deGruchy's LIME WORKS.us™
Makers of ecologic® Brand
Mortar & Plaster For Historic Restoration and Green Building
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"Green" NHL

St. Astier Natural Hydraulic Lime, or NHL, is a 100% natural product and does not contain any additives. It is one of the "greenest" materials used in construction. This is due to its purity, its calcium carbonate composition, its longevity and potential for allowing the materials to be reused or recycled, and the result of a low energy production process.

- The amount of energy used at the production stage is one-quarter of what is needed to produce cement. Consequently, the release of CO_2 into the atmosphere is reduced considerably. Furthermore, NHL reabsorbs most of the CO_2 during the curing process, while cement reabsorbs none.
- St Astier products have received the LABELVERT EXCELL or "Green Label" in France. This label guarantees the total absence of contaminants and any risk of pollution. It also authorizes the use of this product in chemically sensitive areas such as living spaces, wine cellars, etc. The total absence of aromatic or polycyclic elements in NHL are proof of its purity.
- The absence or lower concentration of detrimental chemicals like tri-calcium aluminate, potassium and sodium oxides, (which are ever-present in cement), protect NHL mortars from chemical reactions such as sulfate or alkali attacks.
- The total absence of Chromium VI, eliminates the risk of skin cancer associated with clinker cement.
- Material used in construction with NHL may be reused or recycled. In addition, the NHL mortar itself may be recycled in a number of ways, such as an aggregate for new lime mortars, fertilizer, (NHL is calcium carbonate), or it can be used for water purification or hazardous waste treatment.
- Breathability, elasticity, plasticity, gradual development of strength, low shrinkage, longevity, CO_2 absorption, self-healing, are all highly desirable. These traits, along with sustainability and greenness, are only some of the qualities of St. Astier Natural Hydraulic Lime (NHL).
- The change-of-use of older buildings through adaptation or preservation and restoration maximizes the need for the environmental recovery of materials. It is essential to ensure the long-term survival of these structures with compatible materials. Some buildings have been in use for centuries; there is no logical reason that this cannot continue. Preservation, adaptation and restoration can have significant environmental advantages over new construction. Aside from the environmental impact, there is the aesthetic value in preservation. Natural Hydraulic Limes have a significant part to play in this process.
- Material longevity is unsurpassed when applied and maintained correctly and its life will span over several generations.

Life Cycle Assessment (LCA) for Lime Mortar

CO_2 Emissions in lbs/yd^3 of mortar	**Portland Cement 1:2**	**Cement Hydrated Lime 1:1:5**	**NHL 2 1:2**	**NHL 3.5 1:2**	**NHL 5 1:2**
CO_2 emission (Fuel)	381	206	68	62	75.5
CO_2 emission (de-carbonation of product)	520	244.5	90	85	99
Total CO_2 emission	631	450.5	158	147	174.3
CO2 Re-Absorption	Negligible	44.5	74	65	60.5
Total resulting emission of CO_2 (including fuel)	631*	406	84	81.5	114
	Save 0%	Saves 36%	Saves 87%	Saves 87%	Saves 82%
Shipping from France to East Coast (NHL) or average trucking from plant to distributor plant (cement)	60	60	21	25	28
Total resulting emission of CO_2 (including transportation)	691	466	105	106.5	142
	Saves 0%	Saves 33%	Saves 85%	Saves 85%	Saves 79%
Shipping from France to West Coast (NHL) or average trucking from plant to distributor plant (cement)	40	40	42	48.5	56
Total resulting emission of CO_2 (including transportation)	671	446	126	130	170
	Saves 0%	Saves 33%	Saves 81%	Saves 81%	Saves 75%

*Source: Portland Cement Association, U.S. Cement Industry Fact Sheet from EBN Volume 2, No. 2