EmiratesGBC Technical Workshops

by AkzoNobel

How paints and coatings can decrease the operational and embodied carbon of building materials in the built environment

Presented by Job Coenen, Global Sustainability Manager

23 of May 2024
Introduction: Job Coenen
Global Sustainability Manager, AkzoNobel

Global expert on green buildings, sharing latest insights on trends and opportunities as well as the vital role of paints and coatings in the built environment

- Combined more than 20 years of work experience in the construction industry working for Sika and AkzoNobel
- Representative of AkzoNobel, serving on the Corporate Advisory Board (CAB), which guides World Green Building Council (WGBC) on its strategy and activities
- Coordinating services and solutions for the built environment globally for AkzoNobel
2023 key figures:

€10,668 mln revenue
€1,029 mln operating income
€1,074 mln adjusted operating income

130 manufacturing sites
35,200 employees
Our organization in the Middle East

- **4 manufacturing sites**
  - UAE, Dubai, Al Quoz
  - KSA, Dammam
  - Oman, Muscat
  - Egypt, Cairo

- **11 legal entities**

- Performance Coatings
- Decorative Paints

**Training Center**
- UAE (Al Quoz site)
- Qatar (open in 2024)
Solutions to help reduce carbon footprint in the build environment

Decorative Paints – Wall painting, wood and metal protection

Protective Coatings – Anti-corrosion, fire protection for metal and concrete and flooring

Powder Coatings – Curtain wall, façade panels and windows & doors

Industrial Coil Coatings – Roofing, curtain wall, façade panels
Sustainability is at the core of our identity

We produce durable solutions in a more sustainable manner

- 50% less carbon emissions in our own operations
  - 38% in 2023
  - 50% in 2030

- 100% circular use of materials in own operations driven by reduce, reuse, recycle
  - 55% in 2023
  - 100% in 2030

We help our customers to become more sustainable

- 50% less carbon emissions across our value chain
  - 9% in 2023
  - 50% in 2030

- 50% revenue from sustainable solutions
  - 39% in 2023
  - 50% in 2030

We empower our communities and employees

- 100,000+ members of local communities empowered with new skills
  - 70,000 in 2023
  - 100,000+ in 2030

- 30% female executives
  - 25% in 2023
  - 30% in 2025

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A recognized sustainability leader

Only paints and coatings company AAA in MSCI

MSCI ESG RATINGS

<table>
<thead>
<tr>
<th>Rating</th>
<th>AkzoNobel</th>
<th>Peer average</th>
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Top 1% of all companies assessed by EcoVadis

EcoVadis

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Only paints and coatings company ESG industry top rated by Sustainalytics

ESG INDUSTRY TOP RATED

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Key trends and opportunities identified in the built environment

Launch of the Déclaration de Chaillot in Paris, March 2024

- Ministerial declaration, supported by 70 countries including the UAE, sets the goal of making “near-zero-emission and resilient buildings the new normal by 2030”
- Growing gap between energy and climate performance of the building and construction sector and necessary pathway to achieve decarbonization due to the following:
  - Insufficient volumes of building renovation and sustainable building construction
  - Continued investment in carbon-intensive heating and cooling systems
  - Over-exploitation of natural resources in building value chain

Demands for green buildings in the region have increased rapidly

- Due to extreme heat, buildings consume relatively more energy in the Middle East
- New construction vs new built green buildings
- Investment climate and ESG green investment geared to the build environment
- Focus will be on both operational carbon and embodied carbon
Opportunity areas aligned with WGBC’s focus areas

**Climate action**
Products that provide lower energy consumption in application and use and with lower embodied carbon

**Health and well-being**
Products that help improve quality of life, with reduced substances of concern

**Resources and circularity**
Products that enable waste reduction, use less or recycled materials and offer longer lasting performance
Reducing carbon footprint in the built environment is key
50% less carbon emissions for the full value chain by 2030 (baseline 2018)

First paints and coatings company to set science-based carbon reduction targets in 2021
Reducing carbon footprint in the built environment is key
50% less carbon emissions for the full value chain by 2030 (baseline 2018)
Collaborating with suppliers to gather product carbon footprint data

We actively **engage with suppliers** to share our ambitions and encourage them to do the same:

- Working with key suppliers to **exchange product carbon footprint**, waste, energy and greenhouse gas emission data to **monitor progress of our suppliers**

- Developing **new innovative solutions** as a key driver to reduce value chain carbon footprint

- Supplier specific raw material carbon footprint data used in 2023 data and reporting: 400+ raw materials equivalent to **~12% of AkzoNobel's total carbon footprint**
Reducing carbon footprint in the built environment is key
50% less carbon emissions for the full value chain by 2030 (baseline 2018)
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Paints and coatings’ role in reducing embodied and operational carbon

“Upfront” Embodied Carbon
Manufacturing, transportation and installation of construction materials

Operational Carbon
Building energy consumption

Climate Adaptation: Embodied Carbon - Heritage BC
### Key drivers for carbon footprint reduction in paints

