Béton Léger du Canada
Léger, Solide Et Dans Le Vent

Lightweight insulating concrete

Public brief | Licensees, engineers and project owners

Lightweight insulating concrete technology for frost-conscious pavement design and new building applications. Measured results, industrial know-how and a structured project approach.

Performance with traceable references.

Characteristic	Measured result	Method / source
Density, fresh / dry / immersed	584 / 559 / 626 kg/m³	CSA A23.2-6C / 11C · R1
Compression, 24 h / 28 days	2.0 / 3.9 MPa	CSA A23.2-9C · R1
Flexural strength at 28 days	1.0 MPa	CSA A23.2-8C · R1
Elastic modulus at 28 days	2.53 GPa	ASTM C469 · R1
Freeze-thaw, 300 cycles	Relative dynamic modulus: 86.5%	ASTM C666, procedure B · R1
Salt scaling, 56 cycles	0.22 kg/m²	NQ 2621-905 · R1
Dry thermal conductivity	0.16910 W/(m·K)	ASTM C518-10 · R2
Mass / volume absorption	12.0% / 3.6%	CSA A23.2-11C / ASTM D2842 B · R1

The “proven product” status covers the evaluated mix and pavement insulation within the scope of MTQ letter GUQ-01788, dated March 19, 2015. Each structure is designed by its engineer.

Reference results from 2014-2015 testing. Conditions, methods and references appear on the Performance page.

Conditions that inform design.

R1: July 15, 2014 batch; MTQ report BC-14-128 / DB-13-47, February 3, 2015. R2: Exova 14-06-M0326, September 30, 2014; test on September 29, mean temperature 24.02°C. R1 and R2 concern different specimens.

Relative dynamic modulus is not residual compressive strength. The report considers scaling behaviour adequate within a pavement layer without direct contact with deicing salts.

The stated conductivity is for the dry condition. Drainage, in-service moisture, shrinkage and interfaces form part of design. The two absorption figures use different methods.

Measured strength informs design and the quality plan. Traffic opening and surfacing follow criteria established by the designer.

Evidence for design.

Soil, water and frost : Characterize subgrade, water levels, drainage, lateral frost, surface icing risk and transitions. Select thermal parameters appropriate to in-service moisture.

Loads and interfaces : Design the lightweight concrete layer, granular cover and asphalt. Check loads, cracking, interfaces and construction conditions.

Placement and acceptance : Define production qualification, density and strength checks, curing, tolerances and opening criteria.

A 305 mm (12 in) lightweight concrete layer can be a starting point for study. Cover and final thickness depend on site and traffic; this is not a universal standard section.

Develop your market with BLC.

Licensing provides a framework to assess local production and commercialization, with agreed know-how transfer and quality control.

Territorial rights, application scope and commercial terms are discussed directly with BLC. Forecasts are based on your costs and volumes.

Compare across service life.

The September 2020 InnovAct Consulting study compares pavement structures and their costs and impacts over 30 years. It provides a basis for assessing alternatives. Project quantities, transport, maintenance and geographic boundaries must reflect the chosen conditions. A scenario result is not a universal material-specific reduction.

References and next steps

R1: MTQ, BC-14-128 / DB-13-47, February 3, 2015, summary of results (Table 1) and durability discussion. R2: Exova 14-06-M0326, September 30, 2014, page 3 (Table 1). Recognition: letter GUQ-01788, March 19, 2015. Life-cycle study: InnovAct Consulting, September 2020.

Additional records on request · Éric Lauzon · +1 514 497-9049