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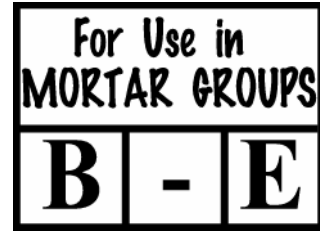
Product Description: Virginia Lime Works NHL 3.5 Gray is a Natural Hydraulic Lime for Historic Preservation, New Construction and Ecologically Friendly Building. Of the four Natural Hydraulic Limes available through Virginia Lime Works, NHL 3.5 Gray offers moderate compressive strengths and vapor permeability, high sulphate resistance, moderate setting rates, and excellent workability.

Product Uses: Brick and Stone Masonry, Repointing, External and Internal Plasters and Stuccos, and Grouts.

Possible Volumetric Mix Design by Applications*

- Brick Masonry/Repointing: 1 part NHL to 2-2.5 parts sand
- Stone Masonry/Repointing: 1 part NHL to 2-3 parts sand
- Rendering/Stucco: 1 part NHL to 2-2.5 parts sand
- Grouting: 1 part NHL to 0-1 part sand

*These mixes represent general purpose mortars, richer or leaner mixes may be required depending on application.



Mixing Directions for Mortar or Plaster: Mix 1 portion of NHL 3.5 Gray with determined (see above) portions of sharp, clean, and well-graded sand and water. Blend thoroughly and add water slowly to achieve a workable mix. Take care when adding water whereas too much water will expand your mix and cause potential problems such as shrinkage cracks and frost damage. For Mechanical Mixing in a standard paddle mixer: Add lime and water together to make a paste, add sand slowly and then additional water to desired consistency.

Pre-Care: On the day prior to working control absorption by thoroughly dampening substrate by fine mist spray (depending on conditions this may entail dampening for additional time). Ensure there is no standing water or over-saturation before application. If the substrate is retaining moisture it may be attributed to various conditions which would need to be corrected before work begins. Issues such as detailing, positive drainage, etc. should be dealt with before repointing commences.

Reworking: It is possible for NHL 3.5 Gray to be re-worked and reused for up to 8 hours. However, if when re-working the mortar, a significant addition of water is needed, the material's hydraulic components could have already reacted too far and the material should be discarded.

Post-Care: Protect work from drying winds, frost, direct sun, and rain for at least 7 days, although some conditions may deem it necessary to cure for longer periods of time. Allow the mortar to cure slowly during this time by protecting with burlap, plastic, and fine mist spray if necessary. If working in freezing conditions, care must be taken that the mortar does not freeze during its curing (which may entail protection for extended periods of time).

PRODUCT TECHNICAL DATA

Expansion (mm)	0.3	Fineness to 90µ	5.9
Blaine Value (cm ² /g)	10033	Fineness to 200µ	1.0
Bulk Density (kg/dm ³)	0.754	Free Water (%)	0.33
Setting Times (min)	156	Real Density (g/cm ³)	2.60
SO ₃ (%)	2.18	Penetration (mm)	14.7
		Free Lime (%)	20.9

COMPRESSIVE STRENGTH INFORMATION (PSI)

(can vary due to sand and water contents)

Lime	Lime/Sand	7 Days	14 Days	28 Days	56 Days	91 Days	182 Days	365 Days	730 Days
NHL3.5	1:1	87.02	253.82	406.11	565.65	659.92	812.21	964.50	1109.54
NHL 3.5	1:1 ½	72.52	244.81	369.85	514.88	609.16	746.94	877.48	1016.71
NHL 3.5	1:2	49.31	156.64	263.97	371.30	445.26	552.60	659.92	767.25
NHL3.5	1:2 ½	34.81	94.27	168.24	242.21	292.98	366.96	440.91	515.88
NHL3.5	1:3	29.01	76.87	145.04	214.66	262.52	330.69	400.30	468.47
NHL3.5	1:4	21.76	50.76	79.77	145.04	174.05	224.81	282.82	330.69
NHL3.5	1:6	14.50	29.01	50.76	72.52	94.27	145.04	188.55	221.91

MORTAR GRADE INFORMATION FOR APPLICABLE NHL 3.5 G MORTARS (GUIDE ONLY)**

★★★★★	Very High	★★★★	High	★★★	Moderate	★★	Low	★	Very Low
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Grade	NHL	(L/S) Ratio	Capillarity	Frost Resistance	Sulphate Resistance	Frost & Sulphate Resistance	Carbonation
B	3.5 G	1/3	★★★★	★★★★	★★★★★★	★★★★	★★★★
C	3.5 G	1/2	★★	★★★★★	★★★★★★	★★★	★★
D	3.5 G	1/1.5	★★	★★★★	★★★★★★	★★★★	★★
E	3.5 G	1/1	★★	★★★	★★★★★★	★★★	★★

**Please see our complete Mortar Grade Information Chart for information on mix designs and applications.

The information contained in this datasheet is provided in good faith. The above details are given for information purposes only. Virginia Lime Works reserves the right to alter this datasheet. This datasheet is not a specification.