



**METEN**  
consulting



THE COMPANY.

**METEN**  
consulting

Founded in  
**01.04.1938**

by the brothers Peter (1913-1985)  
und Josef Metten (1920-2014)



current management  
Hildegard Metten and Dr. Michael Metten



Hamburg

Berlin

Cologne

• • Overath

Frankfurt

Munich





**MILESTONES.**

*50 years of grass paving blocks:  
The grass paving block was developed by Josef Metten  
in Besigisch Gladbach and protected by a design patent on  
November 27<sup>th</sup>, 1969*



# Milestone grass paving block

CURRENTLY AWARDED OR NOMINATED.



reddot winner 2020  
innovative product





Designpreis  
Deutschland  
2012

NOMINIERT



product  
design  
award

2011 ■



# Milestone **Umbriano**

# Loews Hotel **Chicago**

USA



Public Plaza  
at CN Tower  
**Toronto**

CANADA



Criminal Court  
**Riyadh**

SAUDI ARABIA





Milestone  
**La Linia**

Clinic of the  
University of  
**Cologne**

GERMANY



# Nikolai Quartier **Hamburg**

GERMANY



# Bujairi Terrace **Riyadh**

Saudi Arabia





CLEANTOP®  
P R O T E C T E D

Milestone  
**CleanTop Technology**





CleanTop Technology

