the development, manufacture, application and supply of specialty chemicals and services to the oil and gas industry and is active across the whole value chain from drilling to production and transportation to refining. Mining Services is a leading provider of flotation chemicals and emulsifiers for explosives to the global mining industry. Refinery Services is a leading provider of cold-flow additive applications for middle distillates including diesel, home heating oil and biofuels.

LIQUIDS SUPPLY BY TYPE



¹ MBDOE: Million barrels per day oil equivalent

² NGLs: Natural gas liquids

Source: www.exxonmobil.com/energyoutlook

»Hydrocarbon production will rise 20 % by 2040. With a focus on North America and investments in innovation, infrastructure and people, Oil Services is ideally positioned to grow.«

JOHN DUNNE

Head of Business Unit Oil & Mining Services

HOSTAFRAC™ SF BENEFITS

87%



of the fracturing fluid used can be recovered

40%



or more increase in production can be realized

~33%



less chemicals needed to achieve the same performance

INNOVATION HIGHLIGHTS

ENVIRONMENTALLY COMPATIBLE FRACTURING TECHNOLOGY

With HOSTAFRAC™ SF, Clariant has achieved a technological breakthrough to extract shale oil in an environmentally acceptable and highly efficient manner using hydraulic fracturing. Extensive testing in direct collaboration with the customer showed that enhanced flow back of the hydraulic fracture fluid could be achieved when using HOSTAFRAC™ SF

when compared to other commonly used flow back aids. This is achieved by reducing the capillary forces between the grains of rock in the reservoir using the sugar-based surfactant thereby enabling an increase in the flow rate and speed of well clean-up. The product meets the rigorous sustainability criteria for the Clariant EcoTain® label.

ARKOMON® XP 1014, EMULSIFIER FOR EXPLOSIVE EMULSIONS

Mining Services has developed an emulsifier technology allowing the use of low grade ammonium nitrates (AN) for explosive emulsion producers; providing a significant cost reduction and operational flexibility. This technology provides excellent stability of emulsions made with low grade ammonium nitrites with high

crystal modifiers content. For producers not fully integrated in AN production this product provides superior performance and cost savings in the field. Additionally, this innovative product can be used with a wide range of AN grades, providing significantly improved operational flexibility.

EXPANSION

FIRST MULTI-PURPOSE FACILITY IN INDONESIA

- The location in Surabaya will support various Clariant activities under the leadership of the BU Functional Minerals
- Investment in the tens of millions
- Clariant's presence in Indonesia is growing to six production sites and three technical centers

»For us, Indonesia is an ideal location to benefit from the forecasted growth in the South-east Asia-Pacific region.«

FRANÇOIS BLEGER

Head of the Southeast Asia & Pacific region

Business Area

PLASTICS & COATINGS



»The customers of Plastics & Coatings demand tailor-made innovations to support their success. Performance and sustainability of the products are the key value drivers for this Business Area.«

OLIVER KINKEL

Head of Business Unit Additives

Business Area

PLASTICS & COATINGS

The Business Area Plastics & Coatings not only has the highest sales in the Clariant Group, it also covers the broadest range of customer industries. Advanced technology products and innovations, for example, improve building insulation, prevent the flammability of mobile phones and better protect motorists and cyclists with more visible road markings. The increasing global standards of living and growing demand in the emerging markets ensure solid growth of the Business Area.

Why is the Business Area Plastics & Coatings becoming separate subsidiaries?

To take full advantage of the Business Area's value creation potential, Plastics & Coatings was spun off in separate subsidiaries on 1 January 2016. In doing so, the area can be managed toward higher absolute profitability and cash generation. Plastics & Coatings operates primarily in already saturated markets and therefore requires differentiated business management. The existing structures of the Business Units Additives, Masterbatches and Pigments with their approximately 6 900 employees, all of their assets and payables will remain the same.

In step with the global economy

Since Plastics & Coatings supplies almost all industries with its products, the segment is also growing at about the pace of the global economy. Plastics & Coatings will be steered towards higher absolute profitability and cash generation. This is expected to be accomplished by improving cost efficiency, gaining market share,

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KEY FINANCIAL FIGURES

2 441

Sales in CHF m

313

EBITDA¹ in CHF m

12.8 %

EBITDA¹ margin

TARGETS

△ global GDP

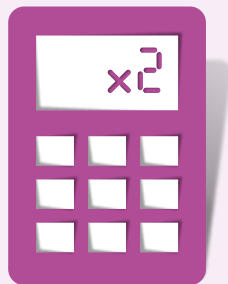
Growth potential per year

steered for absolute EBITDA and cash flow generation

¹before exceptional items

Discover Value

EASILY DISPERSIBLE PIGMENTS



~ 90%

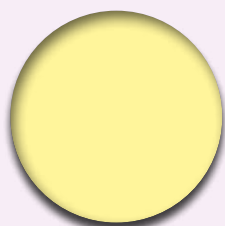
less energy consumption during paint production
with the use of ED Pigments

