Global Trends in Paints and Coatings

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Calcium Carbonate – today and tomorrow

4th Ukrainian Paints & Coatings Conference

Kiev, March 19th - 21st, 2014

Road Map of the Presentation

Subject
▪ Omya - Facts & Figures
▪ Global Trends & Drivers - Growing & Aging World Population - Urbanization - Energy Demand & Climate Protection - Global Facts & Figures
▪ Outlook beyond Common Borders of Mineral Fillers - Processing of Calcium Carbonate - Functional Fillers today and tomorrow - Sustainability & Environmental Protection

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  - Growing & Aging World Population
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Key Facts & Figures

- Corporate head office in **Oftringen**, Switzerland
- **8,000 employees**
- More than **150 plants** in over **50 countries**
- Turnover of **EUR 3.0 billion**
- Ownership of mineral deposits for the next **100 years** of business
- Most plants are **ISO** 9001 / **ISO** 14001 certified
- **Pioneer** in ISO 14001 for quarries
- In business for **over 125 years**
- **Privately-owned** Swiss based Corporation

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Our Mission

“We want to keep our leadership in calcium carbonate and strengthen our chemical distribution business, striving to be the **preferred supplier** to our customers. Our focus is on our values as well as to remain **independent** and **long term oriented.**

Therefore, we rely on a committed, skilled workforce and management to whom we provide a challenging and stable work environment.“

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Objectives & Omya Values

- Continue **worldwide** profitable **growth** to remain the **leading company** in our business
- Stay **privately-owned** and financially strong
- The above, while respecting all laws, our code of conduct and live the **Omya values**

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Organizational Setup - Executive & Supervisory Board

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Operations by Region

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Building Materials

- **Mineral functional fillers chalk, limestone, marble, dolomite and talc**
- **Distribution products like binders, pigments, extenders and additives**
- **Strategy: 4 main pillars:**
  - **Drive Innovation**
  - **Capacity Creation**
  - **Solution Provider concept**
  - **Sustainability and regulatory foresight**

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Future Outlook

- To remain a committed supplier to its customers with long term business views
- To achieve further sustainable growth of the business
- To strive for innovation in finding new uses for Omya‘s minerals
- To focus on continuous improvement in all domains of doing business
- To remain committed to be a good local citizen

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Megatrends

Megatrends are large and lasting changes such as

- **Growing & Aging Population**
- **Urbanization**
- **Energy Demand & Climate Protection**
- **Globalization & Expansion of Developing Markets**

that affect every day our planet, our lives and, consequently, our demands and needs. These needs are **drivers for innovation**. They are reshaping the competitive environment and forcing our organization to continually transform business models and operations.

The impact onto our organization is shown on the next slides.

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Megatrend
Growing & Aging World Population

The United Nation estimates an increase of the world population over 11 billion in 2050, 30% more than today. The majority of this growth is expected in developing and emerging countries. Moreover, the portion of people over 60 should double to about 24%; the majority in the developed countries. In 2008 the number was only 10%.

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Megatrend
Growing & Aging World Population

Impact on market:

- Increase of paint consumption[1)] in developing and emerging countries, e.g. 1.2 liter per capita (lpc) for India and 4.7 lpc for China versus 15-18 lpc for Western Europe
- Increase of paint consumption per life time

[1)] Source: Frost & Sullivan, Feb 2011

Impact on the Filler Business:

- Filler demand continues to grow very slow in mature markets
- High growth rates in emerging countries require (large) investments in new capacities for maintaining (increasing) market share

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Megatrend
Urbanization

The number of urban dwellers is increasing without stop.
By 2025, 67% of the world population will live in cities. For the first time, more people will live in an urban setting in all continents except in Africa.

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Megatrend Urbanization

Impact on market:

- Demand for renovation and new constructions in urban settings
- Potential human resources will be locally concentrated
- Location of paint production sites will follow urbanisation trend for proximity to markets (consumers) and access of qualified human resources

Impact on the Filler Business:

- Filler demand concentration around megacities
- New filler production sites required nearby megacities to improve competitiveness (proximity and speed to customers)

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Megatrend
Energy Demand & Climate Protection

Should nothing change in the way we use energy, 50% more primary energy will be needed by the year 2030. Fast economic growth in emerging countries, such as China, leads the increase in energy demand. However, the developed world still consumes more energy per capita. Manufacturing and transportation are behind the increased demand.

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Megatrend Energy Demand & Climate Protection

Impact on market:

- End-users‘ environmental awareness is increasing (“green products”)
- More legislation reflecting to environmental protection (zero VOC, water-based systems, thermal insulation such as ETICS and insulation glass)
- “Smart coatings” providing technologies such as photocatalysis, IR-reflectivity, nanotechnology, etc.

