



TimberSIL[®] GlassWood Fusion Products

We Combine The Best Properties Of Wood: paintable/stainable, strength, beautiful look and feel, easy to cut and machine, and cool to the touch.

With The Best Properties Of Glass: Class A Fire Retardant, insulator, unaffected by seawater, unaffected by heat, barrier to rot, decay or insects.

And Enhance Both With Our Timbersil[®] GlassWood Fusion Process: non-toxic, structural stability, extra strong non-corrosive fastener hold, effective carbon sequestering, up to 50% stronger, twice as hard, lower maintenance, sustainable, multiple life cycles.

Our revolutionary chemistry and proprietary process transforms wood – inside and out – into a super-GlassWood product that is great for the environment, a great value for the consumer, durable, sustainable, and helps fight global warming.

Fusing Glass And Wood: Transforming the Wood Products Industry for the Present and the Future



TimberSIL® is a non-toxic fusion of two natural materials—wood and glass, producing the ideal, natural product and a combination of properties never achieved before. More than wood and more than glass, TimberSIL® combines the best of both bringing a transformation to wood.

Wow! Homeowners and builders can really benefit from this marriage of wood and glass! TimberSIL® is many times stronger than composite products; because the glassy portion parallels the grain of wood, greatly increasing strength. The wood fibers are stronger, causing nails, screws, and fasteners to hold more tightly because the glassy portion strengthens the fibers. TimberSIL® products maintain their shape better because the glass in TimberSIL® is resistant to warping. TimberSIL® products are Class A fire retardants because glass's natural resistance to fire helps to overcome the combustible properties of wood.

And yet in appearance, the transparency of glass allows the properties of wood to predominate. TimberSIL® stays cooler on a hot summer day, and maintains the true beauty and feel of wood. TimberSIL® cuts like wood and paints or stains like wood. It will eventually gray in the sun and yet because of the added glass has minimal checking and warping.

TimberSIL® provides a protective barrier rather than relying on poisons to kill insects and prevent rot or decay, as occurs with treated wood. Non-toxic, non-corrosive TimberSIL® wood outperforms treated wood in the areas of leaching, and protection from common wood problems. Pests see TimberSIL®'s glassy barrier while people see the beauty of real wood.

The TimberSIL® transformation makes our new wood better than any fake or imitation. What customer could resist better, safer, and cheaper, as well as convenient and beautiful?



TimberSIL® has won numerous awards, including:

Grand Award 2005 Home Tech Category
"Best of What's New"

Popular Science

2005 "Design 100"
Roster of Top 100 Products Destined to Change Our World

Metropolitan Home

Top 10 Green Building Products of 2004
Environmental Building News



www.timbersilwood.com

Features and Benefits Comparison



BENEFICIAL FEATURES	TimberSIL® Products	Composite/ Plastic Products	Treated Wood Products
Superior Strength	●		
Superior Durability	●		
Fire retardant, Class A	●		
Superior insulation properties	●		
Superior appearance of wood	●		
Suitable for whole house construction	●		
Longest product lifecycle	●		
Properties locked in, chemically inert	●		
Volatile organic compounds (VOC's) absent	●		
Fully recyclable, for many cycles	●		
Improves indoor air quality; healthier living conditions	●		
Lighter weight	●		
Non-toxic	●	●	
Non-leaching, insoluble	●	●	
No greenhouse gas emissions	●	●	
Reduced use of resources	●	●	
Meets all green building, sustainability principles	●	●	
Dry product	●	●	
Non-corrosive	●	●	
Paintable, stainable	●	●	
Barrier to rot and decay	●	●	●
Barrier to common wood problems	●	●	●
Undesirable features			
Structurally weak, sags		●	
Highly flammable, or burns with toxic smoke		●	●
Heavy due to product density, or wet wood		●	●
Toxic, contains heavy metals, pesticides			●
Leaches, harmful environmental consequences			●
Color hides rotten defects			●
Hazardous waste when replaced			●
Corrosive to fasteners, vinyl, other construction materials			●

Non-Toxic, Long Lasting, Safe and a Great Price



Non-toxic, Natural TimberSIL®

The wood and glass fusion that produces TimberSIL® produces the most effective and yet one of the most benign building materials imaginable. TimberSIL®'s wood portion, glass portion and fusion combination is completely non-toxic and non-carcinogenic to adults, children, and even the weakest among us. The amorphous form of TimberSIL®'s glassy matrix, if cut or sawn simply crumbles to harmless flakes.

Benign TimberSIL® is even non-toxic to fasteners, nails and screws, our way of saying we are fully non-corrosive.

TimberSIL® is non-toxic because of the glass and wood it starts with, but there is added protection from the ways the glass surrounds the wood. In the fusion process large amounts of volatile organic compounds are removed, and the rest is trapped and immobilized in the wood. There are no VOCs produced by TimberSIL®, making it essentially an inert material.

TimberSIL® can be used indoors without fear of toxic effect or releases of VOCs. Its properties make it ideal for whole house construction.

Long Lasting TimberSIL® is a Great Cost Value

In TimberSIL®'s fusion of glass with wood, the properties of glass predominate when considering its long life span. The glassy portion surrounds and protects the wood portion from rot and decay and other common wood problems making this a long lasting product. In addition, the protection essentially never ends. The glassy portion is locked inside the wood by shape of interior fibers and by insolubility and is unable to be removed. So the protection (which ends in treated wood when pesticides leach out) never can end because of the properties of glass. Although we have a 40-year warranty, TimberSIL®'s lifespan is essentially indefinite.

The savings for the environment are obvious – reduced use of resources, reduction of green house gases, and reduction in energy consumption. The savings for the consumer are impressive. TimberSIL®, on top of everything else, is less expensive than its competitors – composite products, plastic products, cedar products, tropical woods. When taking into account the savings over a 40-year life span, TimberSIL® is a better cost value than treated wood products.

Safety when you need it.

When others talk about safety, they generally mean non-toxic; in addition we mean peace of mind that comes from knowing your new deck will not catch fire and burn your house down. We mean the added peace of mind that comes from better protection from calamities, such as knowing your TimberSIL® roof or deck will not burn up from cinders from a neighbor's fire, added protection from strong winds because TimberSIL® is so much stronger and fasteners grip so much more tightly, and added protection from flood-borne rot and decay.

Better for everyone and better for the environment. TimberSIL® is more than non-polluting and non-toxic. Our glass/wood fusion effectively removes TimberSIL® wood from the carbon cycle; by using TimberSIL® products everyone can be a part of the effort to combat global warming.



TimberSIL[®] Avoids Fire Hazards of Other Products



TimberSIL[®] is a Class A Fire Retardant

Consumers can use decks and patios built with TimberSIL[®] without fear of losing their homes to fire from grilling accidents or accidental due to cigarettes or candles that cause a deck to catch fire. Their homes will not be among the 2600 homes that burn to the ground each year because their decks caught fire and spread to the house, causing an estimated \$1 billion in losses.

Fire Resistance Comparison of TimberSIL[®] Products

Fireman Babb from the Donaldson Center Fire station, Greenville SC on the fire retardancy of TimberSIL[®] siding, decking and structural products versus the flammability of vinyl siding, treated wood, and composite decking products:

“I have worked fires where the entire home was lost because of a deck fire. If they could build houses out of TimberSIL[®], it would put us out of business.”



TimberSIL[®] (left side) not burning; composite decking and vinyl siding engulfed (right side)

TimberSIL[®] Wood Provides a Safety Edge

If an outdoor grill does tip over on a TimberSIL[®] deck, homeowners have time to remove the hot coals and cleanup.

Class A Fire Retardant

A Class A Fire retardant rating means that when a flame contacts Class A fire retardant wood, the flames will not spread; however there may be scorching or charring where the contact occurred.