**METTEN**  
GRUPPE

**METTEN  
Stein+Design**

Betonsteine/  
Natursteine/Keramik

**SPRING  
by Metten**

Betonsteine

**TAROTEC  
GmbH**

Fugensysteme

**METTEN  
Consulting GmbH**

**METTEN Technologies  
GmbH & Co. KG**

**METTEN Concrete  
Solutions GmbH**

**METTEN**  
GRUPPE

**METTEN**  
**Stein+Design**

Betonsteine/  
Natursteine/Keramik

**SPRING**  
**by Metten**

Betonsteine

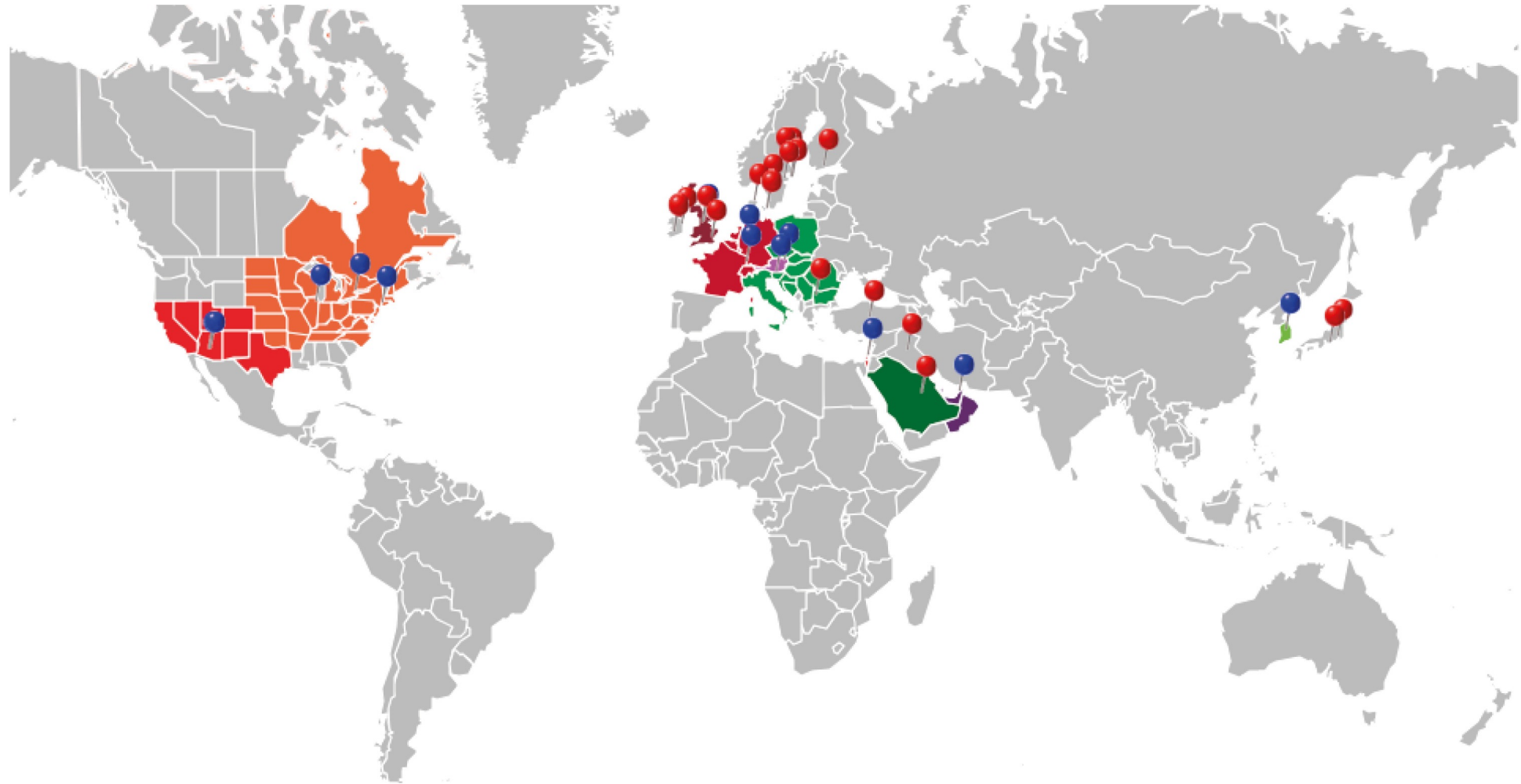
**TAROTEC**  
**GmbH**

Fugensysteme

METTEN Technologies  
GmbH & Co. KG

**METTEN**  
**Consulting GmbH**

**METTEN**  
**Concrete Solutions**  
**GmbH**



**INT. LICENSEE & CONSULTING**



Cologne (Germany), Clinic of the University, **La Linia**® Granitgrau und Granitdunkelgrau.



Toronto (Kanada), Yorkville Avenue





# CHEMISTRY RAW MATERIALS AND CEMENT HYDRATION.

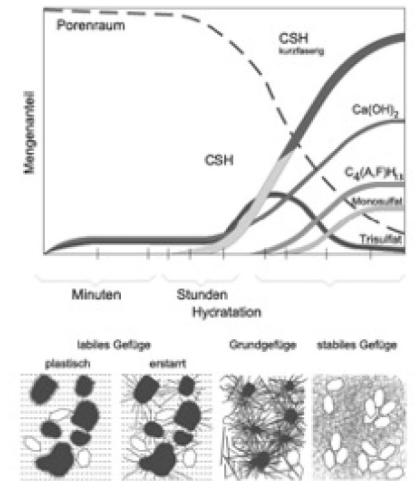
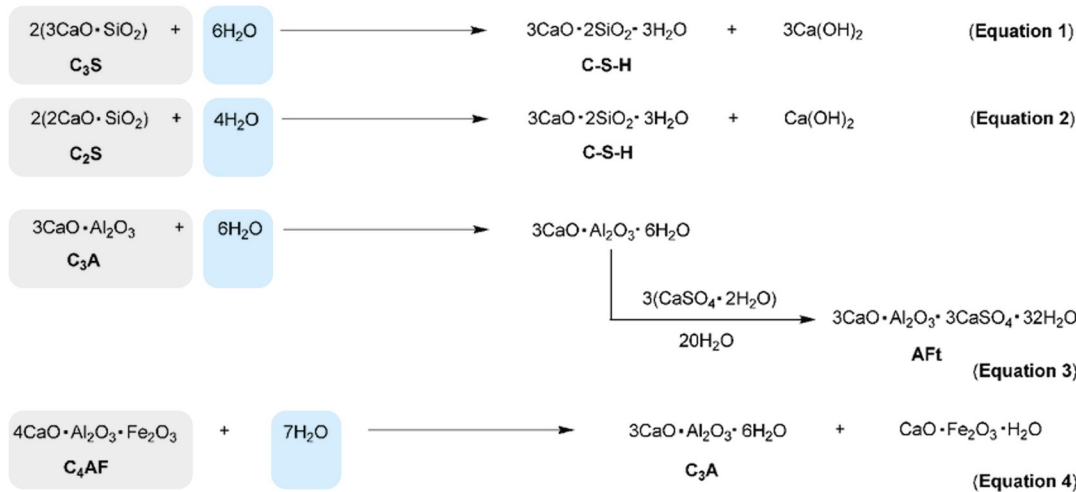
## Starting materials of the 2-substance system

A) Reactive basic component OPC with  $C_3A$ ,  $C_2S$ ,  $C_3S$ ,  $C_3A$ ,  $C_4AF$



B) Water  $H_2O$

## Hardening reaction



Source: BetonWiki





The concrete pavers

OF THE FUTURE.

