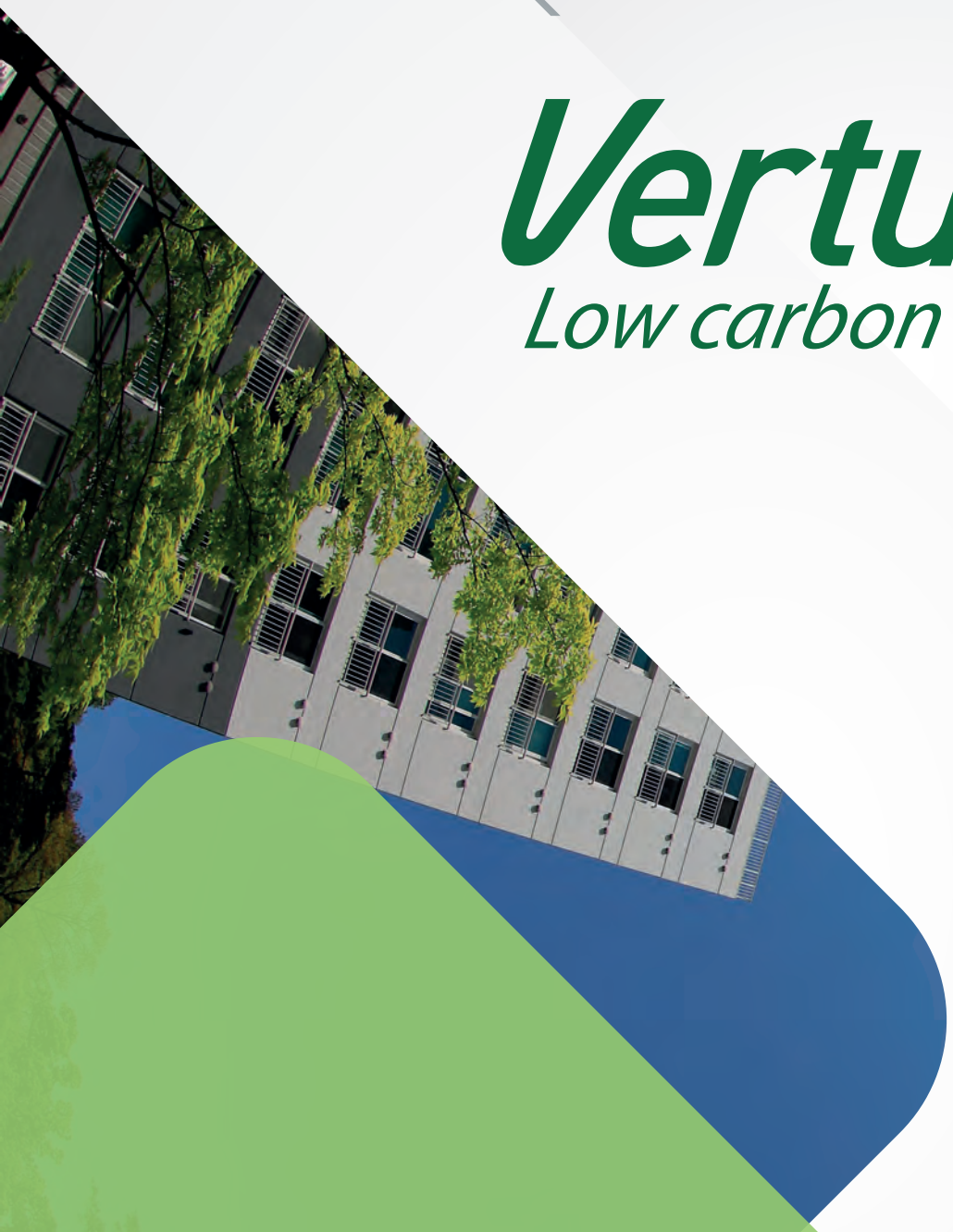
CEMEX

Vertua®

Low carbon by design



NET ZERO CONCRETE
THE FUTURE NOW.

Our purpose is to build a better future, and unsurprisingly we think concrete is an essential part of construction. It is the second most consumed material on the planet (second only to water) in part because it is cost-effective, versatile and typically made from local materials.

We recognize future construction needs to be balanced with the effect it is having on the environment. At CEMEX, we know that we can best meet these challenges by working in partnership with our clients and stakeholders to innovate and develop low carbon solutions together.

