Products Technical Data

Repair & Paint Lime Plaster Walls

Exterior walls: Restoration

In certain areas, it is necessary to repair the wall before applying the lime plaster finishing. The contractor shall consider use bricks of the appropriate sizes to fill the void and glue it with lime and brick dust mortar. Before applying the lime plaster finish, repaired areas need to be curing for at least seven (7) days; moisture needs to be kept during the curing process. The surface needs to be clean before starting any work: The surface must be clean, moist, and free of dust, dirt, grease, fungus, and any other type of contaminant. Remove the mildew by scrubbing with a solution of laundry detergent and 1/4 of hypochlorite type household beach and 3/4 of water. After scrubbing, rinse with low pressure water (do not use water with high pressure).

The lime plaster that shall be used is Saint-Astier Natural Hydraulic Lime NHL 3.5, or a similar product to be approved by SHPO.

Exterior walls: Lime Plaster

The surface must be clean, moist, and free of dust, dirt, grease, fungus, and any other type of contaminant. Remove the mildew by scrubbing with a solution of laundry detergent and 1/4 of hypochlorite type household beach and 3/4 of water. After scrubbing, rinse with low pressure water (do not use water with high pressure).

The lime plaster to be used is Saint-Astier Natural Hydraulic Lime NHL 3.5 (www.limeworks.us) or a similar product to be approved by SHPO. The lime plaster will be applied over the moist surface per layer, each layer cannot exceed 3/8 inches of depth; between the application of each layer, there needs to be a curing process for at least seven (7) days. During the curing process, moisture needs to be kept. After applying the last layer of lime plaster, there shall be a curing process for a minimum of twenty-eight (28) days before commencing the painting process. Moisture needs to be kept during the first seven (7) days of the curing process. After the 28 days of curing period, a PH test will be performed by the project inspector before paint is applied.

Exterior Walls: Paint Restoration

To prepare the surface, additional cleaning of the walls will be necessary. Given the conditions of the site, exposure to salt residue and other atmospheric conditions, cleaning will be performed in sections and with no more than two (2) days in advance to begin painting tasks.

The surface must be clean, dry, and free of dust, dirt, grease, fungus, and any other type of contaminant. Remove the mildew by scrubbing with a solution of laundry detergent and 1/4 of hypochlorite type household beach and 3/4 of water. After scrubbing, rinse with low pressure water (do not use water with high pressure). Before starting the painting process, it is necessary to confirm that the walls are completely clean, free of chalk, salt, or any other impurities that could impair the adhesion of the new paint. If necessary, washing the walls should be repeated until it is ensured that the surface is completely clean and free of particles.

After the surface is dry, the painting process begins with the application of one coat of Ready Wall Surface Conditioner Master Paints, or similar product to be approved by SHPO. The first coat of paint should be applied within 1 to 3 days of applying the conditioner. Two coats of Restaura Special lime paint from Master Paint will be applied, or a similar product to be approved by SHPO; between each coat a drying time of approximately 24 hours should be given.

A different approach will be carried out on the repaired sections of walls; two coats of Best Guard Primer & Sealer (including a 50% of color) from Master Paint, or similar product to be approved by SHPO, will be applied. Each coating needs approximately 24 hours of drying time. Two (2) coats of Restaura Special lime paint from Master Paint, or similar product to be approved by SHPO, will be applied; between each coating, a drying time of approximately 24 hours shall be enforced.

Last Modified: May 6, 2020

Saint-Astier

Natural Hydraulic Lime 3.5 (NHL 3.5)

Saint-Astier Natural Hydraulic Lime 3.5 (NHL 3.5) is an industry standard for historic restoration. It is used as the sole lime binder for recreating durable mortar, stucco and plaster formulas wherever NO Portland cement was originally used. Its properties also make it effective for building new sustainable structures where lower embodied energy materials are desired. Saint-Astier NHL is pure and natural, free of additives and has been in use throughout the world for over 165 years.

NHL 3.5 is a medium strength or "moderate" hydraulic lime. It is used where a respectable amount of free lime, (that which is responsible for self-healing), is desired along with an excellent modulus of elasticity and high vapor exchange is maintained for the NHL range. All Saint-Astier Natural Hydraulic Limes set with air and water. NHL 3.5 reaches its initial cure in about three days. This lime is used for making soft yet durable pointing mortars which when mixed together with aggregates and water can be used to repair the joints around softer historic bricks and stone or to make base coats of interior lime plaster and all exterior coats of lime render (stucco) which will withstand extreme freeze/thaw cycles.

Benefits

The same unique deposit of limestone located at Saint-Astier quarry in France was used by the Romans for structures that still stand today. Saint- Astier is environmentally friendly because the production of Saint-Astier NHL emits 80% less carbon into the atmosphere during its production than the C02 emissions from the production of Portland cement. During curing, Saint- Astier NHL continues to absorb and sequester carbon dioxide starting at the beginning of its life cycle. This further reduces the overall carbon footprint of a project.

Maintaining good vapor permeability in the exterior envelope of an historic building will allow the historic masonry units themselves to have an even longer service life thus keeping them in a better state of conservation. Vapor permeability is also key to the longevity of new sustainable construction projects. Saint- Astier NHL has low capillarity and high vapor permeability. Independent studies have shown Saint- Astier NHL to have a higher level of vapor permeability than all mortar mixes containing any amount of Portland cement. This remains true while achieving comparable strengths for many applications without the need to add Portland cement or a Pozzolan to achieve proper and effective mix designs.

Saint-Astier NHL is completely immune to sulfates and salts. Alkali-silica reactions, common with Portland cement mortars do not take place with Saint-Astier Natural Hydraulic Limes. This is due to the absence of tri-calcium aluminates only created in high temperature fired kilns which are required for the production of Portland Cement.

Saint-Astier NHL has an excellent modulus of elasticity. Unlike Portland cement-based mortars, Saint-Astier NHL mortars limit the requirements for strategically placed control joints in walls. The breathability of mortars made with Saint-Astier NHL also reduce, if not eliminate, the requirement for weep vents in curtain or veneer walls.

Eco-friendly Characteristics:

- High vapor exchange qualities
- 80% less carbon emissions than the Portland cement alternative
- Re-absorption of CO_2 in curing
- Will not deteriorate timber

Mixing to make Mortars and Plasters

Saint-Astier NHL 3.5 must be mixed with natural or manufactured sharp sand with at least 4 grades forming a substantial part of the sand and no more than 3% of particles smaller than grade #200 (0.075 mm). Sand must be clean and free of clay and silts. Clean, potable water is recommended. Sea water can be substituted. Add more water only until the mix contains the minimum amount of mixing water to become workable. Keep water ratios consistent between batches to ensure consistency in material performance and appearance. Mix for a minimum of ten minutes, let rest for five minutes (for hydration) then continue mixing for another five minutes. Judge workability only after continuous mixing.

DO NOT ADD PORTLAND CEMENT, LIME, FLY ASH, POZZOLANS, ACCELERATORS, RETARDERS TO THE MIX.

General Application

Mist the substrate and any previous lime mortar application with water immediately before a new application but only as a slight dampening to control absorption. No standing water should remain during a new application. If any substrate is retaining inordinate amounts of moisture due to rising damp, bad flashing or moisture from a chimney cavity, this must be corrected before new work begins. ASTM has reports on normal absorption rates for most building materials not explicitly covered by individual manufacturers.

Wait a minimum of 10 days between coats of stucco (render). Within 24 hours of an installation rub closed any cracks that form before the next coat is installed. Saint-Astier NHL mortar can be reworked within 24 hours depending on weather conditions. Protect the new work for 72 hours from wind, direct sun, freezing temperatures, excessive heat and rain.

Do not apply at temperatures below 40ºF (4ºC) or above 85ºF (29ºC).

Aiding the curing of the installed material:

Protect the work outside by using spring clamps to hold burlap or jute a few inches away from the work and not in contact to avoid staining the work. Wet the work and the covers a few times a day for a three day curing period. Breathable fabric covers allow moisture to slowly escape and encourage a slow cure. Tarps could be used on the outside of the scaffold to protect from hot sun, driving rain and drying winds.

Disposal: Sweep bulk material into containers and dispose of in a landfill in accordance with all local, state and federal regulations. The cured product is non-hazardous.

Technical Data

Strength factor	3.5 (moderately hydraulic)
Compressive strengths	870 psi @ 24 months w/ Lime:Sand mix ratio of 1:2.5
Residue	@ 0.09mm: 6.5%
Available (free) Lime $Ca(OH)_2$ after slaking	25%+
Packing	55 pound bags
Whiteness index	72
Surface Cover	274 sq.ft/oz
Density	Typical 40.6 lbs/cu.ft

Average coverage using a Lime : Sand mix ratio of 1:2.5

- Repoint about 300 sq. ft. of standard brick joints @ ⅜" wide and ¾" deep, per bag
- Repoint about 50 sq. ft. of rubble stone wall @ 1" wide and 1 ¼" deep, per bag
- Lay about 160 standard brick per bag
- Stucco/Plaster 150 sq ft @ ⅜"

Safety:

Wear adequate protective clothing to avoid prolonged contact with the mortar. To avoid dust contact with eyes and possible inhalation wear glasses and the appropriate dusk mask especially in areas not properly ventilated.

