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Technical information

January 2023

Neolith P3800

a new powder for high performance tile adhesives

Neolith P3800 is a vinyl-versatic copolymer powder used to modify hydraulic binders, and particularly cement based mixes.

Neolith P3800 is particularly suitable in the formulation of high performance cement based tile adhesives and ETICS systems.

Characteristics of Neolith P3800 are:

- a) An excellent adhesion even after water ageing, and at percentages of RDP higher than 3%; this allows the formulation of cement based adhesives which fulfill the requirements of classes C2S1 and C2S2 with water resistances without any bit of a stretch;
- b) A superior flexibility; in turn this is translated into a minor amount of RDP to reach S1 and S2 classes;
- c) An excellent compatibility with cement, guaranteeing a very good workability of mortars;
- c) A very good water retention, increasing the open time of cement based adhesives formulated with Neolith P3800;
- d) A peculiar adhesion which in many cases triggers the tear of the substrate;
- e) A reduced content of organic volatiles which allows the formulation of EC1 plus adhesives according to the regulation Eimcode, with a minimum film forming temperature of 5°C.

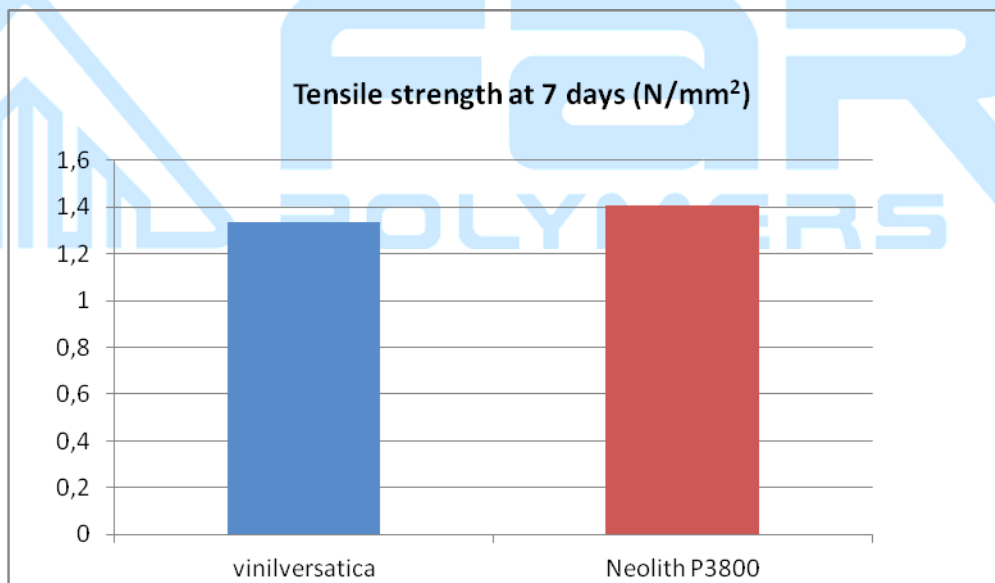
Neolith P3800 is a key ingredient to formulate cement based tile adhesives characterized by:

- a) Improved adhesions;
- b) Setting time;
- c) Improved open time;
- d) Excellent heat and water resistances;

Adhesion tests were made with a basic standard formulation:

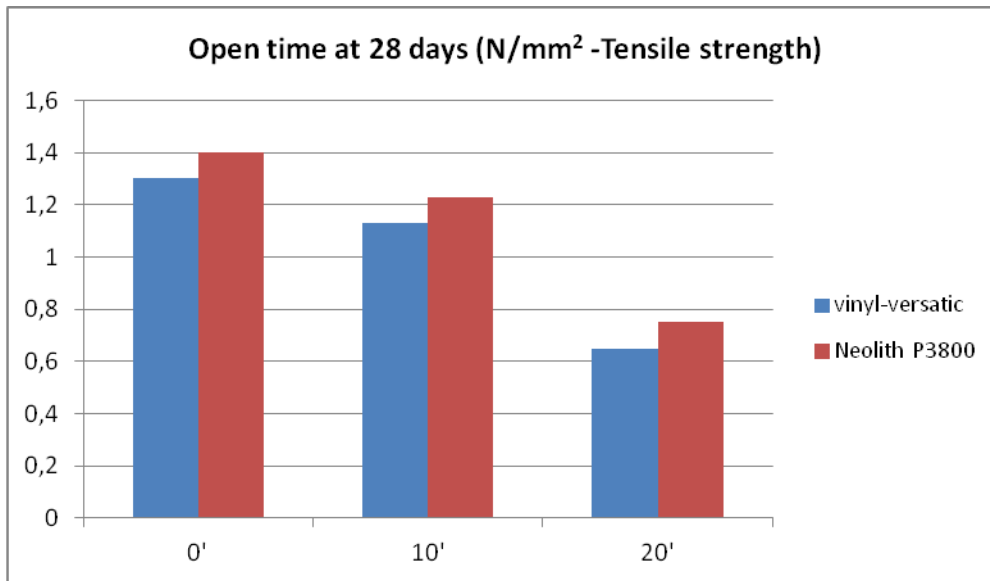
Cement (Portland 52,5R):	36,0 parts
Sand mix in 3 sizes 0,2 ÷ 0,7 mm:	60,4 parts
Modified cellulose:	0,6 parts
Neolith P3800:	3,0 parts
Water:	25,0 parts

Comparative tests were made with a standard vinyl versatic copolymer powder. The adhesions after 7 days in standard conditions (23°C and 50% UR) are reported in the following:



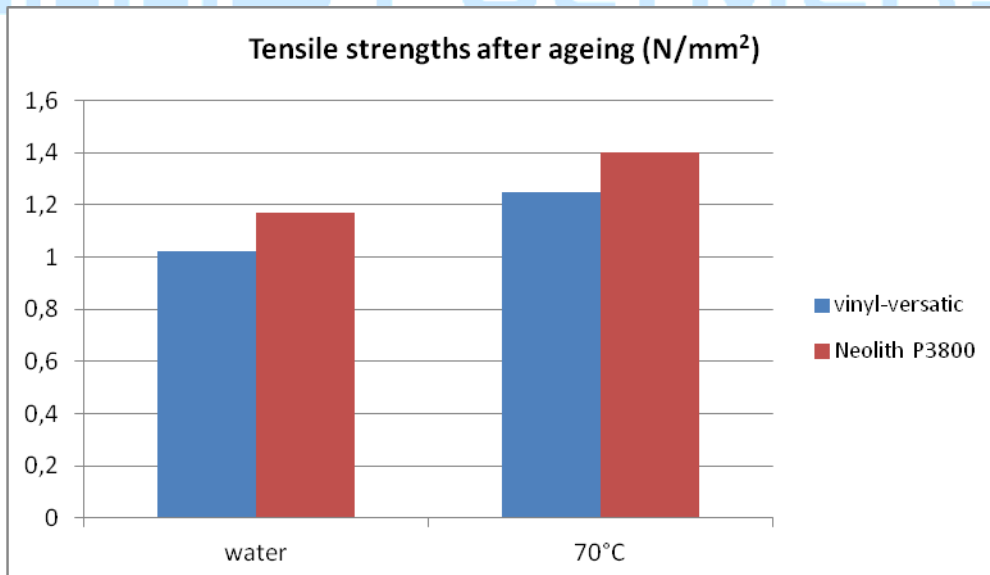
Comment: for all the tests with Neolith P3800 the dynamometer was stopped at 1,4 N/mm², the highest possible full scale with our instrument. Therefore adhesion is higher than 1,4 N/mm².

The adhesions as a function of the open times are:



Comment: the determinations of tensile strengths at different open times were made with tiles type V1 at low water absorption and not with tiles type P1 with absorption 15% which are the ones for the test: this was done in order to "stress" the test conditions and to highlight differences and performances of Neolith P3800. Also here the initial value is over 1,4 N/mm².

Finally water and heat ageing gave the following:



Comment: once again the value after heat ageing is over 1,4 N/mm².

Flexibility tests were performed with the following formulations:

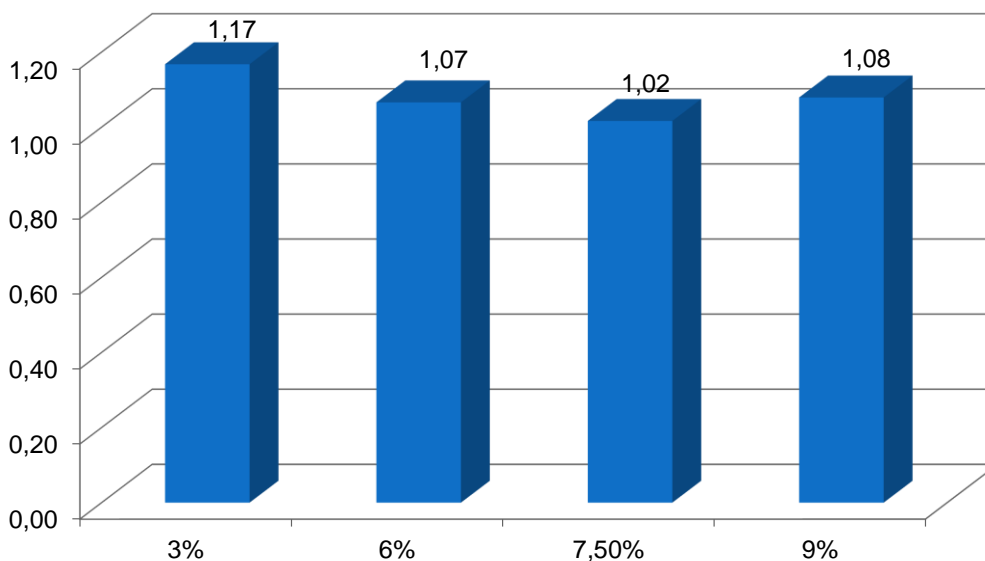
Neolith P3800	3	6	7,5	9
Cement (Portland 52,5R):	37	35,92	35,41	34,91
Sand mix 3 sizes 0,2 ÷ 0,7 mm:	59,1	57,20	56,23	55,24
Calcium formiate	0,4	0,39	0,38	0,38
Modified cellulose	0,5	0,49	0,48	0,47
Total	100,0	100,0	100,0	100,0
Water	30	30	30	30
Flexibility (mm)	2,4	4,2	4,9	>5

The tests have highlighted a value close to 2,5 mm with a 3% of RDP in the dry mix; at 7,5% flexibility is already close to the minimum value for S2 (5 mm) and at 9% S2 class is more than fully reached.

Of course flexibility is related to RDP/cement ratio; therefore when using higher percentages of cement, RDP content must be adjusted accordingly.

With the same formulations, water resistance was tested, always showing values higher than 1 N/mm² and showing no or little dependence on RDP content.

Tensile strength (N/mm²) after water ageing



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All the data above are the results of tests in our laboratory. Customers must test the product for each application, because the results are effected by a large number of types of ingredients, conditions and substrates which can not be covered by our tests.
03-2018