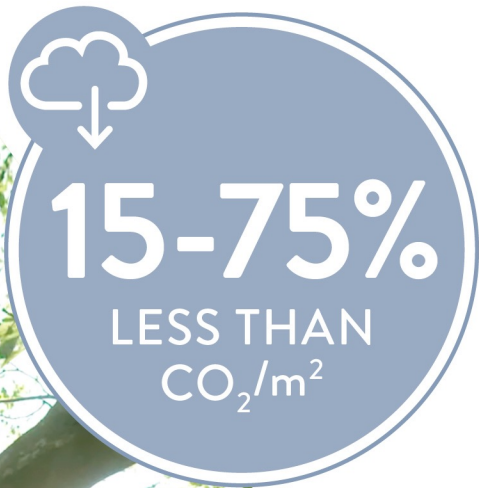
ARTIFICIAL ROCK  
BASED ON A 2-COMPONENT  
BINDER SYSTEM.



# CEMENT FREE PAVING BLOCK.

- » Product system consisting of binder and suitable activator
  - » No other additives/Additives included
- » **Idea born in the 2000-2010 for a better performance (not sustainability)**
- » Meanwhile proven system for high-quality paving blocks are established
  - » Standard EN 1338 is fulfilled
    - » Freeze Thaw Resistance
    - » Hardness
- » Efflorescence-free
- » NO color fading
- » NO delamination, proven by Double-layer testing
- » Several surface colors and structures are available

# DISCOVER INNOVATION.



15-75%  
LESS THAN  
CO<sub>2</sub>/m<sup>2</sup>

	conventional concrete stone	concrete stone with Ecoterra®
100 % cement-free	✗	✓
free from lime efflorescence	✗	✓
durable colour-finished surface	✗	✓
reduction of CO <sub>2</sub>	✗	✓
easier to clean	✗	✓
application of recycling material	✓	✓