All LimeWorks.us publications are offered on a complementary basis and as a general guide for our customers without guarantee to the accuracy or completeness of any information contained in them. The purchaser is solely responsible to determine the suitability of any LimeWorks.us product for any intended use and purpose.

DATASHEET

NHL 3.5

(Chaux LC**** Pure)

Main data and application recommendations

***Product specification**: Pure and Natural Hydraulic Lime (NHL). Contains no additives. Conforms to European Norms (EN 459) and French Norm NFP 15.311*

Strength factor: 3.5 (Moderately hydraulic)
Residue @ 0.09 mm: 6.5%
Density (volumetric weight) : typical 40.6lbs/ft^3
Available (free) lime after slaking $Ca(OH)_2$*: 25% +*
***Packing**: 55lb. Bags*

Whiteness index: 72
Surface cover 274 sq.ft./oz
Expansion : < 3/64"
Residue of quick lime after slaking: < 1%
***Shelf life**: 8-12 months kept sealed and dry*

MORTARS	**Compressive strength PSI**				**Elasticity Moduli (Mpa)**		
MIX RATIO	**EN459***	**1 : 2**	**1 : 2.5**	**1 : 3**	**1 : 2**	**1 : 2.5**	**1 : 3**
7 DAYS		109	83	77			
28 DAYS	3.5*	273	213	194	9010	9000	8070
6 MONTHS		1029	774	571	15260	13501	12450
12 MONTHS		1087	855	565	15280	13620	13150
24 MONTHS		1251	870	576	17480	13785	13670
Consumption for 1cu. yd of mortar lbs. +/- 10%		514	411	364			

* Incoming European Norm EN 459 (mortar ratio 1:1.3 with ISO 679 Sand)

Mixing: can be mixed in regular mortar mixers.

Application by spray gun: possible. Please consult us.

Working temperatures: not below 40°F or above 85°F. Make sure that high suction materials are thoroughly dampened before application. Avoid rapid drying due to high temperatures or strong winds by curing with a light water mist several times a day if necessary.Protect from frost, rain, direct sun and strong wind for a minimum of 72 hours.

SUITABLE FOR LATH WORK / LIME CONCRETE/INJECTION/GROUTING** **see relevant sheets.

Reworking: possible within 12 hours.

DATASHEET

NHL 3.5

(Chaux LC**** Pure)

Main data and application recommendations

Mortar composition:MASONRY/POINTING/ CAPPING/ BEDDING/ ASHLAR

Binder: sand ratio: from 1:1.5 to 1:3 depending on the support/background conditions, the size of the joint and the fineness of the sand. Always use well graded sands (#6 down to #200).
See also "*General Guidelines – Sands for NHL mortars*".

RENDERING

A. Pricking up coat (if required)	(1/8"-3/16")	1 VOLUME NHL 3.5 : 1.5 VOLUMES of SAND Cast on.
B. Undercoat	(5/8"-3/4")	1 VOLUME NHL 3.5 : 2 VOLUMES of SAND*
C. Finishing	(3/16"-3/8")	1 VOLUME NHL 3.5 : 2.5 VOLUMES of SAND

With very fine sands possibly containing clays the binder content may have to be reduced.

**At this dosage the consumption is approx. 2.05lbs of NHL 3.5 per sq. yd. for each 1/8" thickness.*

Please also refer to General Guidelines: *NHL Renders*.

The above details are given for information purposes only. Final dosages and application should be checked with our technicians. The Factory reserves the right to alter specifications.

SPEC DATA SHEET

Restaura Special
Lime Paint

SECTION 1 - PRODUCT DESCRIPTION

Restaura is a specialized protecting and decorative coating for the restoration of buildings and historical structures. This products combine science and art being development in two kinds of concentrations; lime wash 1 and 5, with different depth levels that create its antique color and appearance. Restaura possesses high water vapors and carbon dioxide permeability, characteristics absent on regular conventional latex paints, thus avoiding erosion in delicate substrates such as bricks, antique masonry and gypsum, because of its versatility Restaura can be used as decorative finish and concrete surfaces protector.

SECTION 2 - TYPICAL USE

Restaura is designed for give a protective and decorative coating on interior and exterior concrete surfaces. It has been created for the restoration of historic structures and buildings. Excellent for new buildings and structures. Use over Concrete, Masonry, Limestone, Clay Bricks, Natural &Artificial Stones.

SECTION 3 - PRODUCT ADVANTAGE

- Ready to use
- High adhesion
- High permeability to water vapors
- High permeability to carbon dioxide
- High protecting and decorative coating for the restoration of buildings and historical structures
- Low odor
- Low VOC 13 grams/liter
- Excellent freeze / Thaw resistance

SECTION 4 - COLOR

Available in more than 4,000 colors from our “Master Color Selector.”

SECTION 5 - GLOSS

Flat finish

SECTION 6 - COMPOSITION

Mature Lime Putty, Natural Pigments and proprietary products Free of lead, chromates and mercury.

SECTION 7 – PHYSICAL AND CHEMICAL PROPERTIES

Viscosity: 90 – 100 Ku (Stormer)
Flash Point: None
Weight per gallon 12.05 lbs. +/- 0.15 lbs
Solids per Volume: 30%

SECTION 8 – SURFACE PREPARATION

Surface cleaning is generally the first step in restoration. It is fundamental to know the materials with which the structure was originally built and those used in posterior reparations. The most common method is the use of water, but it shouldn't be used with high pressure, since it can penetrate more and create erosion problems on the substrates. All the substrates must be free of contaminants such as dust, grease, chalk residue, mold, oil corrosion, lose paint or paint in bad conditions. Remove any existing mildew growth by scraping with a steel brush and solution of ¼ gallon of household bleach to three quarts of water. Apply clean water after scraping and let it dry completely before proceeding to paint. Use safety glasses and rubber gloves to avoid skin and eyes contact.
New Concrete & Masonry: All new surfaces should be cured for 60 days for a proper adhesion and paint durability. It is recommended to use Restaura Primer over new surfaces prior to applying final coating.
Previously Painted Concrete & Masonry: Previously painted surfaces that are in good condition only need to be cleaned. Sand any shiny areas and clean resulting dust. Worn out, lose, chalky, or badly cracked painted surfaces should be totally cleaned by using a steel brush or spatula. Apply one coat of Restaura Primer prior to final coating.

SECTION 9 - APPLICATION

Restaura Lime Paint can be applied with a brush, roller or atomizer. Wait at least twelve (12) hours of drying time between each application.

Recommended Film Thickness: 2 mils dry / 5 mils wet
Coverage: 235 square feet per gallon
Thinning: Water
Dry time: 1 hour to touch
12 hours To recoat
Hard dry: 24 hours

SECTION 10 – APPLICATION TOOLS

Apply using brush, roller or atomizer (conventional or airless).

SECTION 11 – CAUTION

Do not apply during rainy days. Do not take internally. Close container after each use, use safety glasses and rubber gloves to avoid skin and eye contact. Keep out of reach of children

SECTION 12 – FIRST AID

In case of skin contact, remove product from skin with soap and water. If eye contact occurs, flush eyes thoroughly with water for 15 minutes and get medical attention. If the product is ingested get immediate medical help. For more information, ask for the products Material Safety Data Sheet (MSDS) available at Master Paints & Chemical Corp.

SECTION 13 – PACKAGING

1 gallon and 5 gallon pails

ABATRON

ISO 9001 Registered

LiquidWood® and WoodEpox®

Wood Restoration System

The Standard to Restore and Replace Wood

LiquidWood® Reinforces, rebuilds and waterproofs wood by hardening after penetrating. Regenerates rotted window-sills, frames, structural and decorative parts, furniture, columns, boats, floors. Primer for WoodEpox.

WoodEpox® Structural adhesive putty. Most versatile, high-strength, no-shrink adhesive paste to fill, repair and replace wood and other materials in structures, walls floors, furniture, sculptures. A standard in workshops, plants, buildings, museums, shipyards and homes.

Specified by U.S Government agencies, state and national restoration centers, museums, architects and other professionals, LiquidWood and WoodEpox represent the greatest advance in wood restoration history. They give new life to rotted, severely damaged wood, and are the only hope for parts that cannot be replaced because of size, shape or artistic reasons. Restored pieces are fully functional and often stronger and more durable than the original. Repairs are permanent.

