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^2 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 **(5-15)**	*3.5- 8 **(3.5-10)**	*2-5 **(2-7)**
Flexural strength N/mm^2*	2.30	2	1
Soundness **(max. 2mm)****	<1mm	<1mm	<1mm
Set, beginning **(1-15 h)** ***	3-4	5-6	8-10

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

*** N/mm^2 @ 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**	**NHL 5**	**NHL3.5**	**NHL2**	**NHL5**	**NHL3.5**	**NHL2**
Set (beginning) hours	3	5	8	3	6	9	3	6	9
Elasticity Moduli 28 days **N/mm**	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
24 months	21500	17480	13375	18020	13785	12000	17430	13670	11750
Compressive strength									
7 days **N/mm^2**	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
Permeability (vapour exchange) Gr. of air x m^2 x hour x mmHG	0.55	0.62	0.68	0.6	0.64	0.7	0.69	0.70	0.71
Shrinkage mm.m	0.17	0.59	0.75	0.13	0.44	0.60	0.15	0.25	0.51
Capillarity g.min	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.