Easily visible in all kinds of weather

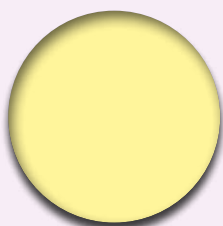
In large European cities, more and more biking trails are becoming accessible and color is used to mark them as such in contrast to other traffic lanes. 30° celsius in the summer, -10° celsius in the winter, rain, hail, snow, salt and thousands of vehicles - and yet the markings should remain clearly visible for many years. Clariant's scientists are the first to find a solution with easily dispersible (ED) pigments, which make the coloring and production of road marking simpler and more environmentally compatible and ensure the same level of performance in later use.

A wide range of colors for every occasion

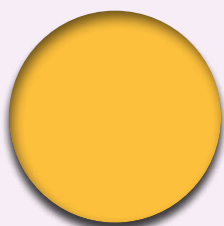
ED pigments are not only easily dispersible, they offer the opportunity to save conversion costs and bring more flexibility in production than standard pigments.



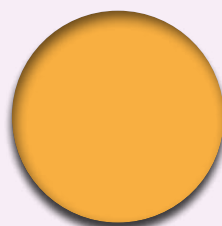
NOVOPERM®
YELLOW F2G-EDS
(PY194)



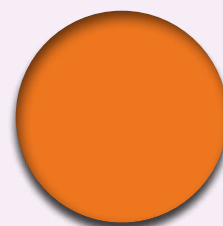
NOVOPERM®
YELLOW H4G-EDS
(PY151)



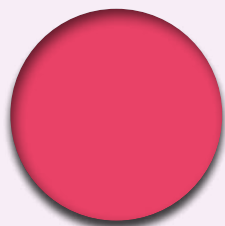
NOVOPERM®
YELLOW HR70-EDS
(PY83)



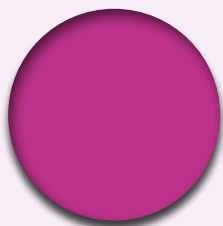
NOVOPERM®
YELLOW M2R70-EDS
(PY139)



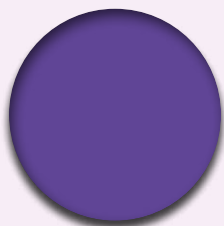
NOVOPERM®
ORANGE HL70-EDS
(P036)



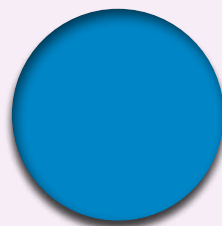
HOSTAPERM®
RED D3G70-EDS
(PR254)



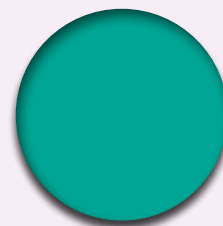
HOSTAPERM®
PINK E-EDS
(PR122)



HOSTAPERM®
VIOLET RL-EDS
(PV23)



HOSTAPERM®
BLUE B2G-EDS
(PB15:3)



HOSTAPERM®
GREEN GNX-EDS
(PG7)

»Clariant is the very first to succeed in manufacturing an easily dispersible organic pigment.«