Restore Rotted Wood in Three Easy Steps

1 Prepare Wood

Remove old paint, dirt, and debris. Clean oily surfaces with detergent, water, or solvents.

2 Apply LiquidWood



To strengthen the wood, apply LiquidWood with a brush, or pour directly on the surface. LiquidWood penetrates and hardens.

3 Apply WoodEpox



To rebuild missing pieces of wood and fill cracks and holes, apply WoodEpox. When hard, it can be sanded, stained, painted, and nailed.



LiquidWood®

Deep penetrating wood consolidant that regenerates and waterproofs rotted, dried-out, or spongy wood. Restores structural strength and durability to wood fibers. With LiquidWood, a piece of deteriorated wood that could crumble under finger pressure can be impregnated and restored to a rigid, durable, water and weather resistant wood superior to the original. The hardened mass can be sawed, planed, routed, carved, drilled, nailed, sanded, glued, and painted. LiquidWood is also a primer for WoodEpox.

Uses: LiquidWood is ideal for regenerating and waterproofing rotted, dried-out or spongy window sills, thresholds, window and door frames, columns, stair steps, balustrades, floors, capitals, moldings, doors, shutters, indoor and outdoor furniture, archaeological and art restoration, boats, and millwork of all kinds.

Features & Benefits: LiquidWood has exceptional adhesion, structural strength, versatility, permanence, dimensional stability, and water resistance. LiquidWood A and B are easy to use, are 100% reactive compounds, and contain no VOC's or noxious odors.

Technical Characteristics: Contents: LiquidWood consists of 2 clear, epoxy liquids: resin (A) and hardener (B). When A and B are mixed together in equal volumes, by simple stirring, a blend is formed with unique properties to impregnate and restore wood and other porous masses. Application: pour or brush on the wood where it penetrates the fibers and hardens into a water-resistant, distortion-free, high-strength mass in hours or minutes. 100% solids. 1/1 ratio. 30 minute pot life.

		Kg/cm²	Mpa	Psi
Tensile Strength		103	10.1	1460
Compressive Strength		366	36	5210
Flexural Strength		63	6.2	900
Hardness Shore D	42			
Elongation	84%			

"I purchased your wood restoration kit this summer and used LiquidWood and WoodEpox in order to repair damaged windowsills that I thought were beyond repair. I had rotted, wet, spongy windows in multiple spots throughout my home. I was absolutely amazed at how well your wood restoration kit worked, and I'm especially astonished by the properties of WoodEpox."

P.S., Homeowner
Fayetteville, North Carolina









WoodEpox®

Shrink-free adhesive putty **wood replacement compound** that can be used in any thickness in structural and decorative applications to replace, repair, extend, or fill wood and other materials.

Uses: WoodEpox is ideal for repairing, replacing, or adding to wood and most rigid surfaces, as well as to dried out, rotted or spongy wood consolidated with LiquidWood. Use on windowsills, thresholds, window and door frames, columns, stair steps, balustrades, floors, capitals, moldings, doors, shutters, indoor and outdoor furniture, statues, archaeological and art restoration.

Features & Benefits: WoodEpox bonds permanently with high strength to most surfaces. It fills cracks, holes, and voids of any size without the shrinking and crumbling of common wood fillers. It can replace or add missing or new sections in window frames and sills, furniture, sculptures, structural and decorative components, indoors and outdoors. Because of its strength and durability, it is a truly permanent solution where alternatives would surely fail.

WoodEpox succeeds because it can be painted, stained, wood-grained, sawed, nailed, planed, sanded, carved, and machined like wood. Can be cast into shapes and sculpted by hand before hardening. It can also be carved after hardening. Bonds equally well to ceramics, concrete, metal, glass, fiberglass, and most rigid surfaces. Contains no VOC's or noxious odors. It has a light, neutral color that can be changed, while mixing with stains, dyes, or pigments. Has a no slump paste consistency that allows it to be applied like a putty to fill gaps, holes, or to build-up virtually any thickness and shape.

Technical Characteristics: Contents: WoodEpox is a light-weight epoxy adhesive system consisting of 2 components: resin paste (A) and hardener paste (B). When A and B are mixed in equal volumes, the blend hardens within 1-2 hours into a light-weight, non-shrinking, tough adhesive mass with high dimensional stability, chemical, water, heat and weather resistance. 100% solids. 1/1 ratio. 20 minute pot life.

		Kg/cm²	Mpa	Psi
Tensile Strength		176	17.5	2500
Compressive Strength		389.8	37.92	2300-2800
Hardness Shore D	53-55			
Elongation	4%			

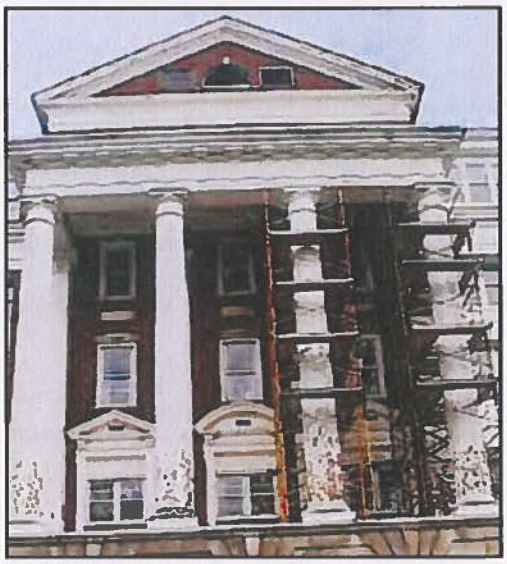


LiquidWood and WoodEpox are ideal for log home repair and restoration









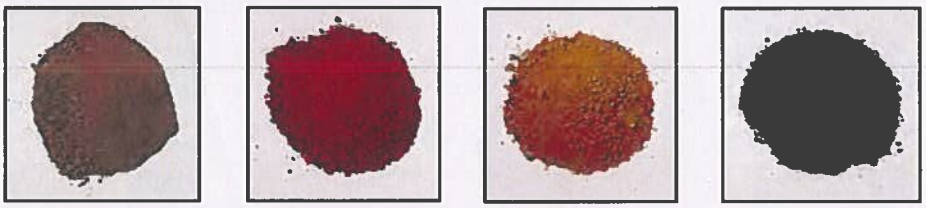
Related Products

Abosolv™: Solvent for LiquidWood. Use for thinning LiquidWood and cleaning up.

Abocure 7912-1™: Cold weather hardener for use with LiquidWood (A) that can be applied in sub-freezing weather with excellent results. When combined with LiquidWood (A), Abocure 7912-1 permits LiquidWood to harden overnight, even in subfreezing weather conditions. Recommended for exterior use only.

Abocure 8512-1™: Paste-like cold weather hardener for use with WoodEpox (A). It can be applied in sub-freezing weather with excellent results. When combined with WoodEpox (A), Abocure 8512-1 permits WoodEpox to harden without an external heat source. Recommended for exterior use only.

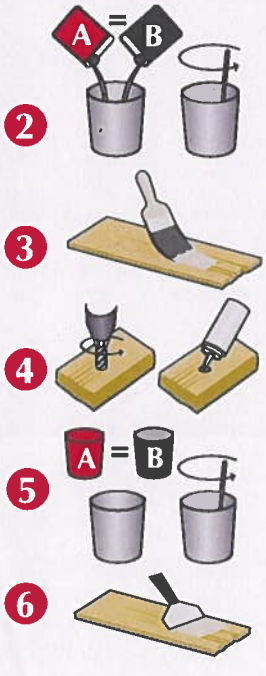
Pigments: A variety of pigments that can be blended into WoodEpox while mixing uniformly to match wood tones. One or more can be blended to create depth of color and varying tones. Pigments include (from left to right): Dark Brown, Brick Red, Dark Yellow and Black.



Clearstrip™: Environmentally friendly paint remover designed to remove multiple layers in one action. Will not mar normal wood patina. It is biodegradable, nonflammable and very low odor. Contains no caustic or methylene chloride. Can be used on most varieties of paints and varnishes.

For a complete description of ABATRON's products and accessories related to wood restoration visit the company's website below or call for a free catalog.

Follow These Simple Instructions:



1. Apply to clean and dry surface after removing contaminants, oil, grease, wax, old paint and debris.
2. Mix a volume of LiquidWood A with an equal volume of LiquidWood B for at least one minute with blade or paddle.
3. Apply LiquidWood mix to deteriorated wood by brushing, pouring or injecting.
4. For deeper penetration into wood, drill small holes through side grain and across end grain, and pour LiquidWood into holes. Repeat process until wood is saturated.
5. Mix thoroughly a volume of WoodEpox A with an equal volume of WoodEpox B.
6. Apply WoodEpox to wood primed with LiquidWood while LiquidWood is still "tacky" to fill cracks, holes and replace missing wood.
7. Sand, plane, shape, paint and stain restored wood as desired.