TimberSIL[®] meets the standard for Class A Fire retardant and for reduced levels of smoke.

When a flame attacks wood not protected by TimberSIL[®], the heat causes wood to break down and it releases volatile fumes which catch fire above the wood. The reason TimberSIL[®] is such an effective fire retardant is that when a flame attacks TimberSIL[®] products, the glassy portion traps the volatile fumes that are produced and they cannot escape; this keeps TimberSIL[®] from catching fire and prevents the flame from spreading.

TimberSIL[®] Composite Products



Minute 7 of direct contact with 2600 °F flame



Stainable, Paintable Non-Corrosive, Increased Hardness



TimberSIL® Accepts Paints and Stains Well

Our weathering studies of paints and stains, examples shown below, shows that TimberSIL® accepts stains and performed to standards in an accelerated weathering study.



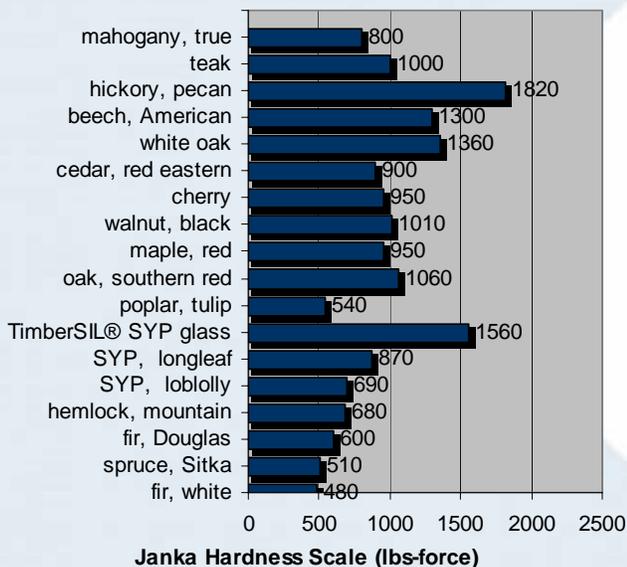
TimberSIL® is Non-Corrosive to Fasteners

Both wood and glass portions of TimberSIL® provide protection from corrosion. There is no need for special hangers or fasteners. Consumers can use everyday, ordinary exterior grade connectors and fasteners.

Property	Test Method/Protocol	Results
Corrosivity	AWPA E12-94	< 0.2 mil/yr, non-corrosive; equal to untreated controls

TimberSIL® SYP Fusion Products Have Greatly Increased Hardness

TimberSIL, Increased Hardness



The TimberSIL® fusion of wood and glass creates a product that is approximately twice as hard as the wood we start with. As measured by the Janka Scale, left, the hardness of southern yellow pine increases from 690-870 lbs-force (range depends on species), to 1560 lbs-force, approximately double.

TimberSIL® Wood Products are harder than all softwoods, and become harder than most hardwoods, as shown at left.

The resistance of TimberSIL® Wood Products to attack by organisms is due to the protective barrier of the product, and also due to the greatly improved strength of the fibers and the face of the wood, which makes it much more difficult for organisms to penetrate the wood.



TimberSIL® wood/glass fusion products are exceptionally strong, resistant to fire, and durable, in addition to providing an effective barrier that is resistant to rot, decay and common wood problems.

A key feature of TimberSIL®'s patented technology is insolubility. TimberSIL®'s glassy matrix will not dissolve in water, no matter how long it is soaked, no matter how long it is exposed to the elements.

Properties	Test Method/Protocol	Results
Class A Fire Retardant	ASTM E84	Meets standard for Class A fire retardant
Flame & smoke Spread, Class A	ASTM E84	Meets or exceeds standards
Resistance to heat transfer	ASTM E84	Resistance to heat transfer greater than non-flammable control
Strength (rupture) MOR (psi)	ASTM D4761, ASTM D143	up to 9 times greater than composite products
Strength (elasticity) MOE (psi)	ASTM D4761, ASTM D143	up to 15% greater than kiln-dried lumber; up to 30% greater than treated wood; up to 12 times greater than composite products
Fastener Holding Strength	ASTM D-1037	30% greater than composite products, up to 75% greater than treated wood
Stains: 10 yr accelerated weathering, TimberSIL® stain samples (5 types)	ASTM G151	Meets or exceeds standards; no blistering, no loss of coating
TimberSIL® wood: 10 yr accelerated weathering	ASTM G151	Meets or exceeds standards; no rot, no decay, wood silvering
Corrosivity	AWPA E12-94	Non-corrosive; results similar to untreated control
Density (specific gravity)	ASTM D2395	Similar to KD-19 wood, 40-100% lighter than composite products,
Termite Resistance	AWPA E1-97, ASTM D3345-74; ASTM D 1758; AWPA E7-93	Formosan Termite Grade 10-9.5 Sound, No Weight Loss
Resistance to Decay (field)	ASTM D 1758; AWPA E7-93	Decay Grade 10 Sound, No Weight Loss
Resistance to decay (laboratory)	Flemer et al, Hydrobiologia. 485(1-3):83-96. (ERL,GB 1080). Kurtz, et al, Environ. Toxicol. Chem. 17(7):1274-1281. (ERL,GB 1004)	Decay Grade 10, unchanged
Insolubility	Molybdate spectrometry	Insoluble
Chemical Structure Analysis	X-ray diffraction	Composed of non-toxic amorphous glass; no crystalline structure present
Cellular Structure Analysis	polarized light microscopy	Cellular fibers resistant to maceration

Detrital Microcosm Study:



After 30 days: showing Leaf & Twig Litter, Soil & Swampy Debris



After 12 months: Mold, Bacteria, and Fungi grow on top of wood



After 12 Months: Wood after cleaning No Rot!

TimberSIL[®] Wood Products: Green Certified For Green Building Programs, and Recommended By Communities, Architects, Universities, Cities, States, and Organizations Throughout the US

Summary of "GreenSpec Listing for TimberSIL[®]"

TimberSIL[®] Nontoxic Wood

TimberSIL[®] is a sodium-silicate-based process for wood that relies on a micro-manufacturing technology to create an effective barrier to rot, decay and common wood problems. The patented process uses heat to change a proprietary formula from a soluble solution that is infused into the wood and turn it into a microscopic layer of amorphous glass throughout the wood, providing an effective, permanent barrier. The wood is non-toxic, odorless and nonvolatile, is not corrosive to fasteners, does not cause excessive wear on tools, and has a natural clear color. TimberSIL[®] Decking and other exterior products carry a 40-year warranty. As of October 2005, this product was not yet listed with the International Code Council; approval for use is granted by local jurisdictions.



Contact information

TimberSIL[®] Wood Products

7481 Huntsman Boulevard, Suite 520,
Springfield, VA 22153
Phone: 703-644-9306
Fax: 703-644-1006

www.timbersilwood.com

What makes this product green:

- Releases minimal pollutants
- Nontoxic barrier to common wood problems
- Exceptional durability or low- maintenance

Links to manufacturer website:

- General Information
- Technical Data
- Material Safety Data Sheet
- Warranty



TimberSIL

TimberSIL[®] Wood Products are Also Cradle to Cradlesm Certified for Green Building Programs and LEED Projects By MBDC

TimberSIL[®] has successfully achieved the certification criteria at the following tiers:

Criterion \ Tier	Silver	Gold	Platinum
Materials			✓
Material Reutilization / Design for Environment		✓	
Energy	✓		
Water			✓
Social Responsibility	✓		



Benefits of DRY TimberSIL® Wood Products



Everyone knows that dry wood builds better than wet. There are important benefits because TimberSIL® wood is a dry product, in addition to providing an effective barrier to rot, decay, and common wood problems:

- Shrinkage problems associated with final drying are minimized.
- Increased strength and stiffness: Wet treated lumber is prone to sagging and has reduced strength.
- More uniform in size.
- Better nail and bolt holding power.
- Lighter in weight.
- Can be easily painted or stained
- TimberSIL® wood Products can be used indoors and outdoors.



