Expan 500-Expansive component

Description:

EXPAN 500 is an expansive cementitious additive which, when mixed in certain proportions with Type II Portland cement (ASTM C-150), results in a Type K expansive cement (ASTM C-845), used mainly in the production of Shrinkage-Compensating Concrete.

EXPAN 500 provides an effective and economical way to prevent cracks caused by drying shrinkage in concrete made with Portland cement.

By producing a controlled expansion stress in the concrete, **EXPAN 500** reduces the tensile stresses that cause shrinkage cracks.

This cementitious material is designed to keep the concrete in a state of compression throughout its service life.

Use and applications:

It is used mainly in the production of Shrinkage-Compensating Concrete.

EXPAN 500 is dosed in different proportions, based on the required properties of the concrete, mainly expansion percentages and compressive strength.

It can also be used to produce expansive grouts and low-shrinkage concretes.

Some of its applications are:

- Construction of industrial floors without contraction joints.
- Containers and storage tanks.
- Low-shrinkage concretes and mortars.

Advantages:

Shrinkage-compensating concrete made with **EXPAN 500** is the best option for building industrial floors where the contraction joints that are indispensable in Portland cement concretes need to be eliminated.

Owing to its properties, shrinkage-compensating concrete with **EXPAN 500** makes it possible to build floor slabs of up to 1500 m² without any contraction or expansion joint.

In storage tanks it minimizes micro-cracks, which affect the permeability of the structure.

Presentation and physical properties:

EXPAN 500 is supplied in bulk or in 50 kg bags. Some of its main physical properties when mixed with Type II Portland cement (ASTM C-150) are:

Restrained expansion in mortar:

Expansion at 7 days Minimum % Maximum %	 0.04 0.10
Expansion at 28 days Relative to the 7-day expansion, %	 115
Compressive strength 7 days, min. kg/cm² (psi) 28 days, min. kg/cm² (psi)	 148 (2100) 246 (3500)

ASTM C-845 Standard - "Standard Specification for Expansive Hydraulic Cement"
*ASTM: American Society for Testing and Materials

Model concrete mixes with Expan 500

Proportions	Low-shrinkage mixes			Non-shrink mixes		
Mix number	1	2	3	1	2	3
Type II Portland cement, kg	255	255	255	279	309	338
Expan 500, kg	27	36	47	53	59	65
Sand ASTM C-33, kg	650	626	570	650	626	570
Size No. 57 gravel ASTM C-33, kg	1068	1068	1068	1068	1068	1068
Water, L	155	159	163	155	159	163
Water-reducing admixture ASTM C-494, mL	710	739	769	710	739	769
Physical properties						
SLUMP, cm	17	17	17	15	15	14
Expansion at 7 days ASTM C-878, %	0.022	0.030	0.040	0.042	0.055	0.072
Compressive strength 7 days, kg/cm²	141	178	203	239	274	309
Compressive strength 28 days, kg/cm²	221	237	251	316	387	450

Note: Model for 1 m³ without air entrainment.

Recommendations:

It is important to follow the recommendations established by the American Concrete Institute committee ACI-223, Standard Practice for the Use of Shrinkage-Compensating Concrete, in order to achieve the planned result in the element to be built.

Standards and specifications for application:

In the production of Shrinkage-Compensating Concrete with **EXPAN 500**, it is recommended to use the following test methods and construction specifications:

CONCEPT	ASTM STANDARD
Standard specification for expansive hydraulic cements	ASTM C-845
Restrained expansion of mortars with expansive cement	ASTM C-806
Restrained expansion of shrinkage-compensating concrete	ASTM C-878

ACI-223: Standard practice for the use of shrinkage-compensating concrete. ACI: American Concrete Institute

Precautions:

EXPAN 500 contains cementitious materials which, when mixed, may cause skin irritation. Avoid direct contact - it is recommended to wear goggles, gloves and an appropriate mask when handling it. Wash exposed areas of skin with plenty of water.

If any material gets into the eyes, remove the safety goggles and rinse thoroughly with water for 10 minutes, then seek medical attention.

"The specifications and properties of this product are not restrictive; should any special characteristic be required, contact technical assistance to obtain appropriate advice."

PPR LATINA

GCC
Grupo Cementos de Chihuahua

Reference translation of the Portuguese technical data sheet (file dated January 13, 2020). In case of discrepancy, the Portuguese version prevails. Translation by Maxim, October 2026.