#### Examples of reduction in embodied vs operational carbon

<table>
<thead>
<tr>
<th>Drivers</th>
<th>Example 1</th>
<th>Example 2</th>
<th>CF reduction (%) (Cradle to grave)</th>
<th>CF reduction (kg CO2/L) (Cradle to grave)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Embodied carbon</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biobased content</td>
<td>Product without biobased binder</td>
<td>Product with 50% biobased binder</td>
<td>10% reduction for 10% biobased binder</td>
<td>0.4 kgCO₂/L</td>
</tr>
<tr>
<td>Move from SB to WB</td>
<td>Product with 60gr VOC/kg</td>
<td>Product with &lt;0.1 gr VOC/L</td>
<td>14% reduction</td>
<td>0.6 kgCO₂/L</td>
</tr>
<tr>
<td>Recycled content</td>
<td>Product without recycled content</td>
<td>Product with 35% recycled content</td>
<td>10-15% reduction (Dulux evolve mat claim)</td>
<td>0.4 kgCO₂/L</td>
</tr>
<tr>
<td>Supplier specific CF (acrylic resin, 50% lower)</td>
<td>Product with standard PCF resin</td>
<td>Product with low CF resin</td>
<td>16% reduction</td>
<td>0.6 kgCO₂/L</td>
</tr>
<tr>
<td><strong>Operational carbon</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material usage - Coverage (m²/L)</td>
<td>Product with coverage 10m²/L</td>
<td>Product with coverage 6m²/L</td>
<td>40% reduction for product with 10m²/L coverage</td>
<td>1.5 kgCO₂/L (wall paint)</td>
</tr>
<tr>
<td>Longer lasting</td>
<td>Technical lifetime 7y</td>
<td>Technical lifetime 5y</td>
<td>29% reduction for longer lasting</td>
<td>1.2 kgCO₂/L</td>
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</table>
Examples of paints and coating solutions to reduce carbon in the built environment

Interpon D low-E architectural
Low bake powder coatings

Intergard 251HS
High solids protective anticorrosion coatings

Dulux Weathershield Powerflexx
Exterior wall paint
Carbon footprint of building materials and role of paints & coatings

- Coatings can help reduce embodied carbon of certain building materials (e.g. steel, aluminum, plaster, wood)
- Manufacturers of building materials are already reducing their footprint (e.g. ‘carbon neutral’ steel)
- Upcoming harmonization between key green building schemes will include reduced embodied carbon
- Paints & coatings make up a small part of the embodied carbon footprint of coated building materials (e.g. coil coated steel up to 15%; powder coated aluminum up to 5%)
- Paints & coatings play an important role in reducing the operational carbon footprint in maintenance and repair over time
Solutions can positively impact embodied and operational CF
Key is to focus on the building’s full life cycle

<table>
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<tr>
<th>Product stage</th>
<th>Construction process stage</th>
<th>Use stage</th>
<th>End of life stage</th>
<th>Benefits beyond the system boundaries</th>
</tr>
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<tbody>
<tr>
<td>Raw material supply</td>
<td>Transport</td>
<td>Manufacturing</td>
<td>Transport gate to site</td>
<td>Assembly</td>
</tr>
<tr>
<td>A1</td>
<td>A2</td>
<td>A3</td>
<td>A4</td>
<td>A5</td>
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**Embodied carbon:**
Building materials

**Operational carbon:**
Use and maintenance stage
‘Handprint’ of cool chemistry paints & coatings
Reducing the operational carbon for buildings

Roofs & facades
- CERAM-A-STAR 1050 (Industrial Coatings)
- Intercrète 4890 (Protective Coatings)

Windows
- Interpon D2525 LSA (Powder Coatings)

Walls
- Dulux Weathershield Powerflexx (Decorative Paints)

Doors
- Interpon D2525 LSA (Powder Coatings)
# How can Paints & Coatings contribute to green building certifications?

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>AkzoNobel solution</th>
<th>AkzoNobel examples</th>
<th>LEED**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor air quality</td>
<td>Indoor air quality through low emitting materials</td>
<td>Low emission certificate</td>
<td>Paints, Protective Coatings</td>
<td>3 points</td>
</tr>
<tr>
<td>Materials &amp; resources</td>
<td>Disclosure of environmental impact of building products</td>
<td>EPD*</td>
<td>Paints, Powder and Protective Coatings</td>
<td>1 point</td>
</tr>
<tr>
<td>Sustainable sites</td>
<td>Heat island reduction and thermal comfort through heat reflection</td>
<td>Heat reflective solutions</td>
<td>Paints, Coil, Protective and Powder Coatings</td>
<td>2 points</td>
</tr>
</tbody>
</table>

(*) Environmental Product Declaration
(**) Other regional specifications such as Estidama and others
The power of paints and coatings in decarbonizing the built environment

- Paints and coatings can help decrease the embodied and operational carbon of the building materials in the built environment.
- Collaboration in the value chain is key to reducing scope 3 carbon footprint.
- Longevity is a key contribution of paints and coatings in the built environment.
- By signing the Declaration de Chaillot the government of the UAE will put a stronger focus on making buildings more sustainable.
- AkzoNobel having a wide portfolio of solutions and expertise can help designers and building owners contribute to various green building schemes.
Meet our expert team in the Middle East

Vik Vithlani
Infrastructure Lead & Performance Flooring Specialist, Middle East

António Balsinha
Powder Coatings Sales Manager, Middle East and Pakistan

AshokKumar Bansal
Regional Sales Manager Coil and Wood Coatings, Middle East and Africa

Siddharth Baliga
Operational Manager Decorative Paints
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