ABATRON
5501 95th Ave.
Kenosha, WI 53144
800-445-1754
www.abatron.com
info@abatron.com

© 11/2009 ABATRON CORP.

CURING is the total reaction that continues after hardening. During this time, the properties of the A/B blend keep improving toward a maximum reached in about 1-3 weeks at room temperature, or in a few hours with heating. The changes most noticeable with the progress of cure are higher hardness and heat and chemical resistance. The LiquidWood impregnated wood and WoodEpox masses are very easy to saw, nail, drill, plane, carve and machine, especially in the first hours or days after the initial hardening.

New WoodEpox can be added to hardened WoodEpox where needed, because it bonds well to itself.

HARDENED epoxy is removed with stripper (**CLEARSTRIP®**) or scraped while softened by high heat (250°F or higher). Working surfaces are protected during application with plastic films, newspaper or similar means.

COVERAGE is calculated from the fact that **one gallon** of material is **231 cubic inches.** That is: one gallon will cover 16 square feet 1/10 inch thick, or 1.6 square feet one inch thick. This is easy to calculate for WoodEpox. The coverage for LiquidWood is often difficult to predict, due to the different absorption patterns in most applications.

SHELF-LIFE: LiquidWood and WoodEpox can be stored at least one year and almost indefinitely. Store in a warm area in containers with tight-fitting lids. To check old products, mix a small quantity and observe whether it hardens properly.

LIMITED WARRANTY: The above information is based on years of accurate laboratory and field tests. As uses and applications are beyond our control, the user is urged to test the products and methods before adopting them. All warranties, including the implied warranties of merchantability and fitness for a particular purpose, are excluded. In the event of manufacturing defects in the product, purchasers' remedies are limited to the replacement of the product or the purchase price.

CAUTION: IRRITANT. KEEP OUT OF REACH OF CHILDREN. LiquidWood A and WoodEpox A contain epoxy resin. LiquidWood B and WoodEpox B contain amine epoxy curing agent and aromatic oils. Prolonged or repeated skin contact may cause dermatitis. In case of skin contact, wash with soap and water. Get medical attention if irritation persists. Upon eye contact, rinse eyes thoroughly and get prompt medical attention. If taken internally, consult physician. Wear particle mask and protective glasses when sanding. Use adequate ventilation and protective clothing. Wash contaminated clothes.

Rev. 062713

LiquidWood® and WoodEpox® INSTRUCTIONS

LiquidWood is a thin, clear liquid designed to impregnate wood, other fibers and porous materials, and to harden after penetrating, in order to restore strength, stiffness and hardness, and to impart water, weather, chemical, rot and wear resistance. It consists of 2 components: **(A) Resin**, and **(B) Hardener**, packaged separately.

WoodEpox is a non-shrinking, light-weight, buff colored adhesive paste designed to adhere permanently to wood and other rigid materials as a filler, substitute or additive for missing or needed parts. It consists of 2 components: **(A) Resin**, and **(B) Hardener**, packaged separately.

LiquidWood and **WoodEpox** are entirely different in consistency, appearance and methods of application. Furthermore, they can be used independently of each other. Yet, they are mostly used in the same types of applications as they complement each other ideally. Therefore, they are described together.

SURFACE PREPARATION: The superb adhesion of both materials is unsurpassed, but it may be impaired by improperly prepared surfaces, which must be clean and dry. Indeed, surface preparation is often the most critical step. Oils, grease, wax, fat, soap, paint, lubricants, loose matter, and most kinds of soil prevent adhesion and penetration.

Old paint should be removed. It can be scraped, sanded or stripped. Stripper residue should be removed. Oil, grease and other contaminants can be removed with detergents, solvents or other agents. Moisture and water diminish penetration and adhesion. Moisture content should be below 17%. Wood can be dried with heat or ventilation. Another method to accelerate drying is brushing acetone (caution: flammable) on the wet surface. This solvent blends with water and accelerates its evaporation.

ROTTED, SPONGY WOOD can be impregnated as it is, rather than dug out, so that it becomes the framework that is stiffened and consolidated with LiquidWood. This impregnation requires dryness, because moisture limits LiquidWood penetration.

COMPOSITION AND REACTIVITY: Each material is based on two components that react and harden when mixed together. Therefore, they are packaged in separate containers.

PRIMING is treating a surface with a material (primer) that promotes adhesion of a subsequent coating or other substance. Generally, a primer has the consistency of a thin coating. Wood consolidated with LiquidWood needs no primer for subsequent WoodEpox applications. If the surface is porous or difficult to wet, LiquidWood is used as the primer. **Primkote™ 8006-1** is an excellent primer for WoodEpox on most rigid, clean and dry materials, including sound wood.

MIXING: Mix equal volumes or weights of A and B in a container which is deeper than it is wide. Avoid shallow or too large containers. Use separate measuring tools to scoop from the A and B containers to avoid contamination. Anything, from a stick to a paint stirrer, can be used for mixing. Mix only as much as can be used within the "pot life" (see page 3) period. WoodEpox can also be mixed by hand in small quantities like modeling clay. If using this method, gloves should always be worn.

COMPLETE, THOROUGH MIXING IS OF FUNDAMENTAL IMPORTANCE. Incompletely mixed materials will not react sufficiently and will show as **soft spots** or **brittle areas.** The walls and bottom of the mixing container must be scraped completely and the mass mixed until there is no possible doubt of insufficiently mixed spots. This is very easy with LiquidWood, due to its very fluid nature. Mix WoodEpox thoroughly until it is a uniform color.

COLORING WoodEpox can be done best by staining or painting after hardening. Dry pigments can also be added to the A/B blend while mixing.

INDUCTION PERIOD is the time to wait, after mixing A & B, before applying a coating or any thin layer to prevent tackiness on the cured surface caused by atmospheric moisture or CO_2. An induction period is not needed with large and thick masses, in very dry atmosphere, or when heat is used to accelerate the hardening process.

LiquidWood can be brushed or poured. It can also be poured into holes drilled into the wood. Penetration occurs best through the end grain of the wood rather than the side grain. The drier and more porous the wood fibers, the deeper LiquidWood penetrates. Moisture, natural resins, or foreign matter will reduce penetration.

If WoodEpox is not available, LiquidWood impregnated sawdust, paper, burlap, cotton or other fibers can be stuffed into holes or cracks to fill them. Even higher strength is obtained by alternating layers of LiquidWood and fiberglass cloth, as in the case of laminates for boats and other high strength structures. This method can build new sections, extend shapes or structural elements, and thicken and reinforce existing surfaces. Even laminations of LiquidWood and newspaper or burlap provide surprising reinforcement of thin panels in furniture or other structures.

WoodEpox is applied with a trowel, putty knife or similar tools. If shaping by hand is preferred, gloves (plastic or rubber) are used for skin protection. Tip: dipping the putty knife in isopropyl alcohol or water will aid in smoothing WoodEpox and reduce sanding.

The shaped WoodEpox putty bonds permanently to wood, ceramics, concrete, metal, glass, fiberglass and most rigid materials. For best adhesion, the surface should be coarse sanded or roughened before application. If applying WoodEpox over LiquidWood, the best time to apply it is when the LiquidWood is tacky and not completely hardened.

WoodEpox is ideal for troweling or shaping missing parts in window frames and sills, furniture, columns, steps, doors, sculptures, or to fill holes and other cavities of any size. Nails, wires, rods or other reinforcements can be inserted and embedded for strength.

THIN WoodEpox by blending it with LiquidWood in any ratio to achieve the desired viscosity. This method can be used for filling small checks and cracks. Sand excess after hardening. When the cured material will be exposed to temperatures above 90°F, use **Epotron 5™** for thinning WoodEpox. Thin LiquidWood with **ABOSOLV™**, in any ratio, to obtain maximum wetting and penetration in critical areas. Acetone can be substituted for ABOSOLV.

CLEAN tools with ABOSOLV, acetone, or isopropyl alcohol before the material hardens. Discard used brushes.

HARDENING results from mixing A (Resin) and B (Hardener). **POT LIFE** is the time the A/B blend remains liquid or workable in the mixing container, just before hardening. This is measured on about one pint of mix. At 75°F the pot life is about one half hour for LiquidWood and 20 minutes for WoodEpox. The reaction generates heat, and the heat accelerates the reaction. This is evident especially in larger masses: the larger the bulk, the more reaction heat it retains. This in turn accelerates the reaction, in the pattern of a chain reaction. Therefore: **the larger the mass, the faster the reaction.**

Thin layers or coatings harden in a time that may be up to ten times as long as the pot life because the reaction heat is absorbed by the substratum and atmosphere before it can accelerate the reaction. The hardening of LiquidWood is slowed also by the penetration into the fibers and pores which absorb the reaction heat. This gives the resin plenty of time to penetrate before hardening.