Minimizing Most Shrinkage Problems

TimberSIL® wood employs a patented heating process that removes moisture during the process—not after. TimberSIL® does not use a *redrying process* like other manufacturers. The TimberSIL® process removes unnecessary water from the product *during the process*, so it won't come out later resulting in shrinkage. TimberSIL® is effectively pre-shrunk, becoming more dimensionally stable and stronger—especially as a result of the patented, wood-glass matrix manufacturing process.

The unique technology that produces TimberSIL® wood lumber, and the reduction to 19% moisture content, ensures that products will undergo limited dimensional changes, shrinkage or warpage after installation.

TimberSIL® wood products are produced under controlled conditions, and will have the opportunity to stabilize before final inspection and packaging. In the TimberSIL® manufacturing process, an advanced technology is employed that creates the permanent protection in the wood and causes the wood to dry uniformly.

DRY TimberSIL® Wood Is a Non-Toxic, Super Strong, Fire Retardant And Durable Building Material

Today with the heightened concerns about the potential hazards of chemicals, there are many things that should be considered when specifying or purchasing wood: 1) that it is completely safe, non-toxic and free of pesticides of any kind, including heavy metals and toxic biocides, 2) that it provides long-lasting barrier protection from rot, decay, and common wood problems wherever the wood is used. The TimberSIL® process produces dry wood that is protected throughout with millions of glassy layers that achieves both these goals. With TimberSIL® there is never a worry about pesticides, toxins of any kind. With TimberSIL® wood, the technology that produces low moisture, and safe, non-toxic, barrier protection, also provides many other advantages: super strength, superior fire retardance (Class A), and incredible durability.



DRY TimberSIL® Wood is VERY GREEN, and we're not talking color.

With new building technologies and green certifications popping up at every turn, it's comforting to know that TimberSIL® is dry AND green. TimberSIL® is a preeminent product desirable for LEED certifications, is GreenSpec approved, and Cradle to Cradle certified.

DRY TimberSIL® Wood is Lighter in Weight and Ready to Paint or Stain

The excess moisture resulting from treating alternatives adds appreciably to the weight of the lumber. This added weight increases handling costs of the supplier and the builder throughout the construction process. TimberSIL® wood is the type of product that carpenters and other workers prefer to handle, cut, and install on any project. It is lighter and easily handled.

Dry wood is essential for painting and staining: To satisfactorily accept paint, stain, or water repellent sealer, lumber *must* be dry to assure the necessary penetration and adhesion. Moisture trapped inside improperly re-dried wood is the most common cause of paint blistering and peeling.

DRY TimberSIL® Wood Products are Kind to Fasteners



If the fasteners used in the construction of a structure fail, then the structure fails. In other products, certain toxic, corrosive chemicals continuing to be used may create a situation where failure could occur. Fasteners hold fast and stay tight in TimberSIL® wood products.

Since TimberSIL® is a stronger, more stable product—not moving around like wet products, fasteners stay tighter. A wet, shrinking board reduces the holding strength of any fastener.

Non-Corrosive

Almost a century of experience shows that the glassy layers TimberSIL® wood does *not* contribute to any corrosion process. No special fasteners are required nor recommended for TimberSIL® wood products. This, plus the lighter weight, greatly reduces installation costs, and represents a strong advantage for TimberSIL® products.

DRY TimberSIL® Wood Can Be Used Indoors as well as Outdoors

TimberSIL® wood is a material that can be relied upon to be a strong, workable, and beautiful building material. Its non-toxicity, superior strength, superior fire resistance, and superior durability open many new possibilities for its use that are not possible for other alternatives. TimberSIL® wood can be used anywhere indoors as well as in outdoor applications. TimberSIL® is suitable for picnic tables, for furniture, for interior support structures and beams. TimberSIL® wood is the material of choice for intense weather areas and earthquake prone areas.



MSDS

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: TimberSil™ converted glass matrix, found in situ in TimberSil™ wood

Product description: TimberSil™ amorphous glass matrix that is distributed throughout TimberSil™ wood

Manufacturer: Timber Treatment Technologies, LLC

7481 Huntsman Boulevard, Suite 520, Springfield, VA 22153

Phone number: 703-644-9306

In case of emergency call: 1 703-644-9306

For technical information or questions: 1 703-644-9306

For customer service call: 1 704-500-6567

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Chemical and Common Name: TimberSil™ amorphous glass matrix

3. HAZARDS IDENTIFICATION

Emergency Overview: Clear amorphous solid matrix; inert and non-irritating, present throughout wood. (Although this information is presented for TimberSil™ converted glass matrix, the primary material present in an emergency situation is wood; standard precautions related to wood should also be followed.)

Eye contact: If present as dust, wear safety glasses, otherwise N/A.

Skin contact: Non-irritant

Inhalation: A suitable respiratory protective device is recommended for high levels of dust, if present, see Section 8, otherwise N/A.

Ingestion: N/A.

Chronic hazards: No known chronic hazards.

Physical hazards: No known physical hazards.

NFPA and HMIS ratings (scale 0-4): Health = 1; Fire = 0, Reactivity = 0

4. FIRST AID MEASURES: Product is infused into wood, and is innocuous. Follow precautions for wood dust, if present.

After Inhalation: If present as dust and quantities inhaled in excess of section 8, supply fresh air; provide medical attention in case of complaints. Otherwise, N/A.

After Eye: If present as dust, flush eyes with plenty of water to remove any solid particles. Otherwise, N/A.

After Skin: If present as dust, if desired, brush off or wash off skin. Otherwise, N/A.

After Ingestion: N/A

5. FIRE FIGHTING MEASURES

Flammable limits: Product is a noncombustible material that is interspersed into wood.

Extinguishing Media: Select fire fighting measures that suit the environment.

Hazards to fire-fighters: No unique hazards. See Section 3.

Fire-fighting equipment: No unique equipment required.

6. ACCIDENTAL RELEASE MEASURES, See also Sections 7, 8, and 13.

Personal protection: If present as dust exceeding levels of Section 8, wear safety glasses and provide appropriate respiratory protection. Otherwise, N/A.

Environmental properties: Product presents no environmental hazard.

Small spill cleanup: N/A. Material is created within and infused throughout lumber.

Large spill cleanup: N/A. Material is created within and infused throughout lumber.

CERCLA RQ: There is no CERCLA Reportable Quantity for this material.

7. ROUTINE/DAILY HANDLING AND STORAGE

Handling: Follow procedures for handling wood.

Protection against Explosions and Fires: TimberSil™ amorphous glass matrix is not flammable.

Regulation/Class of Flammable Materials: None applicable.

Storage: There are no special requirements for storage. Follow standard procedures for organization and arrangement of materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENTS WITH LIMIT VALUES THAT REQUIRE MONITORING AT THE WORKPLACE:

PEL80 g/m³ OSHA TWA for amorphous silica, if present as dust

TLV10 (total dust), 5 (respirable fraction) g/m³, if present as dust

General Protective and Hygienic Measures: The usual precautionary measures should be followed.

Respiratory protection: If exposure level is exceeded, a suitable respiratory protective device is recommended.

Skin protection: If present as dust, brush or wash off if desired, otherwise N/A.

Eye protection: If present as dust, wear safety glasses, otherwise N/A.