Impact on the Filler Business:

- Demand for fillers with good life cycle assessment (LCA) resp. low carbon footprint as well as zero VOC content will increase
- Growing demand for white marble chips (ETICS) and UFPCC (insulation glass) for “green products”
- New product developments needed for “smart coatings”

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Global Industry Profile: Paints & Coatings

- **Industry to grow in average >5% globally through 2015 and beyond**
- **Strong differences between mature and emerging markets**

Main contributors to global growth:

Above average:

- **RAP to cover 47% of the global demand in 2015**
- **North America's strong rebound**

Average or below:

- **Africa and Middle East increase of per capita consumption**
- **Europe to recover slowly and showing the smallest growth**

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Global Facts & Figures

World: Estimated regional consumption of GCC and PCC by end use, 2011 (.000 mt)

Source: Roskill

World: Consumption and forecast demand for GCC and PCC by end use, 2011 and 2016 (.000 mt)

Source: Roskill

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Global Facts & Figures

Estimated regional consumption of GCC and PCC by market, 2011 (,000 mt)

	Paper	Plastics	Paint	Rubber	A&S	Others	Total
Asia	13,600	12,000	3,800	2,300	1,850	1,950	**35,500**
Europe	9,100	2,950	2,100	1,075	1,400	1,850	**18,475**
N. America	5,200	2,400	1,025	850	1,300	2,650	**13,425**
S. America	675	325	350	200	135	400	**2,085**
Others	475	1,600	1,525	650	90	550	**4,890**
Total	**29,050**	**19,275**	**8,800**	**5,075**	**4,775**	**7,400**	**74,375**

Forecast regional demand for GCC and PCC by market, 2016 (,000 mt)

	Paper	Plastics	Paint	Rubber	A&S	Others	Total
Asia	17,650	16,050	4,870	2,800	2,720	2,330	**46,420**
Europe	9,350	3,115	2,295	1,155	1,560	2,035	**19,510**
N. America	5,450	2,585	1,205	890	1,505	2,860	**14,495**
S. America	725	400	415	235	190	470	**2,435**
Others	725	1,985	1,820	750	115	675	**6,070**
Total	**33,900**	**24,135**	**10,605**	**5,830**	**6,090**	**8,370**	**88,930**

Source: Roskill

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Global Coatings Industry 2012

Volume by Region
34 Billion liters

North America ■ Latin America ■ Europe ■ Asia Pacific ■ ROW

Value by Region
110 Billion US$

North America ■ Latin America ■ Europe ■ Asia Pacific ■ ROW

Source: Orr & Boss

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Asian Facts & Figures

Source: Orr & Boss

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Functional Fillers today (ongoing trends) and tomorrow

Drivers for functional filler development	
TiO_2 optimization	Development of Fillers that help to optimize the usage of pigments
Control of other key properties of Paints, adhesives and sealants	Functionalities beyond TiO_2 optimization including matting, improving stain resisitance and others
Streamline production processes	A look beyond raw material costs is required in the future. The whole value chain needs to be assessed and challenged. Slurry and sub-assembly approaches are driven also by the producers of machinery (e.g. Modular Paint Production concept)
Upcoming Sustainability driven regulations New biocide regulations	New regulations regarding usage of certain chemicals require new functionalities from the remaining paint components

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Processing of Calcium Carbonates

Natural $CaCO_3$

- **Grinding** → **GCC**
- **Precipitation** → **PCC**
- **Modification** → **MCC**

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Processing of Calcium Carbonate

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Processing of Calcium Carbonate

STEM Images of Nano-Dimensional Surface Structures

Nano Edges

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Functional Filler of today ….

Calcium Carbonate with same PSD like TiO_2

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Functional Filler of today ….

Calcium Carbonate with the same PSD like TiO_2

Titanium dioxide	Ultrafine GCC	Sub-micron GCC

4 µm

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Functional Filler of tomorrow ….

MCC – Omyasmart® ENCAPS

- **Technology is based on natural CaCO3**
- **Slow release + encapsulation**
- **Bio-compatible**
- **Outstanding absorption function for oil and wa**
- **Highly porous**
- **Long lasting release of biocides**

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Functional Filler of tomorrow ….

Encapsulation with Special Chemical Compounds

MCC can be used as a carrier of biocides with a slow-releasing effect plus additional protective function by special Organic Compounds.

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About Sustainability ….

Sustainable development is defined as a form of progress that meets present needs without compromising the ability of future generations to meet their needs. Quality, safety and corporate accountability are the principles upon which Omya conducts its business.

For Omya sustainability includes:

Economic growth
- Needs, rights and values of our customers
- Continuous improvement of our products and services

Ecological balance
- Compliance with applicable laws, rules and regulations and constant efforts to reduce our impact
- Environmental responsibility

Social progress
- Omya's facilities operate safely and are considerate of the community in which they operate
- We are good local citizens and respect our fellow human beings and the environment
- We are guided by ethical principles

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Environmental Responsibility

Means

- Lower carbon footprint (reduce greenhouse gas emission)
- Lower VOC content (improve environmental conditions such as indoor air quality)
- Free of hazardous substances
- High quality (→ poor quality requires earlier recoating)
- Consistent quality (avoids waste)
- Ecologically friendly production process for raw material

Examples

Coating	Building	Benefit
Low-VOC interior paint	Low VOC levels In indoor air	Health and Wellness for occupants
Façade paint with low dirt pick-up	Long life time before repainting	Low maintenance costs

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The Carbonate Cycle

The Earth's carbonate cycle (simplified)

Every day calcium carbonate is formed by a natural process in the oceans. Today's formation of calcium carbonate can create new sedimentary rocks on the ocean floor which could over long time create potential sources for the needs of future generations.

Knowing the carbonate cylce and we can call …

Calcium carbonate - a renewable raw material!

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Our Advantages

- Products which allow to reduce the Carbon Footprint of Paint formulations
- Environmentally safe products ($CaCO_3$ is a natural product)
- Transportation creates a lot of greenhouse gas emissions. More than 150 Omya plants situated around the world enables Omya to act as a local supplier which minimizes the delivery distance and reduces the CO_2 formation.

Our Partners

IMA Europe

the Natural Step

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OMYA

Turbulent times ahead of us …..

It is not important how the wind is blowing

It is just a matter “how one is setting the sails”.

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