HEAT accelerates hardening; cold retards it. LiquidWood or WoodEpox can harden in 1-3 hours at room temperature, or in a few minutes with heating. At very low temperatures, the reaction can slow down to almost a halt. The practical application temperatures are above 50°F. The preferred temperature range is 60-90°F.

PAINTING: Wait at least 24 hours after hardening and sand lightly before painting. Use any good quality paint. Exception: linseed oil-based paints may not bond well.

ABATRON, INC.

Safety Data Sheet

SECTION 1: Product Identification

Product Name: WoodEpox A

Product Code: WE-A

Product Class: Filled Epoxy Compounds

Product Type: Adhesive Epoxy Paste

Manufacturer/Supplier:
Abatron Incorporated
5501 95th Ave., Kenosha WI, 53144
Phone: 262-653-2000

Telephone:
For 24 Hour Emergency Assistance
Call CHEMTREC (800) 424-9300

SECTION 2: Hazard Identification

Emergency Overview: Warning! Irritant. Light, white paste/putty with almost no odor. Material may cause skin irritation and prolonged contact may lead to skin sensitization and allergic skin reaction. Material may cause eye irritation. Vapors from heated material may cause upper respiratory tract irritation. Material may be harmful if ingested in large amounts.



Primary Routes of Entry: Eye and skin contact, breathing vapors.

Symptoms of Exposure
Eye Contact: Contact may cause eye irritation, redness and tearing. Elevated temperatures may generate sufficient vapor levels to cause eye irritation.
Skin Contact: Material is slightly irritating to skin and can lead to redness, dryness and increased skin sensitization. Exposure is not likely to result in absorption in harmful amounts.
Inhalation: Large amounts of vapor from heated material may cause upper respiratory tract irritation. Vapor irritation not likely a problem at room temperature.
Ingestion: Not harmful under normal conditions of use. Ingestion in large amounts may cause injury.
Effect of Over-exposure: Respiratory tract irritation and coughing. Pre-existing skin disorders may be aggravated by over-exposure.

Chronic and Other Health Effects: None known.

SECTION 3: Composition/Ingredient Information

Composition: Trade secret. Proprietary resin and filler mixture.

SECTION 4: First-Aid Measures

Eye Contact: Immediately flush eyes with water for at least 15 minutes and check for and remove contacts. Hold eyelids apart to rinse entire eye surface. Seek medical attention if irritation persists. Continue washing if medical attention is not immediately available.

Skin Contact: Wipe off excess immediately and wash affected area with soap and water. Remove contaminated clothing or shoes and seek medical attention if irritation persists. Continue washing if irritation persists.

Inhalation: If inhaled, remove victim to fresh air and consult medical personnel immediately. If person is not breathing or breathing is irregular, provide oxygen with the aid of trained personnel only. If unconscious, place in recovery position and seek medical attention immediately.

Ingestion: Wash out mouth with small amounts of water and remove person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Seek medical attention immediately. If unconscious, place in recovery position. Never give anything by mouth to an unconscious person.

SECTION 5: Fire-Fighting Measures

Flash Point: >450 °F (>232 °C)
Method Used: ASTM D3278-96

Flammable Limits (STP In Air)
LFL: Not Deter. **UFL:** Not Deter.

Extinguishing Media: Alcohol-resistant foam, CO_2, and dry chemicals.

Specific Hazards and Procedures: Remove all persons from the vicinity. Burning material may generate large amounts of vapor and produce noxious and toxic fumes and gases.

Specific Fire Fighting Equipment: Firefighters should wear a Self-Contained Breathing Apparatus and personal protective clothing.

SECTION 6: Accidental Release Measures

Personal Protective Measures: Provide adequate ventilation and avoid all personnel contact. Wear adequate protective clothing. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Wear an appropriate respirator when ventilation is inadequate. Use appropriate safety equipment before taking any action.

Clean Up/Disposal Method: Remove container from spill area and scrape up material and place in appropriate waste disposal container. Remove residual resin with non-flammable solvent and flush contaminated area with hot water. Do not dump waste into any sewers, on the ground or into any body of water. Avoid dispersal of spilled material and runoff. All disposal methods must be compliant with all Federal, State, and local laws and regulations.

SECTION 7: Handling and Storage

Precautions: Do not get in eyes, on skin or on clothing. Avoid any forms of ingestion. Do not breathe vapor, mist or spray. Use only with good ventilation or use suitable respiratory protection. Wear suitable

protective clothing. Remove contaminated clothing and wash before reuse. Destroy contaminated leather. Wash thoroughly after handling. Do not eat or drink in areas where material is stored or in use. Wash hands and face before eating or drinking after using this product.

Storage Information: Store in tightly sealed, original container in a cool, dry place. Keep container sealed until use.

SECTION 8: Exposure Controls/Personal Protection

Occupational Exposure Limits:

OSHA	PEL/TWA	None Available
ACGIH	TLV/TWA	None Available

Engineering Controls: Good general mechanical ventilation and local exhaust are recommended. If user operations generate vapor, process enclosures or local exhaust may be necessary.

Personal Protective Equipment
Respiratory: If local exhaust ventilation is inadequate, use a properly fitted, air-purifying mask suitable to the level of anticipated exposure.
Skin Protection: Wear protective clothing suitable to the conditions of use. Clean, body-covering clothing and protective gloves should be worn at all times when handling the product.
Eye Protection: Use properly fitted safety glasses. If vapor exposure causes eye or respiratory tract discomfort, a full-face respirator may be necessary.
Other: Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms, and face thoroughly after using the material.

SECTION 9: Physical and Chemical Properties

Appearance: White, thixotropic paste
Odor Threshold: NA
Melting Point/Freezing Point: NA
Flash Point: >450 °F (>232 °C)
Flammability: NA
Vapor Pressure: NA
Specific Gravity: 0.45-0.49
% Volatile by Vol: <0.1
Decomposition Temperature: NA

Odor: Almost no odor
pH: NA
Boiling Point: NA
Evaporation Rate: NA
Explosive Limits: NA
Vapor Density (Air = 1): NA
Solubility In Water: None
Auto-Ignition Temp.: NA
Viscosity: NA

SECTION 10: Stability and Reactivity

Stability: Stable under normal conditions. Prolonged excessive heat may cause partial degradation.

Incompatibility: Avoid contact with strong oxidizing materials, strong acids and strong bases.

Hazardous Decomposition Products: Carbon oxides.

Hazardous Polymerization: Will not occur by itself, but masses of more than 3-5 lbs of product plus an amine may cause an irreversible reaction with considerable heat buildup.

SECTION 11: Toxicological Information

Routes of Exposure: Skin contact, eye contact, vapor inhalation.

Primary Symptoms: Product is a mild eye and skin irritant and contact may lead to skin sensitization. Prolonged exposure can cause dryness and cracking of the skin. Heated material vapor can be irritating to the respiratory tract, and material may be harmful if swallowed or inhaled in large amounts.

Effects of Overexposure: Overexposure to vapors can cause dizziness, headaches and other central nervous system effects.

Acute Toxicity
Oral LD50 (Rat): > 2,000 mg/kg
Dermal LD50 (Rabbit): > 2,000 mg/kg

Carcinogenicity: This material is not listed or classified by the National Toxicology Program (NTP) Report on Carcinogens or the International Agency for Research on Cancer (IARC).

SECTION 12: Ecological Information

Ecotoxicity: No data is available on the product itself.
Persistence/Degradability: No data available.
Bioaccumulation: No data is available on the product itself.
Mobility in Soil: No data available.
Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal considerations apply only to the product as shipped in its original container.

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional/local authority requirements. Avoid dispersal of material and runoff, and contact with soil, waterways, drains and sewers.

SECTION 14: Transportation Information

DOT/IATA:

Proper Shipping Name:	Non-regulated
Hazardous Class:	Non-regulated
ID Number:	Non-regulated
Packing Group:	Non-regulated
Marine Pollutant:	No
Special Precautions:	None

SECTION 15: Regulatory Information

HCS Classification: Irritating material, Sensitizing material
TSCA Status: All materials are either included on or exempt from the TSCA Inventory of Chemical Substance. This product does not contain any components subject to TSCA 12(b) export notification.
Other Regulations: This product contains no Extremely Hazardous Substances, EPCRA Sec 311, Appendix A and B, or chemicals listed in EPCRA Sec. 313, Table II.

SECTION 16: Other Information

Created: April 1, 2000 **Last Updated:** August 4, 2015

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

ABATRON, INC.