9. PHYSICAL AND CHEMICAL PROPERTIES

Melting Point :>1000 °C

Boiling Point:>1000 °C

Vapor Pressure:0%

Color: Colorless, transparent

Odor: Odorless

pH: N/A

Water Solubility: insoluble (see leaching, below).

Hydrolysis as a Function of pH: hydrolysable in concentrated solutions of HF, H₂SiF₆, or H₃PO₄, pH <2, or in heated, concentrated alkaline solutions, pH>10.

Dissociation Constants in Water:N/A

Thermal Stability:thermal stability to >1000 °C

Partition Coefficient:N/A

Adsorption Coefficient (Koc) in soil and sewage sludge:N/A

*Molecular Weight*645,000 Daltons

Solution Behavior in Water: insoluble (see leaching below, Section 12)

10. STABILITY AND REACTIVITY

Stability: This material is stable under standard conditions of use and storage.

Dangerous Products of Decomposition: No dangerous decomposition products known.

Conditions to Avoid: None associated with product. Follow standard precautions for wood.

Materials to Avoid: None.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity: animal studies support very low toxicity for product.

*Oral*LD5010 g/kg (rat)

*Dermal*LD50>5 g/kg (rabbit)

*Inhalative*LC500.139 mg/kg/14h (rat)

Primary Irritant Effect:

In the Eye:If present as dust, may cause redness, similar to the effects of dust.

In the Lungs:If present as dust and inhaled, may cause irritation.

Sensitization:No sensitizing effects known.

Subacute to Chronic Toxicity: No negative effects were determined during tests for chronic oral toxicity, carcinogenicity, teratogenicity and fertility. No irreversible changes and no symptoms of silicosis were determined during tests for chronic inhalative toxicity.

Special Studies: There are no known reports of carcinogenicity of any component of TimberSIL[®] amorphous glass matrix.

12. ECOLOGICAL INFORMATION

Leaching:

Si leaching from wood, modified SPLP: 400 mg l⁻¹ ⁽¹⁾

Si leaching in soil column: 4 mg l⁻¹ ⁽²⁾

⁽¹⁾ Si value is from the <0.01% unconverted (soluble) TimberSil[™] residue remaining in the wood, and is the total leachable quantity.

⁽²⁾ Si levels from ⁽¹⁾ complex with Ca and metals in soil. Si levels of ⁽²⁾ are primarily from the much higher quantities of other forms of Si naturally present in soil, % range 20-40. Leaching in soil column due to unconverted TimberSil[™] residues is indistinguishable from background.

Biodegradation:

(a) Biodegradation under aerobic static laboratory conditions: below detectable limits (i.e. Bod less than 2.5% of theoretical) in 20 days

(b) Stability continues to increase slowly over time (years) due incorporation of aluminum, other metals and calcium into the matrix, and complexing with a wide variety of soil constituents.

Ecotoxicity: generally not hazardous for water

EC50/48h/Daphnia magna NR to > 1 g l⁻¹

Earthworm/14d: NR

13. DISPOSAL CONSIDERATIONS

Classification: Waste material is not a hazardous waste.

Disposal Method: Landfill solids in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION.

This product is not regulated as hazardous goods by DOT, ADR, IMO, or IATA.

15. OTHER INFORMATION

Prepared by: K. M. Slimak, President, Timber Treatment Technologies, LLC

Date: March 31, 2005



**TIMBERSIL® WOOD PRODUCTS
40 YEAR LIMITED WARRANTY CERTIFICATE
FOR CERTAIN RESIDENTIAL USES**

TTT warrants to the purchaser of TimberSIL® lumber (“TimberSIL® barrier Product” or “Product”) and the owner/occupant of the real estate upon which this Product is used or to the owner of any personal property into which this Product is incorporated, that, for 40 years after purchase, this TimberSIL® Product, as used in conjunction with a residential structure, the barrier protection in TimberSIL® Products will prevent the Products from structurally failing in service due to rot, decay or damage from termites. Only wood bearing the TimberSIL® Warranty Label is covered by this warranty.

The only obligation of TTT under this warranty shall be to replace Product which has structurally failed for the reasons stated above. This warranty does not cover any removal, installation, re-installation or freight costs. This warranty does not cover warping, splitting, twisting, checking, weathering or other changes in the shape of the lumber. This warranty does not cover damage to Product used in foundation systems, or in pilings, pole or heavy timber type residential construction, used in swimming pool sidewalls or in water immersion applications, or tree supports in agricultural applications, or used for any non-residential, commercial or industrial project, or damage resulting from any cause other than the reasons stated above.

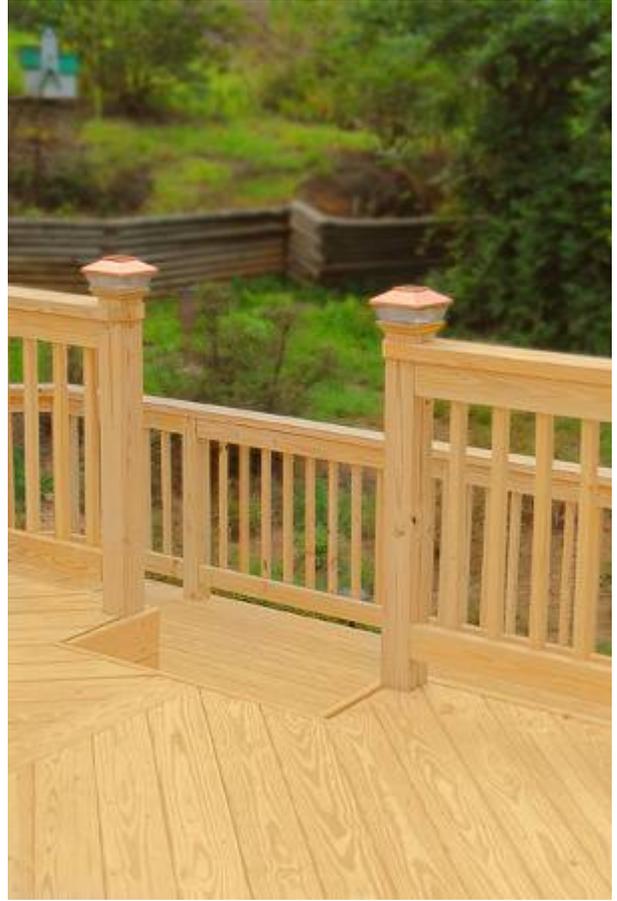
This warranty is extended only to the owner/occupant of the real estate upon which this Product is used or to the owner of any personal property into which this Product is incorporated. This warranty is transferable to any future owner or the real estate or such personal property. The owner to whom this warranty is extended agrees to notify TTT in writing at the following address listed below within 90 days of first learning of a possible defect in the Product which may lead to a claim under warranty. The owner must give TTT this notice before TTT shall have any obligation under this warranty. Failure to use the Product in accordance with any instruction or restriction printed on the end tag voids this warranty.

This warranty is the sole warranty given by TTT with respect to the covered products. TTT disclaims all other warranties, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. This warranty supersedes all prior or contemporaneous oral or written representations concerning the product. No TTT employee, distributor, reseller, independent sales representative, or any other person is authorized to modify this warranty or make any warranty in addition to the warranty set forth in this certificate.

Under no circumstances will TTT be liable for any special, indirect, incidental, consequential or punitive damages whether arising out of or in any way related to a claim for breach of warranty, breach of contract, negligence, strict liability in tort or any other legal theory. Such damages include, but are not limited to, loss of profits, damage to the structure in which the covered product(s) is (are) installed, cost of substitute goods, or loss of use of the products or other property. Any action or suit relating to the products must be commenced within one year after the cause of action accrues.