# THE STONE OF THE FUTURE.

## conventional concrete stone

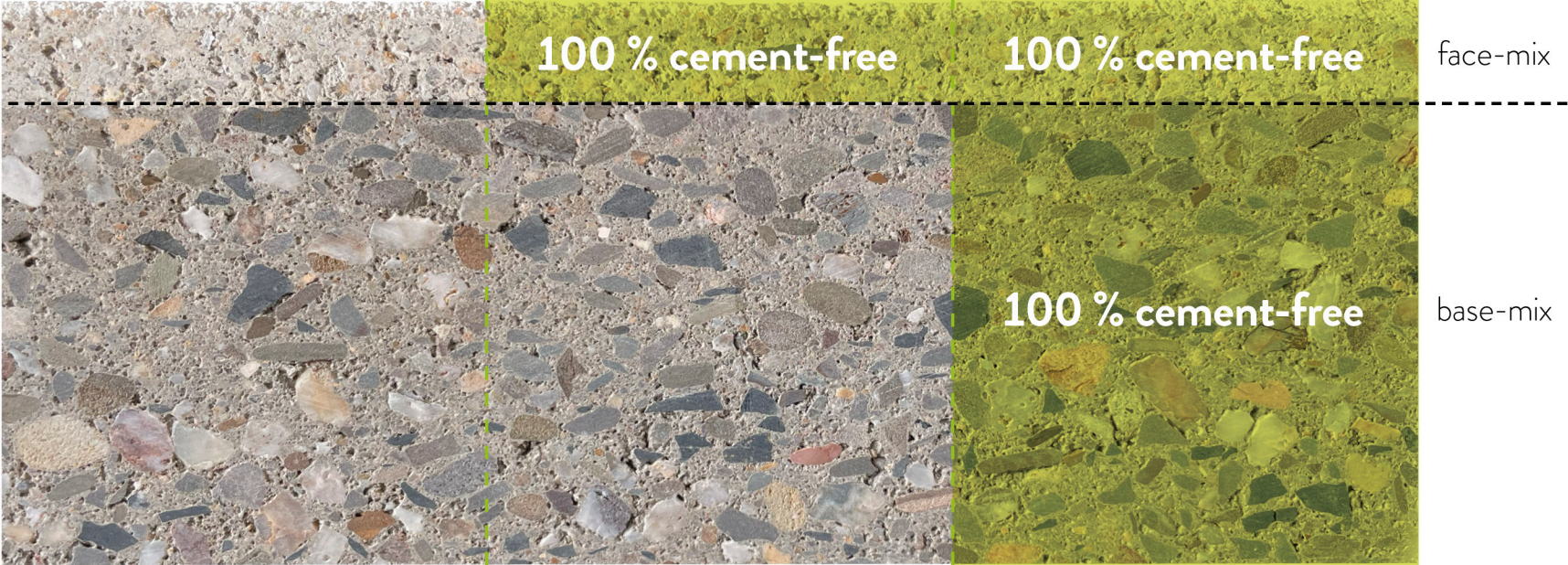
face-mix and base-mix with cement

## EcoTerra<sup>®</sup>

face-mix without cement saves up to 26,5 % CO<sub>2</sub>

## EcoTerra ZERO<sup>®</sup>

face-mix and base-mix without cement saves up to 75 % CO<sub>2</sub>



since 2021

since 2023

# ECOTERRA

## PRODUCT PORTFOLIO.

- » EcoTerra is designed as the face mix layer for pavers or slabs, produced on conventional board machines, such as MASA, HESS, OMAG e.g.
- » The main difference is, to replace the cement, additional fillers and the admixes by an Alkaline Activated Binder consisting of a Geopolymer Powder and an Activator.
- » The most available aggregates are suitable in the system.
- » The most available pigments are suitable in the system.
- » The color appearance after adjusting the pigment loads is comparable to the cement-based design.
- » The most available dry side surface treatments are processible.



# ECOTERRA PRODUCT PORTFOLIO.

## CORIO®



EcoTerra



Cement

## PALLADIO®



EcoTerra



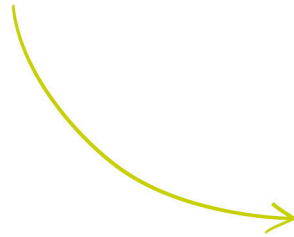
Cement



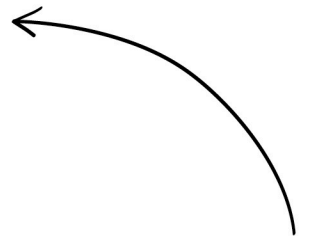
# ECOTERRA PRODUCT PORTFOLIO.