Safety Data Sheet

SECTION 1: Product Identification

Product Name: WoodEpox B

Product Code: WE-B

Product Class: Formulated epoxy co-reactant

Product Type: Epoxy Curing Agent Paste

Manufacturer/Supplier:
Abatron Incorporated
5501 95th Ave., Kenosha WI, 53144
Phone: 262-653-2000

Telephone:
For 24 Hour Emergency Assistance
Call CHEMTREC (800) 424-9300

SECTION 2: Hazard Identification

Emergency Overview: Warning! Irritant. Light, tan colored paste/putty with a slight ammonia odor. Material can cause skin irritation and prolonged contact may lead to skin sensitization and allergic skin reaction. Material may cause eye irritation. Vapors from heated material may cause upper respiratory tract irritation. Material may be harmful if ingested in large amounts.



Primary Routes of Entry: Eye and skin contact, breathing vapors.

Symptoms of Exposure
Eye Contact: Contact may cause eye irritation, redness and tearing. Elevated temperatures may generate sufficient vapor levels to cause eye irritation.
Skin Contact: Material is slightly irritating to skin and can lead to redness, dryness and increased skin sensitization. Exposure is not likely to result in absorption in harmful amounts.
Inhalation: Large amounts of vapor from heated material may cause upper respiratory tract irritation. Vapor irritation not likely a problem at room temperature.
Ingestion: Not harmful under normal conditions of use. Ingestion in large amounts may cause injury.
Effect of Over-exposure: Respiratory tract irritation and coughing. Pre-existing skin disorders may be aggravated by over-exposure.

Chronic and Other Health Effects: None known.

SECTION 3: Composition/Ingredient Information

Composition: Trade secret. Proprietary formulated amines and fillers.

SECTION 4: First-Aid Measures

Eye Contact: Immediately flush eyes with water for at least 15 minutes and check for and remove contacts. Hold eyelids apart to rinse entire eye surface. Seek medical attention if irritation persists. Continue washing if medical attention is not immediately available.

Skin Contact: Wipe off excess immediately and wash affected area with soap and water. Remove contaminated clothing or shoes and seek medical attention if irritation persists. Continue washing if irritation persists.

Inhalation: If inhaled, remove victim to fresh air and consult medical personnel immediately. If person is not breathing or breathing is irregular, provide oxygen with the aid of trained personnel only. If unconscious, place in recovery position and seek medical attention immediately.

Ingestion: Wash out mouth with small amounts of water and remove person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Seek medical attention immediately. If unconscious, place in recovery position. Never give anything by mouth to an unconscious person.

SECTION 5: Fire-Fighting Measures

Flash Point: >450 °F (>232 °C)
Method Used: ASTM D3278-96

Flammable Limits (STP In Air)
LFL: Not Deter. **UFL:** Not Deter.

Extinguishing Media: Alcohol-resistant foam, CO_2, and dry chemicals.

Specific Hazards and Procedures: Remove all persons from the vicinity. Burning material may generate large amounts of vapor and produce noxious and toxic fumes and gases.

Specific Fire Fighting Equipment: Firefighters should wear a Self-Contained Breathing Apparatus and personal protective clothing.

SECTION 6: Accidental Release Measures

Personal Protective Measures: Provide adequate ventilation and avoid all personnel contact. Wear suitable protective clothing. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Wear an appropriate respirator when ventilation is inadequate. Use appropriate safety equipment before taking any action.

Clean Up/Disposal Method: Remove container from spill area and scrape up material and place in appropriate waste disposal container. Remove residual resin with non-flammable solvent and flush contaminated area with hot water. Do not dump waste into any sewers, on the ground or into any body of water. Avoid dispersal of spilled material and runoff. All disposal methods must be compliant with all Federal, State, and local laws and regulations.

SECTION 7: Handling and Storage

Precautions: Do not get in eyes, on skin or on clothing. Avoid any forms of ingestion. Do not breathe vapor, mist or spray. Use only with good ventilation or use suitable respiratory protection. Wear suitable protective clothing. Remove contaminated clothing and wash before reuse. Destroy contaminated

leather. Wash thoroughly after handling. Do not eat or drink in areas where material is stored or in use. Wash hands and face before eating or drinking after using this product.

Storage Information: Store in tightly sealed, original container in a cool, dry place. Keep container sealed until use.

SECTION 8: Exposure Controls/Personal Protection

Occupational Exposure Limits:

OSHA	PEL/TWA	None Available
ACGIH	TLV/TWA	None Available

Engineering Controls: Good general mechanical ventilation and local exhaust are recommended. If user operations generate vapor, process enclosures or local exhaust may be necessary.

Personal Protective Equipment
Respiratory: If local exhaust ventilation is inadequate, use a properly fitted, air-purifying mask suitable to the level of anticipated exposure.
Skin Protection: Wear protective clothing suitable to the conditions of use. Clean, body-covering clothing and protective gloves should be worn at all times when handling the product.
Eye Protection: Use properly fitted safety glasses. If vapor exposure causes eye or respiratory tract discomfort, a full-face respirator may be necessary.
Other: Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms, and face thoroughly after using the material.

SECTION 9: Physical and Chemical Properties

Appearance: Tan thixotropic paste
Odor Threshold: NA
Melting Point/Freezing Point: NA
Flash Point: >450 °F (>232 °C)
Flammability: NA
Vapor Pressure: NA
Specific Gravity: 0.38-0.42
% Volatile by Vol: <0.1
Decomposition Temperature: NA

Odor: Slight ammonia odor
pH: NA
Boiling Point: NA
Evaporation Rate: NA
Explosive Limits: NA
Vapor Density (Air = 1): NA
Solubility In Water: None
Auto-Ignition Temp.: NA
Viscosity: NA

SECTION 10: Stability and Reactivity

Stability: Stable under normal conditions. Prolonged excessive heat may cause partial degradation.

Incompatibility: Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Avoid contact with sodium hypochlorite, mineral acids, organic acids and any oxidizing agents. Reactions with peroxides may be violent with possibility of an explosion. Avoid nitrous acid and other nitrosating agents as contact with nitrogen containing materials can produce N-Nitrosamines.

Hazardous Decomposition Products: Carbon oxides, ammonia, nitrous oxides, nitric acid.

Hazardous Polymerization: Will not occur by itself, but masses of more than 3-5 lbs of product plus an epoxy resin may cause an irreversible reaction with considerable heat buildup.

SECTION 11: Toxicological Information

Routes of Exposure: Skin contact, eye contact, vapor inhalation.

Primary Symptoms: Product is a mild eye and skin irritant and contact may lead to skin sensitization. Prolonged exposure can cause dryness and cracking of the skin. Heated material vapor can be irritating to the respiratory tract, and material may be harmful if swallowed or inhaled in large amounts.

Effects of Overexposure: Overexposure to vapors can cause dizziness, headaches and other central nervous system effects. Pre-existing skin disorders may be aggravated by over-exposure.

Acute Toxicity
Oral LD50 (Rat): > 2,000 mg/kg
Dermal LD50 (Rabbit): > 2,000 mg/kg

Carcinogenicity: This material is not listed or classified by the National Toxicology Program (NTP) Report on Carcinogens or the International Agency for Research on Cancer (IARC).

SECTION 12: Ecological Information

Ecotoxicity: No data is available on the product itself.
Persistence/Degradability: No data available.
Bioaccumulation: No data is available on the product itself.
Mobility in Soil: No data available.
Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal considerations apply only to the product as shipped in its original container.

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional/local authority requirements. Avoid dispersal of material and runoff, and contact with soil, waterways, drains and sewers.

SECTION 14: Transportation Information

DOT/IATA:

Proper Shipping Name:	Non-regulated
Hazardous Class:	Non-regulated
ID Number:	Non-regulated
Packing Group:	Non-regulated
Marine Pollutant:	No
Special Precautions:	None

SECTION 15: Regulatory Information

HCS Classification: Irritating material. Sensitizing material.
TSCA Status: All materials are either included on or exempt from the TSCA Inventory of Chemical Substance. This product does not contain any components subject to TSCA 12(b) export notification.
Other Regulations: This product contains no Extremely Hazardous Substances, EPCRA Sec 311, Appendix A and B, or chemicals listed in EPCRA Sec. 313, Table II.

SECTION 16: Other Information

Created: April 1, 2000 **Last Updated:** August 4, 2015

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESS OR IMPLIED, IS MADE.