Certain state laws do not allow limitations on implied warranties, or the exclusion or limitation of certain damages. If these laws apply to you, some or all of the above disclaimers, exclusions, or limitations may not apply to you, and you might have additional rights. All questions concerning the meaning or applicability of this limited warranty are to be decided under the law of the state of Virginia without reference to its choice-of-law rules.

To make a claim under this limited warranty, the owner must send the original end tag, a copy of the original purchase invoice for the affected Product, proof of structural failure due to rot, decay or damage from termites, and proof of use of product in accordance with product instructions or restriction on the end tags or in this warranty to: Timber Treatment Technologies, LLC, 7481 Huntsman Blvd. Suite 520, Springfield, VA 22153; Attn: Product Warranty Claims





TimberSIL[®] recommended for storm-resilience for rebuilding after hurricane damage.

In the aftermath of the devastating damage of hurricane Katrina, the US Green Building Council developed a program plan and guidelines for reconstruction of New Orleans public schools within a context of sustainability. Sustainability principles include achieving high standards of energy, structural, environmental, and human performance; designing and rebuilding to maintain living conditions in the event of extended future interruptions; and emphasizing long-term solutions.

Learning From Disaster

A Vision and Plan for Sustainable Schools and Revitalized Public Education in New Orleans in the Wake of Hurricanes Katrina and Rita



In the section on Incorporating Storm Resilience into Schools, the US Green Building Council recommends specifying TimberSIL[®] as the wood of choice for all reconstruction activities as a means of achieving storm resilience in structures, citing the TimberSIL[®] properties of moisture resistance, durability, non-toxicity, and its effect barrier to rot, decay and common wood problems.

Incorporate Storm Resilience into Schools

Background and Context

Much of the Katrina-related damage in New Orleans schools resulted from the breaching of levees. Designing for resistance to that level of flooding may not be feasible. However, some of the hurricane and flood damage to schools in the city could have been prevented through storm- and flood-resistant design features and water-resistant construction practices. There are huge opportunities to significantly enhance safety and resilience in new schools, but many opportunities also exist for improving existing school facilities.



Summarized from page 14 --

Specify Moisture- and Termite- Resistant Wood-

Where wood is used, specify moisture- and termite-resistant species or nontoxic wood that provides an effective barrier to rot, decay and common wood problems. A highly durable and nontoxic wood is available (TimberSIL[®]), though until it is listed by code bodies, special approval by local building officials may be required. Avoiding termite-prone building materials will reduce the need for pesticide treatments, which pose health risks to building occupants, especially children.



Excerpts from:

Learning From Disaster, a Plan for Revitalization of New Orleans, January 2006. U.S. Green Building Council, Washington, DC, http://green_reconstruction.buildinggreen.com/documents.attachment/305944/Learning_From_Disaster_low.pdf



Corporate Offices:

7481 Huntsman Boulevard, Suite 520,
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w: www.timbersilwood.com

Contact: Rick Dixon,

rdixon@timbersilwood.com



Green Building and TimberSIL® Wood: Examples

State, city programs, approvals:

State of Wisconsin Extension Program	2006	(a) Building Green Guide, Sustainable Product Choices	TimberSIL® is green listed. Guide is for homeowners and building professionals. Presented in the national CSI Code format for specifying professionals
State of Hawaii	2005	(f) Environmental Product Guide; Comprehensive Procurement Guidelines	TimberSIL® is listed as a product recommended by the state of Hawaii.
Minnesota Pollution Control Agency, State of Minnesota	2006	(p) Minnesota Sustainable Communities Network, NEXT Step Program	TimberSIL® is listed as a preferred non-toxic alternative to pressure treated wood.
City of Irvine, CA	2006	(h) Green Building Resource Guide. in partnership with Global Green USA; Our Choices Build Our Chances For Sustainable Communities	TimberSIL® listed as green building material.
Jackson County, MO	2006	(c) Green Build Permit Program; Green Build Handbook	IAQ/health points awarded for using TimberSIL® wood. Certified levels green through platinum. Patterned after national LEED certification program.
City of Portland, OR, Office of Sustainable Development	2005	(d) Designing and Building a More Sustainable Home, Green Home Remodeling Guide	TimberSIL® listed as a safe, non-toxic wood alternative. Guide promotes Green Building.
Marion County Department of Public Works, Environmental Services, Salem, OR	2006	(g) Sustainable Construction Guide; Guidelines for Construction Materials; Greenbuild tips and techniques	TimberSIL® recommended for any application that specifies lumber, including decking, fencing, and site furnishings. For homeowners, architects, contractors, and others.

National, federal programs:

National Park Service	2006	(b) Lumber For Dock Maintenance	NPS rfp for Montana project; includes TimberSIL® as approved material in bid documents.
US EPA	2005	(r) Profile of the Products and the Technologies Used in the USA	Presentation by Director, Antimicrobials division, lists TimberSIL® as a non-pesticidal alternative to treated wood products



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Universities and Educational Institutions:

School of Public & Environmental Affairs, Indiana University, Bloomington, Indiana	2005	(e) Creating a LEED-Certified Building	TimberSIL [®] included as recommended indoor material for reduction of indoor air pollutants.
University of Alaska, Fairbanks	2006	(i) Preservative Treatment of Alaska wood products in Alaska	Alaska looking to utilize TimberSIL [®] ; Alaska Wood Utilization and Research Center.
Illinois Institute of Technology	2005	(o) Knowledge Report IPRO 301 (Sustainable Village)	TimberSIL [®] described as the material of choice for green building due to its “no toxins” in a multi university project.

Organizations:

US Green Building Council, Washington, DC	2006	(k) Learning from disaster, a plan for revitalization of New Orleans	TimberSIL [®] Recommended for rebuilding after hurricane damage
Building Green, Inc.	2004-2006	GreenSpec Directory	TimberSIL [®] featured as a green building material; TimberSIL [®] releases minimal pollutants, and for exceptional durability or low maintenance
Physician group	2005	(m) Arura Clinic of Natural Medicine	TimberSIL [®] recommended by physicians group.
		(j) Alliance for Healthy Homes	Recommends TimberSIL [®] : <i>in</i> Arsenic treated wood article and article on the hazards of arsenic treated wood.
Architects: Kraus-Fitch Architects, Inc	2006	(l) Mosaic Commons Cohousing Community At Sawyer Hill Development, Berlin, MA	TimberSIL [®] Specified for sill plates, sleepers, joists: Mosaic Commons Neighborhood. 34 units of housing, in 13 buildings
Watershed Media	2006	(n) Building with Vision	TimberSIL [®] an alternative wood in green buildings.
Asheville Citizen Times and Shelter Ecology, Inc. Asheville, NC	2006	(q) Revolutionary Environmentally Friendly Wood Products in the Building Industry, part 3: Treated Wood	Recommends TimberSIL [®] as an alternative wood, in green buildings.

(a) <http://www3.uwm.edu/Dept/shwec/publications/cabinet/reductionreuse/615.SG.0502%20Update%202.pdf>

(b) <http://www.cbd-net.com/index.php/search/show/1100596>

(c) <http://www.jacomojourney.com/pdfs/Green%20Build%20Handbook.pdf>

(d) <http://www.portlandonline.com/shared/cfm/image.cfm?id=122205>

(e) http://www.iu.edu/~speaweb/academics/syllabi/V600_greenbuilding.pdf

(f) <http://www.hawaii.gov/spo/SPO/epps/DBEDT%202005%20Environmental%20Product%20Guide.pdf>

(g) <http://publicworks.co.marion.or.us/es/PDF/SustainBldgGuide.pdf>

(h) <http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=7181>

(i) http://www.uaf.edu/ine/trc/akwit/pdf/Allen_Brackley_PRESERVATIVE_May_06.ppt#274,17,WHAT

NEEDS TO BE DONE?