EcoTerra



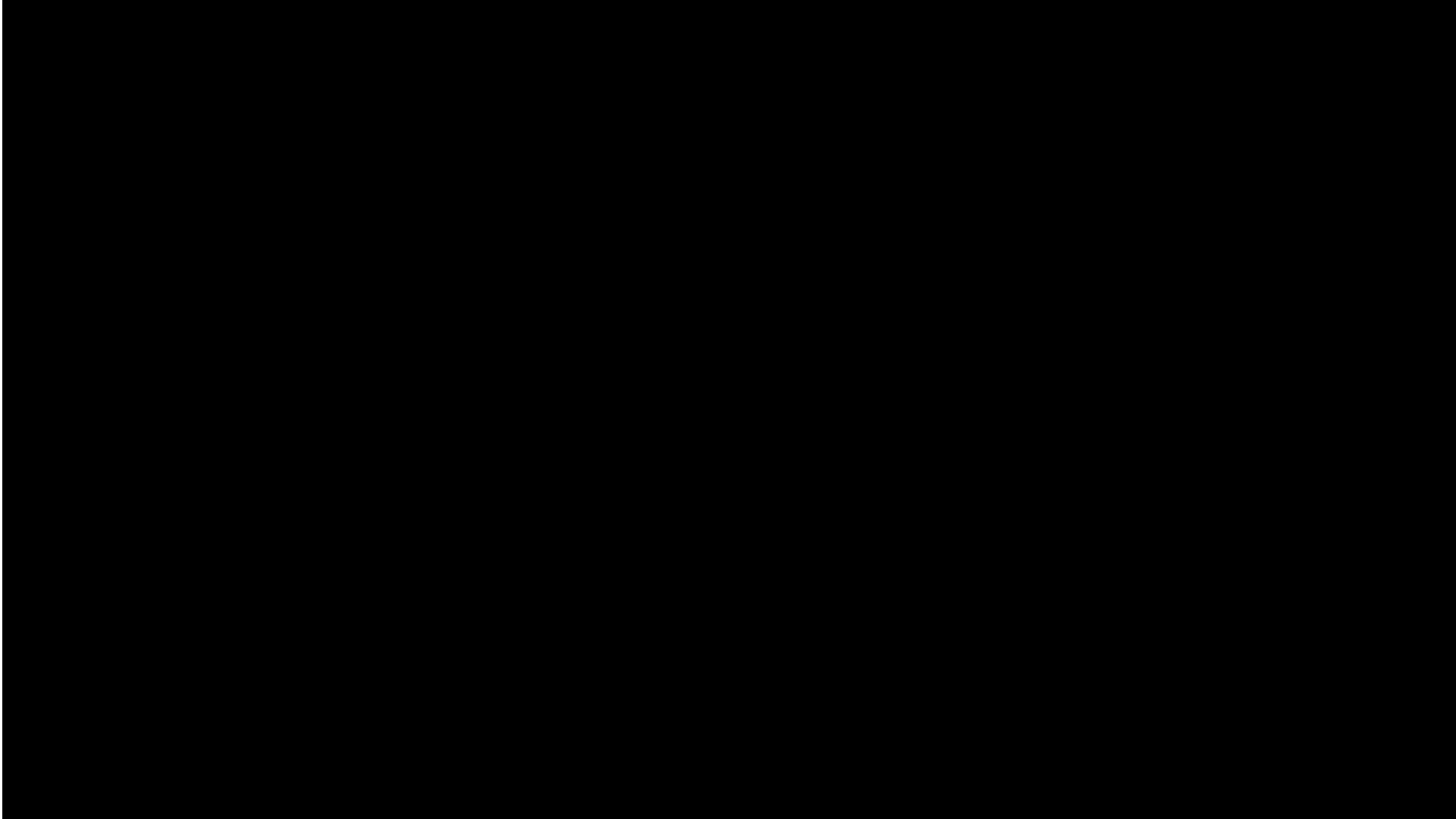
**CORIO®**



Cement

**ECOTERRA®** ZERO

**METEN**  
consulting



Promenade  
**Koblenz**

GERMANY





**Koblenz (Germany), Kaiserin-Augusta-Anlagen**

# TECHNICAL PROPERTIES.

The technical properties are mostly comparable to the cement-based product

The German Association for Concrete Quality is working on a certification process, similar to DIN EN 1338/1339. The product is certified for the use.

**Strength:** Hybrid paver reaches comparable properties of tensile-split and tensile-bending strength.  
The properties depends on the design of the base mix.

Geopolymer Face mix reaches a  
Compressive strength > 60 MPa (depends on design)

