

## Physical & Mechanical Data

### St Astier Natural Hydraulic Limes (NHL)

	NHL 5	NHL 3.5	NHL 2
Combined Silica bands	12-16	8-12	4-8
Available lime %	15-20 (>3)	20-25 (>9)	50-60 (>15)
Density (gr/litre)	650/750 (600-1,000)	600/660 (500-900)	450/520 (400-600)
Surface cover (cm <sup>2</sup> per gram)	8,000	9,000	11,000
Granulometry: Residue @ 0.09mm	7%	6.5%	5%
Whiteness Index (Y)	67	72	76
Compressive strength*	*5-9 ( <b>5-15</b> )	*3.5- 8 ( <b>3.5-10</b> )	*2-5 ( <b>2-7</b> )
Flexural strength N/mm <sup>2</sup> *	2.30	2	1
Soundness ( <b>max. 2mm</b> )**	<1mm	<1mm	<1mm
Set, beginning ( <b>1-15 h</b> ) ***	3-4	5-6	8-10

FIGURES IN BRACKETS AND ITALICS REFER TO THE INCOMING EU 459-1 NORMS

\* N/mm<sup>2</sup> @ 28days. Measured in accordance with EU Norm EN 459 on EU Std. Mortars @ 1:1.3 mix ratio. Values vary depending on dosages and sands used.

\*\* Expansion (soundness) measured according to EN459-2/5.3.2.2 and French Norm NFP15-311, not using Le Chatellier Test which allows expansion value up to 20mm.

\*\*\* On mortars. Not on lime paste.

Tests on common mortar mixes									
Binder : Sand Ratio	1 : 2			1 : 2.5			1 : 3		
	NHL5	NHL3.5	NHL2	NHL5	NHL3.5	NHL2	NHL5	NHL3.5	NHL2
<b>Set (beginning) hours</b>	3	5	8	3	6	9	3	6	9
<b>Elasticity Moduli 28 days N/mm</b>	10800	9010	9025	11000	9000	9800	10000	8970	9000
6 months	18000	16250	12600	17050	13505	12030	16900	12450	11800
12 months	18510	15280	12515	17280	13620	12030	16150	13150	11900
<b>24 months</b>	21500	17480	13375	18020	13785	12000	17430	13670	11750
<b>Compressive strength</b>									
7 days N/mm <sup>2</sup>	1.96	0.75	0.62	1	0.57	0.53	0.88	0.53	0.47
28 days	2.2	1.88	1.48	2	1.47	1.36	1.5	1.34	1.25
6 months	7.31	7.1	3.84	5.91	5.34	3	5.32	3.94	2.88
12 months	9.28	7.5	4	8.44	5.9	2.9	6.5	3.9	2.9
24 months	10.81	8.63	4.25	8.81	6.00	3.00	7.8	3.97	2.75
<b>Permeability (vapour exchange)</b>									
<b>Gr. of air x m<sup>2</sup> x hour x mmHG</b>	0.55	0.62	0.68	0.6	0.64	0.7	0.69	0.70	0.71
<b>Shrinkage mm.m</b>	0.13	0.44	0.60	0.25	0.60	0.84	0.35	0.67	0.89
<b>Capillarity g.min</b>	0.88	1.18	3.05	2.54	4.7	7.84	4.61	6.3	8.7

**For further Guidance, contact your St Astier Distributor.**

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