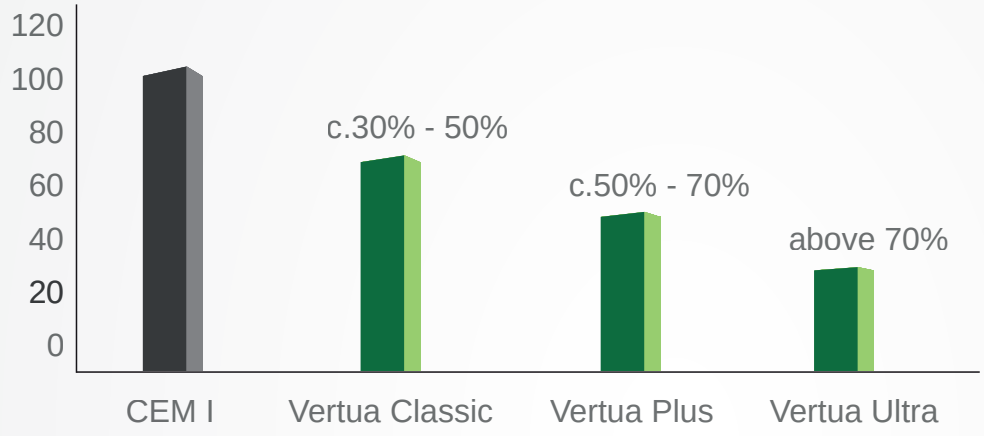
The Vertua range features a variety of bespoke concrete mix designs which can be used in a wide range of applications and includes the Vertua ultra which achieves above %70 reduction in embodied carbon emissions.

The Vertua range is an important step to support the Company's recently announced climate strategy, which includes an ambition of delivering net zero concrete globally by 2050.

TECHNICAL PROPERTIES

Vertua is our range of low carbon concretes, with bespoke designs enabling embodied carbon reductions above 70% or more versus standard concretes (CEM I). The range can also provide additional benefits including increased durability and aesthetic finishes.

VERTUA COMPARED TO CEM I CONCRETE - CO2% REDUCTION

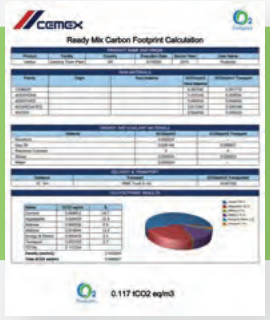


LOWER HEAT GENERATION & REDUCED CRACKING

The use of Vertua concrete reduces the heat of hydration (the hydration of cement is an exothermic reaction). High temperatures in concrete can generate stresses that could result in early-age thermal cracking. The use of Vertua is recognized as an effective solution to the problem.

WORKABILITY / CONSISTENCE RETENTION

Vertua benefits from lower heat generation and does take slightly longer to set, which is particularly useful in warm weather conditions. This is generally influenced by many factors, including temperature and water/cement ratio. However, an extended setting time does mean that the concrete will remain workable for longer and there will be less risk of cold joints.



CARBON CALCULATOR SERVICE

CEMEX calculates the embodied carbon in the Vertua range using a Carbon Footprint Calculator (CO2 Tool) that follows the standards of PCR CONSTRUCTION PRODUCTS PCR 2019:14 VERSION 1.0 EN 15804 & EPD Programme and clients can be provided with a copy on request.

WHY Vertua®

Vertua®
Low carbon by design

HIGH PERFORMANCE

- Strength development in later time
- Improved workability, pumpability and compaction
- Reduced risk of thermal cracking

LOW ENVIROMENTAL IMPACT

- Reduction of CO2 emissions by up to 60%
- Increased durability, reduced maintenance and repair costs.

ADVANCED CHEMICAL RESISTANCE

- Meets or exceeds “CEM III/A +SR” standard for sulfate resistance.
- Superior resistance to chloride penetration.

ENHANCED APPEARANCE

- Lighter and more even color.
- Greater reflectivity for better visibility and safety.

Vertua®
Low carbon by design

Vertua® Low carbon by design | classic

A LOW CARBON CONCRETE THAT HAS A C.30-50% CO2 REDUCTION VERSUS A STANDARD CONCRETE (CEM I) MIX.