Technical Data Sheet

Product	**XHT100**					
Description	Water-based pigmented impregnator for exteriors					
Color	White					
Woods for which the product is suitable	Non resinous softwood					
Substrates for which the product is suitable	Finger Joint					
	Laminate wood					
	Solid wood					
Chemical-physical Properties	Density (Kg/l)	1,040	±	0,030		
	Density (lb/US gal)	8,7	±	0,3		
	Solid content %	29,0	±	2		
	Viscosity (EN ISO 2431) ISO 3 cup	30	±	3		
USAGE INDICATIONS						
Additional products		Quantities				
Thinner	Water	In weight w/w %				5
		In volume v/v %				5
READY TO USE PRODUCT PROPERTIES						
	Solid content 1st + 2nd component (%)	29,0	±	2		
	Viscosity (EN ISO 2431) ISO 3 cup	26	±	2		
Application	Application method	Quantities				
	Automatic impregnation machine	gr/m² min-max:	60	-	80	
		Wet Mils min-max	2,3	-	3,0	
	Brush / manual roller	gr/m² min-max:	60	-	80	
		Wet Mils min-max	2,3	-	3,0	
	Flow coating	gr/m² min-max:	60	-	80	
		Wet Mils min-max	2,3	-	3,0	
	Dipping	gr/m² min-max:	60	-	80	
		Wet Mils min-max	2,3	-	3,0	
PRODUCT PROPERTIES AFTER APPLICATION						
Drying						
	Room temperature drying (18-22°C / 64 – 72°F e 65-70% relative humidity) complete drying	4 h				
	Touch dry	1 h				
	Hard dry	24 h				
	Overcoatability time	4 h				
	Laminar flow cabinet drying	Temp°C	35			
		Temp°F	95			
		2-4 h				
Shelf life	12 months after production					

WARNINGS

In a coating process with professional products:

- besides the product quality, the final result also depends on numerous other variables, such as environmental conditions; homogeneity in the quality of the support; the constancy of the application cycle; the plants performance; the proper use of the product, etc.
- in the process of industrial coating a certain waste of product is to be considered normal and therefore not attributable to product quality
- The final colour is influenced by quality and the preparation of the support and the conditions of application, for this reason it is essential to check in advance the result in terms of final use

Our Company cannot ensure the control of the coating process carried out by the user. We cannot, therefore, take on any responsibility for the final result achieved through the use of our products.
On the other hand, we guarantee the consistency of the chemical and physical characteristics of the product indicated in the relevant Technical Data Sheet, pledging to replace it if it does not correspond to the declared features
Data on the chemical and physical characteristics of the product are recorded at 20°C / 68°F and 70% R.U.

For best results, the optimum conditions of application are:

- Ambient temperature between 18 and 22°C (64 - 72 °F)
- ambient relative humidity between 65 and 70%
- support humidity between 8 and 14%

The conditions to be observed scrupulously are:

- Water-based products are particularly sensitive to storage conditions: temperatures below 5 °C / 41°F and above 35 °C / 95°F may affect the product, characteristics, making it unusable. For this reason, a water-based product should be stored indoors at temperatures not below 5 °C / 41°F and not above 35 °C / 95°F, in a properly ventilated place, not exposed to solar radiation
- The use of iron wools to smooth surfaces is to be avoided, because iron leftovers react with water creating black-blue spotting that, if superficially examined, may be confused with bluish fungi
- Always shake the products well before use
- Before use, always shake well the product mixed with any other components such as catalysts, accelerators, thinners
- The application must not take place at a temperature lower than 15 °C / 59°F or above 30 °C / 86°F
- The drying should not take place at a temperature below 15 °C / 59°F
- The ambient relative humidity during drying should be between 50% and '70%
- To decant paints, exclusively use containers made of suitable material, such as polyethylene and stainless steel
- After use, we recommend that you always close the can carefully

The end result of the coating cycle is the sole responsibility of the users, who must make sure that the product matches their needs and that environmental conditions, application or media specifications do not require substantial changes of use

It is the user's responsibility:

- Adhere to the conditions indicated above
- comply with the rules of hygiene and safety during product application, according to the descriptions given in the safety data sheets
- for solvent-based products spark-proof equipment should be used
- It is forbidden to smoke while using the product

At the bottom of each sheet there is a date of validity
The Company invites you to check with their staff that the product data sheet in your possession is the most updated, since the characteristics of the products are subject to adjustments over time
For more information, please contact (see below):

Issue date: 2014-04

Technical Data Sheet

Product	**YBR6AA1**					
Description	Solvent based pigmented sealer for exterior 2K					
Color	White					
Woods / Substrates for which the product is suitable	Resinous softwood					
	Non resinous Softwood					
	Light color hardwood					
	Dark color hardwood					
	Laminate wood					
Chemical-physical Properties	**Density (Kg/l)**	1,150	±	0,030		
	Density (lb/US gal)	9,6	±	0,3		
	Solid content %	43,8	±	2		
	Viscosity (Ford 6 cup)	30	±	3		
USAGE INDICATIONS						
Additional products		**Quantities**				
Hardener	LNB99	**In weight w/w %**			40	
		In volume v/v %			48,4	
	Solid content %	29,9	±	2		
Thinner	LZC1026	**In weight w/w %**			30	
		In volume v/v %			39	
READY TO USE PRODUCT PROPERTIES						
	Solid content 1st + 2nd component (%)	39,8	±	2		
	Pot-Life - mixture (maximum pot-life of the product prepared according to usage indications)	4 h				
	Viscosity (Ford 4 cup)	18	±	2		
Application		**Quantities**				
	Airless spray	**gr/m² min-max:**	120	-	150	
		Wet Mils min-max	4,5	-	5,7	
	Airmix spray	**gr/m² min-max:**	120	-	150	
		Wet Mils min-max	4,5	-	5,7	
	Airless vertical spray	**gr/m² min-max:**	120	-	150	
		Wet Mils min-max	4,5	-	5,7	
	Hand spray	**gr/m² min-max:**	120	-	150	
		Wet Mils min-max	4,5	-	5,7	

PRODUCT PROPERTIES AFTER APPLICATION		
Drying		
	Room temperature drying (18-22°C / 64 – 72°F e 65-70% relative humidity) complete drying	24 h
	Dust free	20 min
	Touch dry	2 h
	Hard dry	24 h
	Sandable after (time)	12 h
Shelf life	12 months after production	

WARNINGS

In a coating process with professional products:

- besides the product quality, the final result also depends on numerous other variables, such as environmental conditions; homogeneity in the quality of the support; the constancy of the application cycle; the plants performance; the proper use of the product, etc.
- in the process of industrial coating a certain waste of product is to be considered normal and therefore not attributable to product quality
- The final colour is influenced by the quality and preparation of the support and the conditions of application, for this reason it is essential to check in advance the result in terms of final use

Our Company cannot ensure the control of the coating process carried out by the user. We cannot, therefore, take on any responsibility for the final result achieved through the use of our products.
On the other hand, we guarantee the consistency of the chemical and physical characteristics of the product indicated in the relevant Technical Data Sheet, pledging to replace it if it does not correspond to the declared features
Data on the chemical and physical characteristics of the product are recorded at 20°C / 68°F and 70% R.U.

For best results, the optimum conditions of application are:

- Ambient temperature between 18 and 22°C (64 - 72 °F)
- ambient relative humidity between 65 and 70%
- support humidity between 8 and 14%

The conditions to be observed scrupulously are:

- A solvent-based product should be stored indoors at temperatures not below 0 °C / 32°F or above 35 °C / 95°F, in a properly ventilated place, not exposed to solar radiation
- Always shake the products well before use
- Before use, always shake well the product mixed with any other components such as catalysts, accelerators, thinners
- The application must not take place at a temperature lower than 15 °C / 59°F or above 30°C / 86°F
- The drying should not take place at a temperature below 15 °C / 59°F
- The ambient relative humidity during drying should be between 50% and 70%
- To decant paints, exclusively use containers made of suitable material, such as polyethylene and stainless steel
- After use, we recommend that you always close the can carefully

The end result of the coating cycle is the sole responsibility of the users, who must make sure that the product matches their needs and that environmental conditions, application or media specifications do not require substantial changes of use

It is the user's responsibility:

- Adhere to the conditions indicated above
- comply with the rules of hygiene and safety during product application, according to the descriptions given in the safety data sheets
- for solvent-based products spark-proof equipment should be used
- It is forbidden to smoke while using the product

At the bottom of each sheet there is a date of validity
The Company invites you to check with their staff that the product data sheet in your possession is the most updated, since the characteristics of the products are subject to adjustments over time
For more information, please contact (see below):

Issue date: 2020-05 **Rev.:** 1

Technical Data Sheet

Product	**LGA180**			
Description	Polyurethane clear converter for exteriors, high elasticity and yellowing resistance			
Colour	Clear			
Chemical-physical Properties	**Density (Kg/l)**	1,028 ± 0,030		
	Density (lb/US gal)	8,6 ± 0,3		
	Solid content %	39,1 ± 2		
	Viscosity (Ford 6 cup)	30 ± 3		
USAGE INDICATIONS				
Complementary products		**Quantities**		
Hardener	LNB99	**In weight p/p %**	40	
		In volume v/v %	43	
	Solid content %	29,9 ± 2		
Thinner	LZC1026	**In weight p/p %**	40	
		In volume v/v %	47	
READY TO USE PRODUCT PROPERTIES				
	Solid content I + II component (%)	36,5 ± 2		
	Pot-Life - mixture (maximum pot-life of the product prepared according to usage indications)	4 h		
	Viscosity (Ford 6 cup)	20 ± 2		
	Gloss level EN ISO 2813 (angle measurement 60°)	**applied micron:** 150		
		Wet Mils 5,9		
		Gloss 30 ± 2		
Application	**Application system**	**Quantities**		
	Airmix spray (for automatic plants)	**gr/m² min-max:** 130 - 150		
		Wet Mils min-max 5,3 - 6,1		
	Hand spray	**gr/m² min-max:** 130 - 150		
		Wet Mils min-max 5,3 - 6,1		
PRODUCT PROPERTIES AFTER APPLICATION				
Drying				
	Room temperature drying (18-22°C / 64 – 72°F e 65-70% relative humidity) complete drying	24 min		
	Dust free	20 min		
	Touch dry	120 min		
	Hard dry	18 h		
	Maximum time between layers without sanding	4 h		
Shelf life	**18 months after production**			