(j) http://www.afhh.org/hhe/hhe_arsenic.htm

(k) http://green_reconstruction.buildinggreen.com/documents.attachment/305944/Learning_From_Disaster_low.pdf

(l) <http://nexums.com/Outline%20Specs-060802-landmark.doc>

(m) <http://www.aruraclinic.com/index.cfm?fuseaction=browse&id=27995&pageid=144>

(n) http://www.watershedmedia.org/bwv_resources.html

(o) <http://www.iit.edu/~ipro301s05/knowledge/reports/Knowledge%20Report%20IPRO%20301%20v1.pdf>

(p) http://www.nextstep.state.mn.us/res_detail.cfm?id=1168

(q) <http://www.shelterecology.com/enviornWoods.html>

(r) http://www.ibama.gov.br/qualidadeambiental/madeira/apresentacao/Perfil_produtos_tecnologias_utilizadas_USA.pps

Reutilization Recommendations



TimberSIL® protection is truly 'locked in for life'. Purchasers of TimberSIL® are encouraged to view TimberSIL® as having many lives, not just the first one intended at the time of purchase.



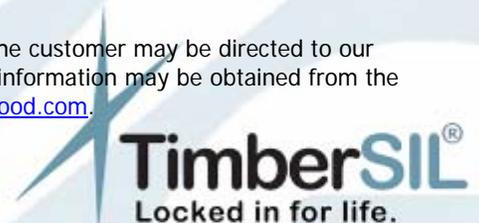
The first life of TimberSIL® wood, pictured above, should just be the beginning of the useful lives of TimberSIL®. Other lives of TimberSIL® include:

- Repurpose for home construction projects. This includes removal from old structures, washing, cleaning, and use in new buildings as desired, including:
 - Internal studs and other support structures
 - Flooring
 - Decorative wall or ceiling structures
 - Decks
 - Fencing
- After an undetermined number of cycles, repurpose to smaller structures including:
 - Window frames
 - Door frames
 - Reform with wood jointing techniques to reform into framing, siding and the like
- After an undetermined number of cycles, further reduce particle sizes and feed as raw material into manufacture of:
 - Chip board
 - Strand board
 - Particle board
 - Insulation. The fire retardant and insect resistant properties allow it to be reused as an insulating material inside concrete blocks, walls, and ceilings.
- Final end use plan: mulching. Grind and shred TimberSIL® wood, preferably TimberSIL® products that have proceeded through the multiple reuse cycles described above. Sell product as mulch for use in flower beds, around bushes and shrubs, etc.



TimberSIL® products are not intended to be thrown away when the first life use is finished. They are suitable for many other uses. Reuse is good for the environment because it reduces use of forest resources, reduces energy consumption substantially because a one-time energy use is passed on to many new products. This represents an important way to fight global warming.

Please direct purchasers to a reutilization Company in the area. If one cannot be found, the customer may be directed to our Greenville manufacturing facility for return; there will be a nominal return fee. Additional information may be obtained from the corporate headquarters at 703-644-9306, or from the Company website: www.timbersilwood.com.



www.timbersilwood.com

Toxin-free treated wood

Wood treated by an innovative and environmentally friendly process called TimberSil will soon be available to builders and consumers for decks, docks, fences, and children's playground equipment. TimberSil, based on a sodium silicate formula, protects wood in a radically different way than competing products by eliminating the toxic and corrosive side effects associated with conventional arsenic- and copper-based treatments. The new product promises to be gentler to the environment than products based on pesticides.

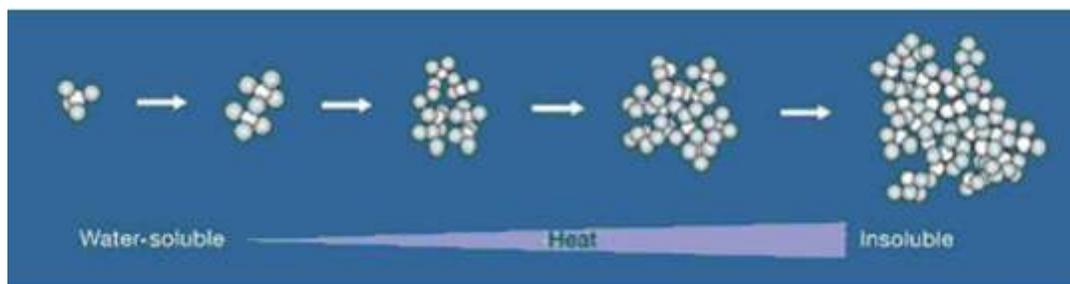
Wood intended for outdoor use must be treated to protect it from insects and microbial agents. Since the 1970s, most wood used in outdoor residential settings has been treated with chromated copper arsenate (CCA). Because of health and environmental concerns about the chemicals, including arsenic, that leach out of structures made with CCA-treated wood, CCA was phased out of consumer use in 2003, thanks to an agreement

don't interact at all. Organisms are not going to get a food source or a water source.

TimberSil uses a "micro-manufacturing process" to create a barrier, making wood unavailable to small insects and microbes and rendering it unrecognizable as a food source at the cellular level. Although, for competitive reasons, Slimak declines to describe the process in much detail, she acknowledges that it involves first infusing a water-based formula containing various ingredients, including sodium silicate, into the wood and then heating it under certain conditions. The end result is that "we surround the millions of fibers that comprise wood with layers of amorphous glass that are only a few molecules thick." Organisms perceive the finished product as glass, not wood.

Because TimberSil is not toxic, its environmental impact is expected to be negligible, says Slimak. "The properties of amorphous glass are well known, and known to be innocuous."

"Assuming that it performs as expected [over the years], the TimberSil sodium silicate treatment process has the potential to revolutionize wood treatment, because it eliminates the use of toxic chemicals," explains Alex Wilson, executive editor



Molecule growth during polymerization of TimberSIL[®]. Ultimately, the molecules grow large enough to repel all microorganisms.

between the U.S. EPA and industry. Concerns about the long-term environmental impact of CCA-treated wood were heightened recently when researchers found that arsenic is leaching from utility poles and railway ties—structures not covered under the agreement with EPA.

Since the phaseout of CCA, several arsenic-free wood treatment alternatives have emerged, including preservatives based on amine copper quat (ACQ), borates (disodium octaborate tetrahydrate), and copper azoles. Other building materials, including composites and redwoods such as cedar, have also grown in use. The other wood treatments work essentially the same way CCA did—as pesticides.

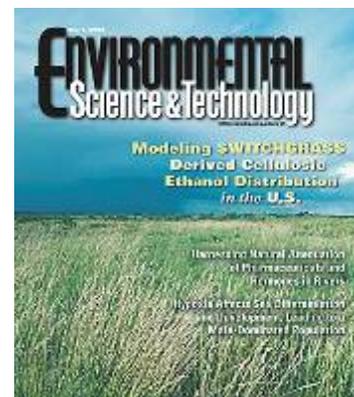
TimberSil takes a different tack. The treatment infuses wood with amorphous glass, making it water insoluble and therefore no longer an attractive form of food for bugs and other microbial agents.

"We don't kill anything," explains TimberSil's inventor Karen Slimak, an environmental toxicologist and CEO of Timber Treatment Technologies (www.timbersilwood.com). "We just

of Environmental Building News.

Unlike CCA, "sodium silicate is a fairly harmless chemical that has been widely used in laundry detergent and other consumer products for over 100 years and as a corrosion inhibitor in municipal water treatment plants. It is not considered harmful to humans and is not regulated by the EPA," Wilson says. A further benefit of sodium silicate, he points out, is that, "unlike the conventional replacements to CCA [ACQ and copper azoles], TimberSil is not corrosive to steel.