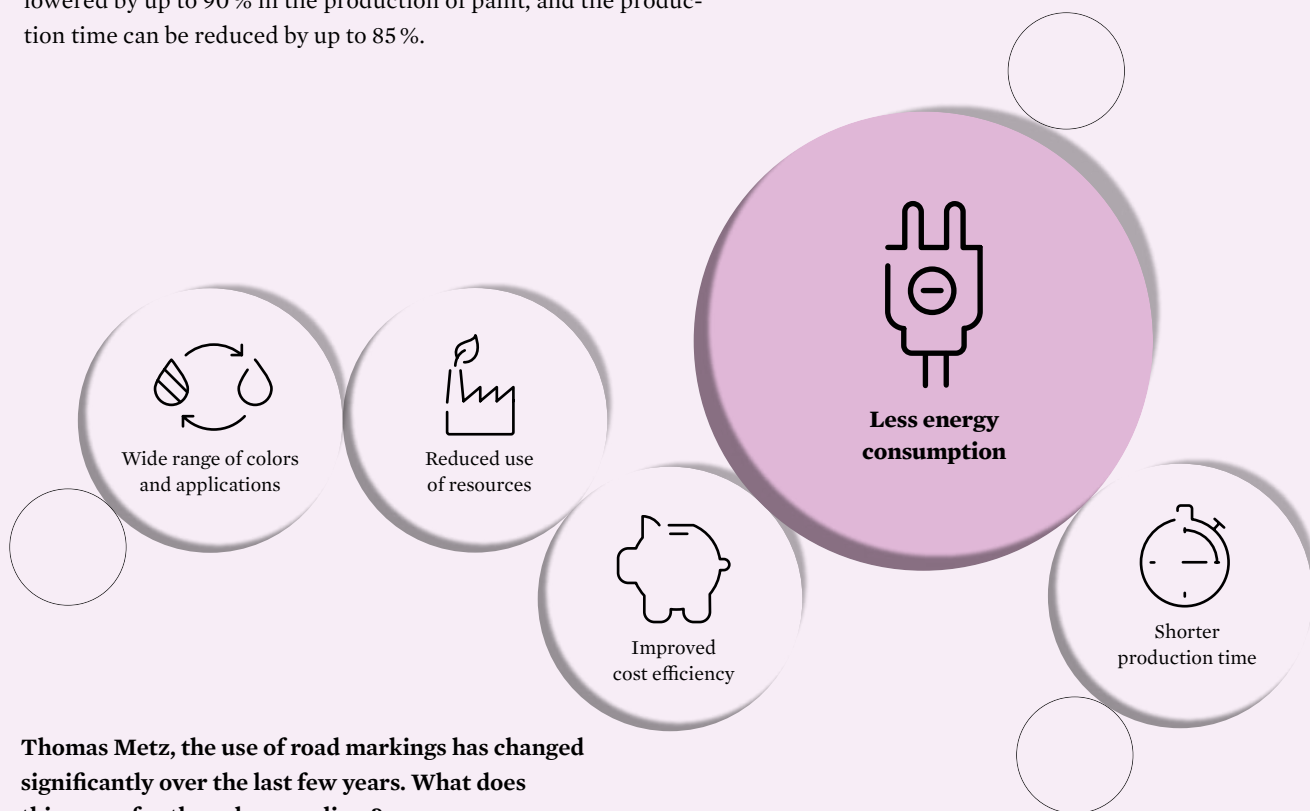


— **THOMAS METZ**

Head of Global Technical
Marketing Coatings

Value for money

Through the use of ED pigments, energy consumption can be lowered by up to 90% in the production of paint, and the production time can be reduced by up to 85%.



Thomas Metz, the use of road markings has changed significantly over the last few years. What does this mean for the color suppliers?

THOMAS METZ In the past, the color white was sufficient to mark the lanes. Today, we have significantly more traffic and new challenges in the marking of bike paths or bus lanes: the color palette needed is much more extensive.

And what has Clariant to do with it?

THOMAS METZ Clariant provides organic pigments for road markings that meet the increased customer requirements: easy processing, broad range of colors, excellent abrasion resistance and the ability to withstand environmental stresses, all while being environmentally compatible. That is why we have developed ED Pigments.

Everyone describes themselves as environmentally compatible these days, right?

THOMAS METZ In ED Pigments, this is substantiated by hard numbers: Energy consumption in paint production can be reduced by up to 90%, the production time can be reduced by up to 85% and as a result, the costs are also reduced by up to 30%. And the range of applications is very large: marine coatings, industrial paints or decorative colors. Our ED Pigments can be used to improve value everywhere.



ECOTAIN®

ED Pigments meet the requirements of EcoTain® and was given the label for outstanding sustainability properties by Clariant.

Would you like to learn more?



www.clariant.com/en/Solutions/EcoTain-Products

Would you like to learn more about this Discover Value story?



www.clariant.com/en/Company/DiscoverValue/EDPigments

1

Masterbatches

1

Decorative coatings

2

Industrial coatings

BROAD RANGE OF APPLICATIONS

- Packaging
 - Consumer goods
 - Automotive and transportation
 - Building, construction and infrastructure
 - Electric and electronics
 - Printing industry
 - Medical pharma
 - Textile and fibers
 - Agriculture
-

TRENDS AND DRIVERS

- Expansion of presence in emerging markets
 - Development of sustainable, innovative colorants and additives for improving the properties of plastics, paints and coatings
 - Continuous improvement of cost efficiency
 - Special initiatives for product groups with dynamic growth such as flame retardants
-

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further promoting the theme of sustainability, and maintaining innovative capacity.

The Business Area Plastics & Coatings consists of the three Business Units Additives, Masterbatches and Pigments.