APPLICATIONS

- Foundations, including piling
- Suspended slabs
- Structural elements
- House and garage ground floor slabs
- External concrete for pavements and hard standing
- Driveways
- Industrial floors

FEATURES

Concrete Grade (N/mm2)	05 to 100
CO2 Reduction	30-50%
Water Permeability BS EN 12390-8	8mm to 25mm
Water Absorption BS 1881: Part 122	1.25% to 3.0%
Initial Surface Absorption BS 1881-208	0.15 to 0.3 ml/m2/sec
Rapid Chloride Penetration ASTM C1202	500 – 3500 Coulombs
Workability Slump (mm)	100 to 250
Workability Retention (Hours)	Up to 3
Maximum Aggregate Size (mm)	5 to 40
Typical Density Range (kg/m3)	2000-2450

Vertua®
Low carbon by design

Vertua® Low carbon by design | plus

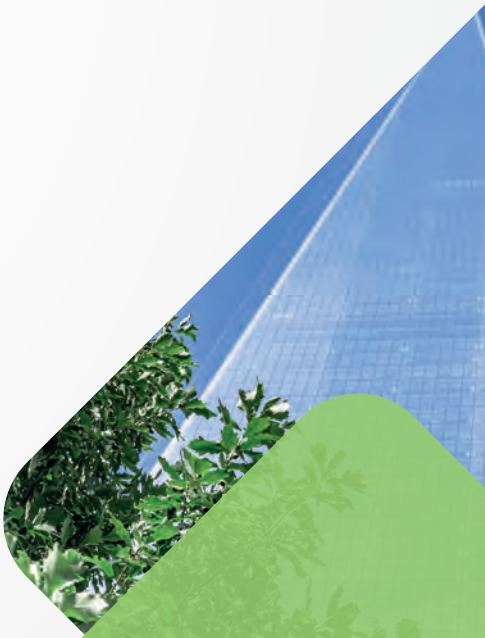
A LOWER CARBON CONCRETE THAT HAS A C.60-70% CO2 REDUCTION VERSUS A STANDARD CONCRETE (CEM I).

APPLICATIONS

- Groundworks
- Mass foundations
- Piling
- Geo-technical
- House foundations
- Other applications where high early strengths are not required

FEATURES

Concrete Grade (N/mm2)	20 to 60
CO2 Reduction	50-70%
Water Permeability BS EN 12390-8	8mm to 25mm
Water Absorption BS 1881: Part 122	1.5% to 3.0%
Initial Surface Absorption BS 1881-208	0.15 to 0.3 ml/m2/sec
Rapid Chloride Penetration ASTM C1202	800 – 3500 Coulombs
Workability Slump (mm)	125 to 250
Workability Retention (Hours)	Up to 3
Maximum Aggregate Size (mm)	5 to 40
Typical Density Range (kg/m3)	2000-2450



Vertua®
Low carbon by design

Vertua® Low carbon by design | ultra

A GEOPOLYMER CLINKER-FREE CONCRETE THAT HAS OVER 70% CO2 REDUCTION VERSUS A STANDARD CONCRETE (CEM I) AVAILABLE ON REQUEST FOR BESPOKE APPLICATIONS.

In order to achieve the 70% reduction, CEMEX is introducing a new innovative geopolymer cement solution, which was developed at its Global Research & Development Centre in Switzerland.

This new geopolymer product can be used as an alternative to more commonly used 'clinker based' cement solutions in certain applications contact us to discuss your specific project so we can ensure Vertua ultra is suitable for your application.

FEATURES

Concrete Grade (N/mm2)	10 to 40
CO2 Reduction	>70 Up to 100%
Water Permeability BS EN 12390-8	10mm to 25mm
Water Absorption BS 1881: Part 122	1.5% to 3.0%
Initial Surface Absorption BS 1881-208	0.15 to 0.3 ml/m2/sec
Rapid Chloride Penetration ASTM C1202	500 – 3500 Coulombs
Workability Slump (mm)	100 to 250
Workability Retention (Hours)	Up to 2
Maximum Aggregate Size (mm)	5 to 40
Typical Density Range (kg/m3)	2000-2450

CEMEX ADMIXTURES
Building Chemistry

INTRODUCING NEXT GENERATION
ISOFLOW 6000 SERIES

Enabling up to %50 CO_2 reduction in concrete mix designs.

The next generation of high-performance new PCE superplasticizer technology for Readymix producers – targeting carbon reduced concrete mix designs.
More reliable and robust performance to give you the confidence you need. Backed by cement and Readymix technical expertise, giving you the support and re-assurance time after time.

- Polymer design enabling new low carbon concretes
- Enables new low carbon opportunities and innovation
- Tailor made and better performance control prepared for carbon reduced cements
- Next level of performance – consistency, flowability and strength (even with highly substituted concrete formulations)
- Entire toolbox from short to extended workability retention
- Bespoke solutions and customized efficiency improvements
- Trained driver fleet and packaging return service
- CEMEX Admixtures Live – digital order application

LOW CARBON Vertua PRODUCT

Enables low carbon products
As part of our wider Future in Action strategy, the Vertua® Admixtures range enables sustainable urbanisation and low carbon concretes.