# TECHNICAL PROPERTIES.

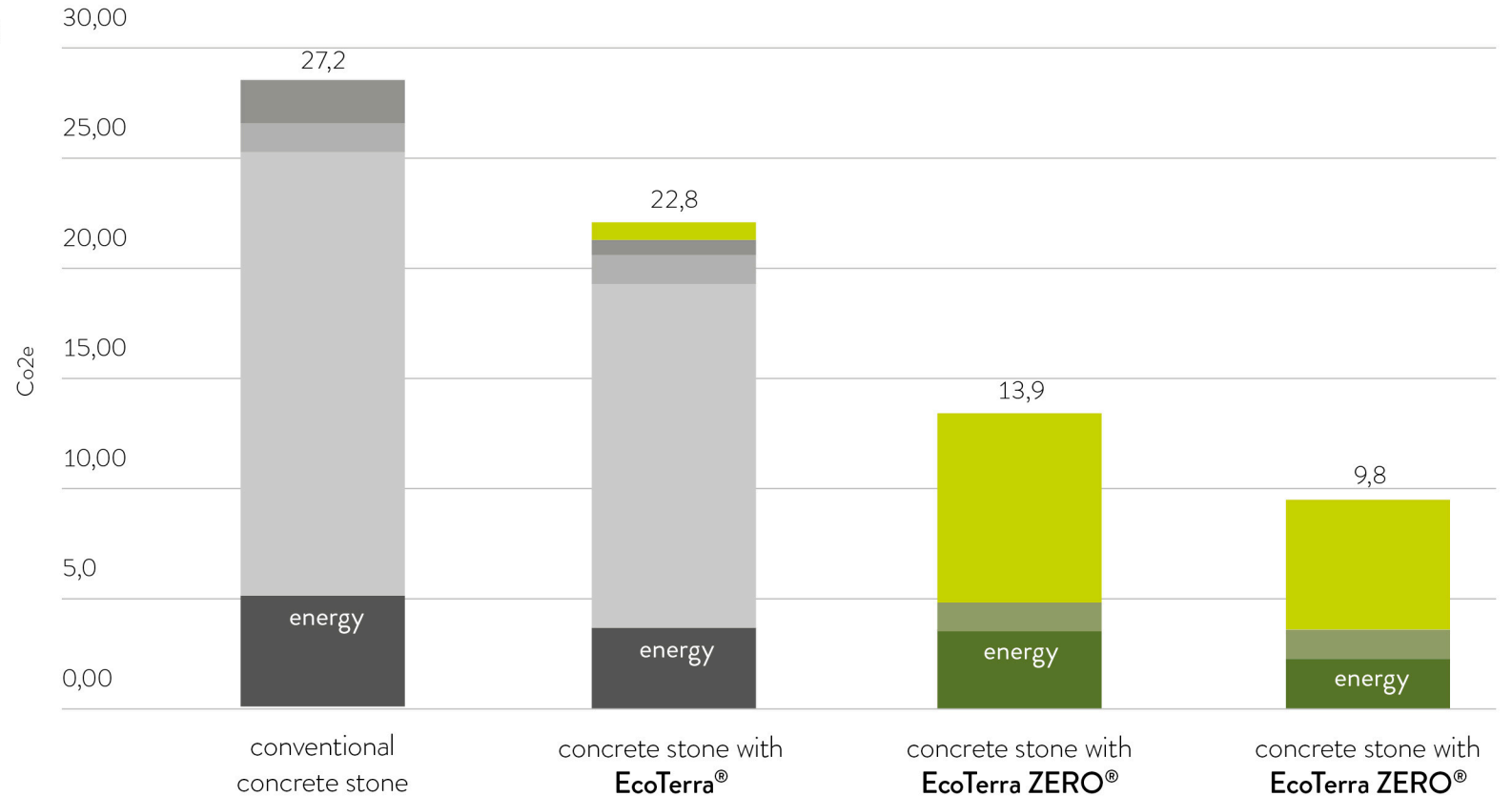
- Freeze-thaw:** The Geopolymer surface reaches class D according to DIN EN 1338/1339 annex D  
The loss of material is less than  $100 \text{ g/m}^2$
- Abrasion:** The product reaches class I ( $< 20 \text{ mm}$ ) according to DIN EN 1338/1339 annex G (wide wheel)
- Stain resistance:** The product shows an enhanced resistance against stains  
The level of stain resistance is equal to METTEN CF90 value without any additional coating or sealing  
The additional sealing of the product, to enhance the stain resistance is in under development

# ENVIROMENTAL IMPACT

## CARBON EMISSION.

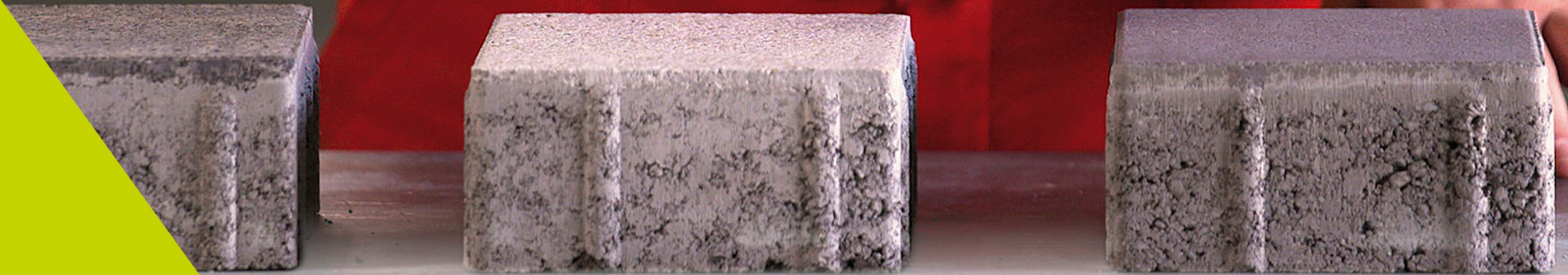
Global Warming Potential(Fossil) kg CO<sub>2</sub> per Paving Block