Corrosivity has become a very significant problem, particularly with ACQ. In some situations, steel fasteners are corroding and structural failures may occur." — Mary Kathleen Flynn





Look Into TimberSIL® – and Unlock the Future of Wood.

Grand Award 2005 Home Tech Category

“Best of What’s New”

Popular Science

2005 “Design 100”

Metropolitan Home

Top-10 Green Building Products of 2004

Environmental Building News

1-703-644-0991

www.timbersilwood.com

 **TimberSIL®**
Locked in for life.

Contact: TimberSIL® Wood Products
Rick Dixon 703-644-9306
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TimberSIL® Non-Toxic Lumber Wins *Popular Science* Magazine Grand Award

NEW YORK, NY, November 8, 2005 - TimberSIL™, the first non-toxic effective barrier product to rot, decay and other common problems in lumber, has been named one of this year's breakthrough technologies by the editors of *Popular Science* magazine. Developed by TimberSIL® Wood Products, TimberSIL® took the Grand Award in the magazine's annual "Best of What's New" Home Tech category.

TimberSIL® was developed by an environmental toxicologist who has spent more than 30 years investigating the relationships between human health and chemical exposure.

"Best of What's New" is the ultimate *Popular Science* accolade, representing a year's worth of work evaluating thousands of products," said Mark Jannot, editor of *Popular Science*. "These awards honor innovations that not only influence the way we live today, but that change the way we think about the future."

Infused into lumber through TTT's micro-manufacturing process, TimberSIL forms a protective barrier of amorphous glass, thoroughly penetrating and surrounding the wood fibers. The resulting building product is non-toxic, non-corrosive, non-carcinogenic, more durable, and a Class A fire retardant. Ideal for decking applications, it is also designed for interior and exterior,

above-ground and in-ground use, and is fully stainable and paintable. TimberSIL® and other 2005 "Best of What's New" winners were highlighted in the December 2005 issue of *Popular Science* magazine.

TimberSIL® is produced at the Company's South Carolina manufacturing facility. TTT plans to continue to expand distribution of TimberSIL as production facilities are added throughout the remainder of 2008 and 2010.

TimberSIL® Wood Products, uses proprietary micro-manufacturing processes to protect and enhance wood products. TimberSIL®, its award-winning flagship product, provides an effective barrier in lumber to rot, decay and common wood problems without using toxic ingredients. Corporate headquarters are located near Washington, D.C. Learn more at www.timbersilwood.com.

About the "**Best of What's New**" awards: Each year, the editors of *Popular Science* review thousands of products in search of the top 100 tech innovations of the year – breakthrough products and technologies that represent a significant leap in their categories. The winners – the "Best of What's New" – are awarded inclusion in the much-anticipated December issue of *Popular Science* – the most widely read issue of the year since the birth of "Best of What's New" in 1987. "Best of What's New" awards are presented to

100 new products and technologies in 12 categories: Auto Tech, Aviation & Space, Cars, Computing, Engineering, Gadgets, General Innovation, Home Entertainment, Home Tech, Personal Health, Photography, and Recreation.

About *Popular Science*: Founded in 1872, *Popular Science* is the world's largest science and technology magazine with a circulation of 1.45 million and 6.5 million monthly readers. Each month, *Popular Science* reports on the intersection of science and everyday life, with an eye toward what's new and why it matters. *Popular Science* is published by Time4 Media, a subsidiary of Time Warner Inc. [NYSE: TWX].

www.timbersilwood.com



In May 2005, It was **Timber Treatment Technologies** Honor to to have **TimberSIL™** selected as one of **Metropolitan Home Magazine's Design 100** List.

Design 100 included "Great design in all senses of the word, from the breathtakingly beautiful and the astonishingly well made to the innovative, heartfelt and inspiring" The Editors of Metropolitan Home Magazine

#41 Clean Cut

TimberSIL™ from Timber Treatment Technologies - When environmental chemist Karen Slimak couldn't find a 100 percent nontoxic building lumber for her patients with chronic allergies, she invented it."



39 ••• The Ultimate Product Launch—It's a Blast!
SpaceShipOne Last year Burt Rutan, an Oregon-born, California-trained aircraft designer, proved that a privately built, manned craft could leave the atmosphere and return safely to Earth. While the rest of us were merely gazing at NASA's SpaceShipOne, Rutan's former employer, Mojave Aerospace Ventures, saw opportunity. So in early in 2007, **SpaceShipOne** will begin transporting passengers to space from Rutan's base in the Mojave Desert. Thousands have already put their names on the list to enter lot for reservation updates. Cost of a ten-hour trip: \$200,000. It's not a genius, privateer. <http://nypost.com> —TJZ



40 ••• Public Rest
 "Don't Miss a Shot" by Monica Bonvicini: The Italian artist's fully functional toilet press (shown here at Art Basel '05 in 2006) is a restroom that requires none of steel. The one-way reflective glass allows those in the unreflected view of anything—and everyone—in the vicinity, gazing on the outside of the WC glimpse only their reflection. Bonvicini can't see for work is about "the privilege of seeing," although some say it's about the right to public viewing. <http://maps of America, take note!> —JZP



41 ••• Clean Cut
 TimberSIL, from Timber Treatment Technologies When environmental chemist Karen Slimak couldn't find 100 percent nontoxic building lumber for her patients with chronic allergies, she invented it. Her revolutionary "carbon silicate" process seals timber with a molecule thin layer of harmless glass (no poisonous chemicals), at a comparable price to normal pressure-treated wood, and its guarantee to last for 40 years (about 36 feet). timbersil.com —JW +



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40-Year Guarantee



TimberSIL Press & News Releases and Background

NEWS

FOR RELEASE

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703-644-9306

TimberSIL Selected Top-10 Product for 2004



November 10, 2004 - TimberSIL from Timber Treatment Technologies has been selected as one of the 2004 BuildingGreen Top-10 products. This annual award recognizes the most innovative and exciting green building products added to the *GreenSpec® Directory* during the past year.

This year's BuildingGreen Top-10 covers a wide spectrum of products and applications. Some are used primarily in commercial buildings, others in houses. Some are considered green because they utilize renewable energy, others because they avoid toxic chemicals or are made from recycled or independently certified green materials, and still others because they save energy or water.

A big driver in the development of green products is the U.S. Green Building Council's LEED® Rating System (Leadership in Energy and Environmental Design), which awards points for certain product characteristics or the energy or water savings they can achieve. "Designers of LEED buildings are looking for green products, and manufacturers are responding," said Wilson.

TimberSIL (www.timbersilwood.com) is a revolutionary new non toxic product that incorporates a patented process using sodium silicate technology (SST) to protect wood. TimberSIL protects the wood from rot and decay, and other common wood protection problems. TimberSIL is non-corrosive and also provides the wood with flame retardant properties. Timber Treatment Technologies, is located in Springfield, Virginia and is currently marketing TimberSIL through select U.S. distributors.

GreenSpec is the leading national directory of green building products. The 1,800-plus products included in the directory are selected by editors of *Environmental Building News (EBN)* based on criteria developed over the past 13 years. *Environmental Building News*, founded in 1992, is the oldest and most widely respected publication in the green building field. Manufacturers do not pay to be listed in *GreenSpec*, and neither *GreenSpec* nor *EBN* carry advertising; both are supported by users of the information. "This policy of not accepting money from manufacturers allows us to be objective in reviewing products for inclusion," said Wilson. *GreenSpec* is available as a print directory as well as part of a web resource, the *BuildingGreen Suite*. For information on BuildingGreen resources, visit www.BuildingGreen.com or call 800-861-0954.