IVM Chemicals srl – International Wood Coating Division - 27020 Parona (PV), V.le della Stazione 3 - tel. +39 0384 25 44.1 - fax +39 0384 252 054

Sede sociale: 20123 Milano, Via Tasso 10 - capitale sociale i.v. € 10.000.000
codice fiscale, registro imprese C.C.I.A.A n. 02170230342 - REA n. 1657837- Partita IVA 13472030157
milesi@ivmchemicals.com - www.milesi.com

WARNINGS

In a coating process with professional products:

- besides the product quality, the final result also depends on numerous other variables, such as environmental conditions; homogeneity in the quality of the support; the constancy of the application cycle; the plants performance; the proper use of the product, etc.
- in the process of industrial coating a certain waste of product is to be considered normal and therefore not attributable to product quality
- The final colour is influenced by the quality and preparation of the support and the conditions of application, for this reason it is essential to check in advance the result in terms of final use

Our Company cannot ensure the control of the coating process carried out by the user. We cannot, therefore, take on any responsibility for the final result achieved through the use of our products.
On the other hand, we guarantee the consistency of the chemical and physical characteristics of the product indicated in the relevant Technical Data Sheet, pledging to replace it if it does not correspond to the declared features
Data on the chemical and physical characteristics of the product are recorded at 20°C / 68°F and 70% R.U.

For best results, the optimum conditions of application are:

- Ambient temperature between 18 and 22°C (64 - 72 °F)
- ambient relative humidity between 65 and 70%
- support humidity between 8 and 14%

The conditions to be observed scrupulously are:

- A solvent-based product should be stored indoors at temperatures not below 0 °C / 32°F or above 35 °C / 95°F, in a properly ventilated place, not exposed to solar radiation
- Always shake the products well before use
- Before use, always shake well the product mixed with any other components such as catalysts, accelerators, thinners
- The application must not take place at a temperature lower than 15 °C / 59°F or above 30°C / 86°F
- The drying should not take place at a temperature below 15 °C / 59°F
- The ambient relative humidity during drying should be between 50% and 70%
- To decant paints, exclusively use containers made of suitable material, such as polyethylene and stainless steel
- After use, we recommend that you always close the can carefully

The end result of the coating cycle is the sole responsibility of the users, who must make sure that the product matches their needs and that environmental conditions, application or media specifications do not require substantial changes of use

It is the user's responsibility:

- Adhere to the conditions indicated above
- comply with the rules of hygiene and safety during product application, according to the descriptions given in the safety data sheets
- for solvent-based products spark-proof equipment should be used
- It is forbidden to smoke while using the product

At the bottom of each sheet there is a date of validity
The Company invites you to check with their staff that the product data sheet in your possession is the most updated, since the characteristics of the products are subject to adjustments over time
For more information, please contact (see below):

Issue date: 2014-02

Technical Data Sheet

Product	**LZC8643**			
Description	Polyurethane slow thinner			
Chemical-physical Properties	**Density (Kg/l)**	0,858	±	0,030
	Density (lb/US gal)	7,2	±	0,3
Shelf life	**24 months after production**			

WARNINGS

In a coating process with professional products:

- besides the product quality, the final result also depends on numerous other variables, such as environmental conditions; homogeneity in the quality of the support; the constancy of the application cycle; the plants performance; the proper use of the product, etc.
- in the process of industrial coating a certain waste of product is to be considered normal and therefore not attributable to product quality
- The final colour is influenced by the quality and preparation of the support and the conditions of application, for this reason it is essential to check in advance the result in terms of final use

Our Company cannot ensure the control of the coating process carried out by the user. We cannot, therefore, take on any responsibility for the final result achieved through the use of our products.
On the other hand, we guarantee the consistency of the chemical and physical characteristics of the product indicated in the relevant Technical Data Sheet, pledging to replace it if it does not correspond to the declared features
Data on the chemical and physical characteristics of the product are recorded at 20°C / 68°F and 70% R.U.

For best results, the optimum conditions of application are:

- Ambient temperature between 18 and 22°C (64 - 72 °F)
- ambient relative humidity between 65 and 70%
- support humidity between 8 and 14%

The conditions to be observed scrupulously are:

- A solvent-based product should be stored indoors at temperatures not below 0 °C / 32°F or above 35 °C / 95°F, in a properly ventilated place, not exposed to solar radiation
- Always shake the products well before use
- Before use, always shake well the product mixed with any other components such as catalysts, accelerators, thinners
- The application must not take place at a temperature lower than 15 °C / 59°F or above 30°C / 86°F
- The drying should not take place at a temperature below 15 °C / 59°F
- The ambient relative humidity during drying should be between 50% and 70%
- To decant paints, exclusively use containers made of suitable material, such as polyethylene and stainless steel
- After use, we recommend that you always close the can carefully

The end result of the coating cycle is the sole responsibility of the users, who must make sure that the product matches their needs and that environmental conditions, application or media specifications do not require substantial changes of use

It is the user's responsibility:

- Adhere to the conditions indicated above
- comply with the rules of hygiene and safety during product application, according to the descriptions given in the safety data sheets
- for solvent-based products spark-proof equipment should be used
- It is forbidden to smoke while using the product

At the bottom of each sheet there is a date of validity
The Company invites you to check with their staff that the product data sheet in your possession is the most updated, since the characteristics of the products are subject to adjustments over time
For more information, please contact (see below):

Issue date: 2014-02

Technical Data Sheet

Product	**LNB99**			
Description	Polyurethane hardener			
Chemical-physical Properties	**Density (Kg/l)**	0,950	±	0,030
	Density (lb/US gal)	7,9	±	0,3
	Solid content %	29,9	±	2
Shelf life	**12 months after production**			

WARNINGS

In a coating process with professional products:

- besides the product quality, the final result also depends on numerous other variables, such as environmental conditions; homogeneity in the quality of the support; the constancy of the application cycle; the plants performance; the proper use of the product, etc.
- in the process of industrial coating a certain waste of product is to be considered normal and therefore not attributable to product quality
- The final colour is influenced by the quality and preparation of the support and the conditions of application, for this reason it is essential to check in advance the result in terms of final use

Our Company cannot ensure the control of the coating process carried out by the user. We cannot, therefore, take on any responsibility for the final result achieved through the use of our products.
On the other hand, we guarantee the consistency of the chemical and physical characteristics of the product indicated in the relevant Technical Data Sheet, pledging to replace it if it does not correspond to the declared features
Data on the chemical and physical characteristics of the product are recorded at 20°C / 68°F and 70% R.U.

For best results, the optimum conditions of application are:

- Ambient temperature between 18 and 22°C (64 - 72 °F)
- ambient relative humidity between 65 and 70%
- support humidity between 8 and 14%

The conditions to be observed scrupulously are:

- A solvent-based product should be stored indoors at temperatures not below 0 °C / 32°F or above 35 °C / 95°F, in a properly ventilated place, not exposed to solar radiation
- Always shake the products well before use
- Before use, always shake well the product mixed with any other components such as catalysts, accelerators, thinners
- The application must not take place at a temperature lower than 15 °C / 59°F or above 30°C / 86°F
- The drying should not take place at a temperature below 15 °C / 59°F
- The ambient relative humidity during drying should be between 50% and 70%
- To decant paints, exclusively use containers made of suitable material, such as polyethylene and stainless steel
- After use, we recommend that you always close the can carefully

The end result of the coating cycle is the sole responsibility of the users, who must make sure that the product matches their needs and that environmental conditions, application or media specifications do not require substantial changes of use

It is the user's responsibility:

- Adhere to the conditions indicated above
- comply with the rules of hygiene and safety during product application, according to the descriptions given in the safety data sheets
- for solvent-based products spark-proof equipment should be used
- It is forbidden to smoke while using the product

At the bottom of each sheet there is a date of validity
The Company invites you to check with their staff that the product data sheet in your possession is the most updated, since the characteristics of the products are subject to adjustments over time
For more information, please contact (see below):

Issue date: 2014-02