- Co2e pro m<sup>2</sup> - concrete-admix/coating
- Co2e pro m<sup>2</sup> - aggregates
- Co2e pro m<sup>2</sup> - cement
- Co2e pro m<sup>2</sup> - energy
- Co2e pro m<sup>2</sup> - binder
- Co2e pro m<sup>2</sup> - aggregates
- Co2e pro m<sup>2</sup> - energy





THE WAY TO YOUR  
**ECOTERRA PRODUCT.**



**ECOTERRA**<sup>®</sup>ZERO<sup>©</sup>

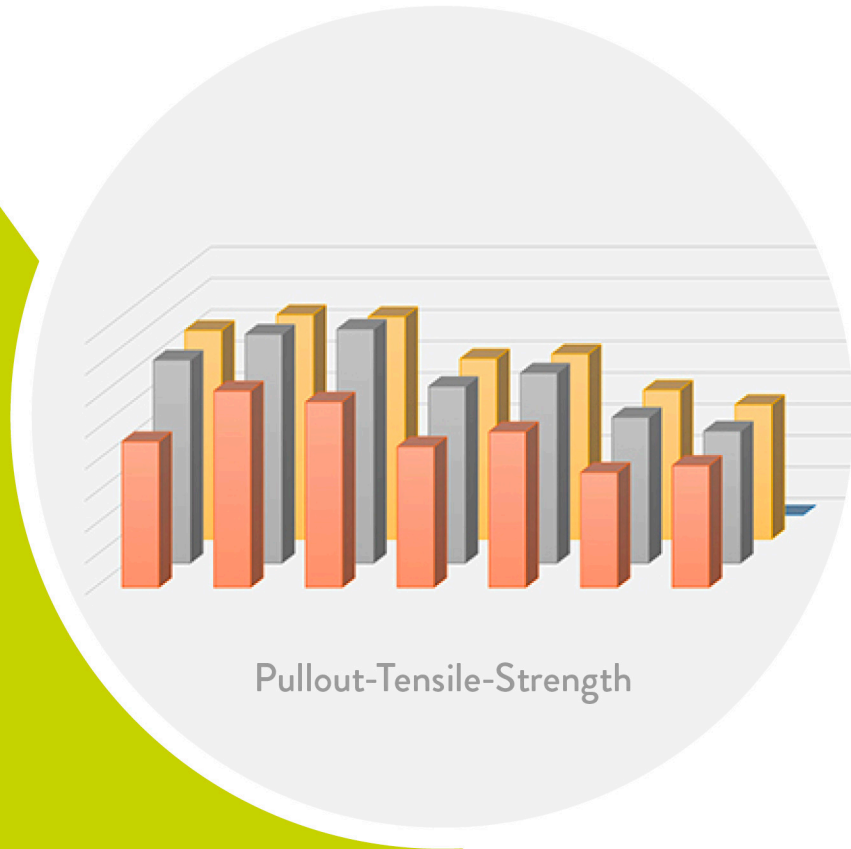
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# THE WAY TO YOUR **ECOTERRA PRODUCT.**



1. Development of product- and market strategys
2. Testing of technical requirements

# THE WAY TO YOUR **ECOTERRA PRODUCT.**



3. Raw material exploration
4. Development of individual receipes
5. Test running in technical center

# THE WAY TO YOUR **ECOTERRA PRODUCT.**



6. Know how transfer
7. Training of machine operator while running production in Overath, Germany

# THE WAY TO YOUR **ECOTERRA PRODUCT.**



8. Implementation of technology in situ
9. Marketing support including use of trademark EcoTerra



**2023**  
**UNILOCK**  
DESIGNED TO CONNECT.

**ECOTERRA** ZERO



**ECOTERRA<sup>®</sup>ZERO<sup>Ⓞ</sup>**



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