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New cements for Buzzi Unicem

AT LAST, PORTLAND COMPOSITE
II/C-M CEMENTS THAT COMPLY WITH THE
EUROPEAN STANDARD EN 197/5 ARE COMING
TO ITALY AND BUZZI UNICEM IS TAKING
OPPORTUNITY

At the beginning of 2025, Barletta and Guidonia started producing and marketing CEM II/C-M (P-LL) 32.5 R-LH cements, which are characterized by a lower clinker content and low development of heat and hydration, are highly sustainable with select, local and natural components such as pozzolan and limestone, can ensure innovative performances, and have excellent workability and greater durability. Reducing greenhouse gas emissions requires making unique choices for an ever more watchful and demanding market.

Published by the European Community in May 2021 and translated into Italian in September 2021, the EN 197/5 addresses Portland composite cements CEM II/C-M and CEM IV composite cements and incorporates EN 197/1 of 2011 focused on “common cements.” These composite cements are binders with a lower clinker content called SCM (Supplementary Cementitious Materials), which are materials with hydraulic activity (also known as “latent”). They serve as substitutes for clinker and are widely used. Examples of SCM are pozzolans (natural and artificial), calcined clays (CC), fly ash (FA), calcined burnt shale (BS) and



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1. THE FIRST CEM II/C-M (P-LL) PRODUCED IN GUIDONIA AND BARLETTA

Table 1 — Portland-composite cement CEM II/C-M and Composite cement CEM VI

Main types	Notation of the products (types of cement)		Composition (percentage by mass a)										Minor additional constituents	
			Main constituents											
			Clinker	Blast-furnace slag	Silica fume	Pozzolana		Fly ash		Burnt shale	Limestone			
natural	natural calcined	siliceous				calcareous	L ^c	LL ^c						
	Type name	Type notation	K	S	D ^b	P	Q	V	W	T	L ^c	LL ^c		
CEM II	Portland-composite cement ^d	CEM II/C-M	50-64	←----- 36-50 -----→									0-5	
CEM VI	Composite cement	CEM VI (S-P)	35-49	31-59	-	6-20	-	-	-	-	-	-	0-5	
		CEM VI (S-V)	35-49	31-59	-	-	-	6-20	-	-	-	-	0-5	
		CEM VI (S-L)	35-49	31-59	-	-	-	-	-	-	-	6-20	-	0-5
		CEM VI (S-LL)	35-49	31-59	-	-	-	-	-	-	-	-	6-20	0-5

^a The values in the table refer to the sum of the main and minor additional constituents.
^b In case of the use of silica fume, the proportion of silica fume is limited to 6-10 % by mass.
^c In case of the use of limestone, the proportion of limestone (sum of L, LL) is limited to 6-20 % by mass.
^d The number of main constituents other than clinker is limited to two and these main constituents shall be declared by designation of the cement (for examples, see Clause 6).

TABLE OF CEMENT COMPOSITIONS PER EN 197/5 DATED 2021

granulated blast furnace slag (GBS). In specific conditions, up to 20% by mass of limestone can also be used in recipes to improve the development of resistance (synergistic effect with SCM silicates) and promote the efficiency of concrete admixtures. Due to the fact that EN 197/5 is a non-harmonized standard, these cements are not permitted to directly bear the CE marking in accordance with the 2018 Technical Standards for Construction (the national regulations that define the safety and expected performance specifications for the design, execution and testing of structures), the Superior Council of Public Works has issued Technical Assessment Certificates (CVTs) to Buzzi Unicem, certifying the suitability of these new cements for use in structural concretes and confirming their equivalence to “common cements.” Unlike the CE marking, which is

recognized throughout the European Community, CVTs are valid for applications only in Italy. Taking advantage of the availability of good natural pozzolans in several areas of the country (as well as limestone of proven quality), Buzzi Unicem has launched the two new CEM II/C-M (P-LL) 32.5 R-LH cements in Guidonia and Barletta, initially only in bags, as a preliminary test phase for the market. The lower clinker content in the recipe drives towards sustainability in terms of an improved carbon footprint, which is up to 30% less than “common cements” with the same resistance class (32.5). The use of natural materials, almost at “zero km”, frees Buzzi Unicem from complex provisioning of other SCMs such as FA & GBS, and paves the way for innovative solutions toward achieving the intermediate objectives of our Roadmap to 2030, up to ‘Net-zero’ by 2050.

The next steps? Export the model to other plants, strengthen synergies with manufacturers of binders and engage users in a shared path that passes through the development of increasingly high-performance and sustainable applications.