Additives

BU Additives is a major supplier of products with functional effects in plastics, coatings, printing inks and other applications. Innovative products such as non-halogenated flame retardants provide environmentally compatible protection for electrical and electronic equipment. Additives also produces waxes for plastic applications, hot melt adhesives, polishes and protective coatings. Polymer additives prevent oxidation, dissipate electric charge accumulation and improve heat, light and weather resistance. A crucial element of the business strategy is to expand presence in China and North America.

Additives are used in many industries such as

- Automotive, Electric & Electronics: solutions for light and heat stabilization, flow properties improvements, flame retardancy
- Packaging: solutions for the production of very thin flexible packaging films and further recycling
- Agriculture: solutions for light and thermal control of agriculture films that enable an improved crop yield

Masterbatches

BU Masterbatches operates as one of the leading global suppliers of color and additive concentrates as well as technical composites for the plastics industry. The Business Unit is active in the markets for packaging, consumer goods, medicine and pharmaceuticals, textiles, transport and agriculture. More than 50 production facilities worldwide ensure that customers can be supplied both locally and internationally. The strategic focus is on regional growth and attractive market segments with promising prospects.

Masterbatches are used...

- in products and services for the plastics processing industry
- in special bottles and films for transport packaging, intelligent packaging and solar panels
- for protection against moisture and oxygen in drug packaging

Pigments

BU Pigments is a globally leading supplier of organic pigments, pigment preparations and colorants. The vastly diverse portfolio corresponds to the high standards for colors and coatings in industrial, automotive and construction applications. The Business Unit also provides solutions for the plastics industry, for special applications in the aluminum, agricultural and consumer goods sectors, as well as for traditional printing processes, inkjet printing and toner applications. The central goals of the Business Unit are the continuous improvement of its competitiveness, the strengthening of its position as a leading innovative supplier of color solutions, in addition to its further expansion in emerging markets.

Pigments are needed...

- for decorative, industrial and automotive coatings
- for the coloration of plastic applications
- for special applications as well as for applications for conventional printing inks, inkjet inks and electrophotographic toners

ADDITIVES

ADDWORKS® AGC

With AddWorks® AGC solutions, Clariant supports the development of effective crop protection with innovative stabilization solutions which improve durability of agricultural plastic films, such as greenhouses, mulch and silage films. AddWorks® AGC solutions, based on novel technology Hostavin® NOW, provide very strong resistance to agrochemicals with efficient UV protection, thus helping to extend plastic service life.

MASTERBATCHES

COLORFORWARD® 2016

ColorForward® helps designers and marketing professionals make more informed color choices. Each edition presents four global societal trends which are related to different colors or color combinations. Surveying global trends and creative workshops are important elements in the selection process which involves collaboration between plastics and color specialists, consumer-science experts, designers, and product marketers. The 2016 global societal trends are: Liquid minds, Oh my Gold!, Love Technology and Work it Girl!

PIGMENTS

LEAD CHROMATE REPLACEMENT

The novel greenish yellow pigment, PV Fast Yellow H4G, is a safe replacement of chromate yellow pigments. PV Fast Yellow H4G provides on its own or in combination with organic and inorganic pigments, valuable alternatives to lead chromate yellow pigments in terms of shade, opacity, light and weather fastness, chemical stability and coloration costs.

EXTERNAL RECOGNITION & CERTIFICATION

LICOCENE® FINALIST FOR INNOVATION AWARD

- One-of-a-kind product features
- Good environmental compatibility
- Production capacity at Frankfurt location expanded by 50%
- Significant weight and thus fuel savings when using Licocene® FR112 as a hot melt adhesive for carpets in airplanes and trains

INNOVATION

PINK GOING GREEN

Hostaperm® Pink E, one of Clariant's most important polycyclic pigments, reflects the switch to more sustainable products. Quinacridone pigments based on renewable raw materials produce brilliant colors and are on par with petrochemical-based pigments regarding durability. They are used in applications such as automotive, industrial and decorative coatings.

SUSTAINABLE INNOVATIONS ECOTAIN® LABELED

- Exolit® OP 1230, 1240, 930 and 935, pioneering non-halogenated flame retardants meeting the highest standards of product safety
- Ceridust® 8330 and 8090 are bio-based additives that are specifically designed for printing inks and wood coatings and are 100% recyclable
- Hostaperm® Pink E, produced from renewable raw materials, a high-performance pigment used in the coloring of paints and coatings

»The development of products based on renewable raw materials is an important part of our R&D focus.«

STEFAN OHREN

Head of Product Management High Performance Polycyclic Pigments