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40-Year
Guarantee



SAFE WOOD

A Non-Toxic, Alternative to Pressure-Treated Lumber

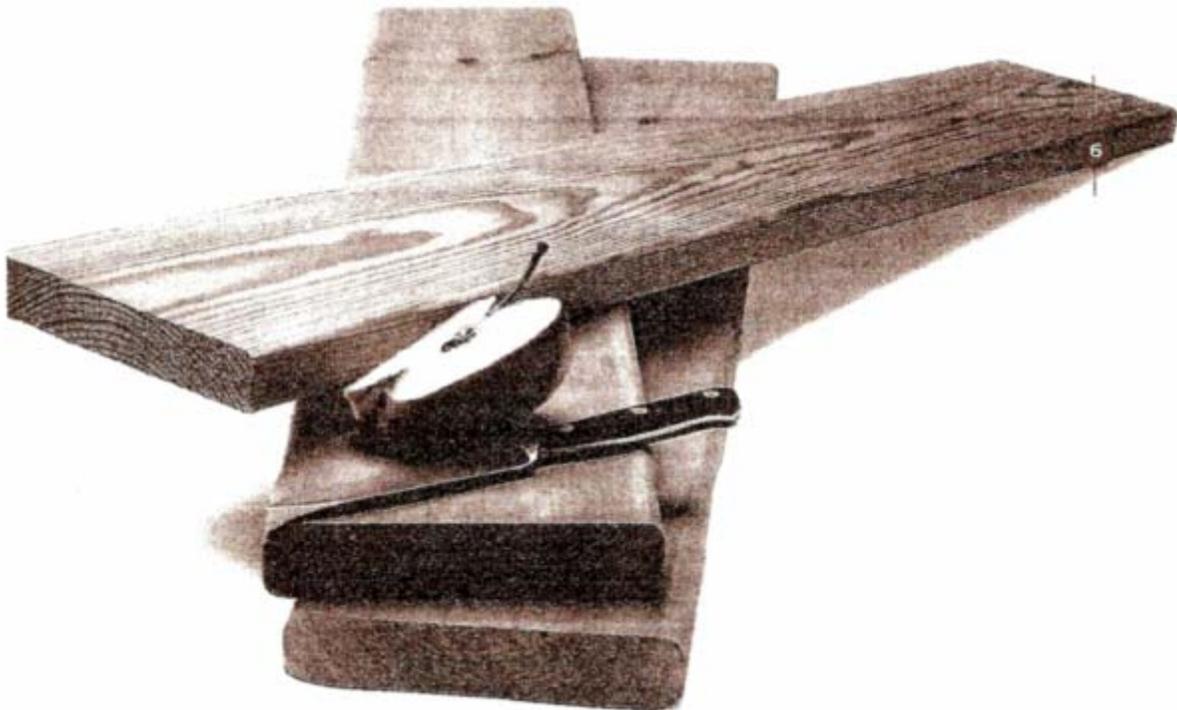
A new process encases wood fibers in trace amounts of glass, with surprising results.

by Mark Powers, THIS OLD HOUSE MAGAZINE, September 2005, and THIS OLD HOUSE ONLINE

Summary: Leave it to a chemist specializing in immune deficiency disorders to devise a nontoxic wood that's an effective barrier to rot and decay and common wood problems, and so clean you could eat off of it. Its maker says it's even safe enough to put in your mouth. But we're not sure why you'd want to do that. What you should do with it is build a deck, raise a garden bed, and erect that tree house you promised the kids. And sleep well knowing the wood won't leach toxins or corrode the metal fasteners that hold all those weekend projects together.

The new lumber is called TimberSIL[®], and it's an alternative to wood preserved with potentially hazardous heavy metals like arsenic, chromium, and copper. Instead, TimberSil is infused with a formula based on sodium silicate, a melted mix of sand and soda ash. The latter is a common ingredient in washing detergent. The sodium silicate formula converted to glass and permanently encases the wood fibers with a flexible layer of innocuous glass. (Note that the nontoxic amorphous form of glass used in the process does not produce harmful dust when sawing, says TimberSIL[®] Wood Products. But standard respiratory and eye safety wear is recommended, as when working with all lumber.)

TimberSIL[®] arrives on the racks dry and ready to paint or stain. It offers more stability than other treated woods, which shrink as they dry, leading to cracks, splitting, and checks. And unlike its green-tinged counterparts, TimberSIL[®] retains its natural color. Because it's essentially sealed in glass, TimberSIL[®] won't break down in wet or moist conditions. "We've pulled the stuff out of the ground after more than a year and it comes out without so much as a nick," says Hobbs. "After washing it off, it looks brand new."



New wood protection treatment alters the nature of wood

There's a very simple reason that wood is vulnerable to termites, boring insects, mildew, mold, and rot. Trees are part of the planet's life cycle, and in the grand scheme of things, wood is meant to decay and feed other creatures.

Of course, that's not a story anyone's customer wants to hear.

Until recent years, the most common protection for exposed wood was CCA pressure treatment, which infused the timber product with chromated copper arsenate. It's only been 4 years since that fell out of common use due to fears over its toxicity.

Today's most popular chemical treatments include ACQ (amine copper quat) and copper azole. While they don't present the human health risk of an arsenic compound, they are essentially toxic to wood eating vermin. Unfortunately, ACQ treated wood is also toxic to steel fasteners.

Karen Slimak, CEO of Timber Treatment Technologies, looked at the problem from a different perspective. Instead of adding insecticides to the wood, she developed a treatment named TimberSIL® that would, instead, take wood out of the food chain altogether.

The process involves heating timbers that have been infused with a sodium silicate bearing water based solution that is non-toxic and VOC-free. The silica forms a glass-like matrix with the wood fibers, so insects and other decay causing organisms do not recognize the resulting product as a food source - and thus leave it alone. "this protection is on the microscopic, cellular level," said TimberSIL's Rick Dixon. Tests show wood eating pests move right over TimberSIL as if it wasn't wood at all."

That might be good enough in it-

self, but the TimberSIL® team found there were other bragging points as well. For example, TimberSIL® Wood Products was found to add substantial strength and stability to southern yellow pine lumber. "Recent tests show TimberSIL® 20-30% higher in MOR and MOE (modulus of rigidity and elasticity) numbers over ACQ and CA treated lumber, and six to ten times higher than the popular composite decking materials," Dixon describes. "[Its] increased stability yields improved resilience in hurricane, tornado, and earthquake prone areas contributing to an extended, indefinite life cycle." TimberSIL features a 40 year warranty.

The product has also shown itself to offer serious fire retardant advantages compared to other treated or untreated woods.

Unlike many chemically treated woods, TimberSIL has a natural wood appearance and it can be painted or stained immediately -which means the dealer can make an immediate add-on sale, rather than hope the customer returns in 6 months. and unlike ACQ, it is not corrosive steel, so ordinary nails and fasteners can be used.

TimberSIL® wood is available in premium 5/4 deckboard and all dimension lumber sizes, up to 16ft in length, 1X for trim boards, plus the popular 2x2 pickets for deck railings. As a new Company, Timber Treatment Technologies is now establishing dealer programs with lumberyards, pro-dealers, and distributors.

703-644-9306

www.timbersilwood.com

Circle #112 on info Card



EBN Updates Treated Wood Options

Environmental Building News (EBN), Brattleboro, Vt., has published a feature article analyzing current developments in wood treating technology, claiming to look at both performance and environmental impact.

“Treated Wood in Transition: Less Toxic Options in Preserved and Protected Wood,” surveys the regulatory, legal and business aspects of what has happened in the treated wood market since chromated copper arsenate (CCA) was taken off the market in early 2004.

According to the feature, “The mainstream, copper-based replacements for CCA corrode fasteners more rapidly than CCA, increasing the risk of collapse for thousands of decks and other structures. Some of the new chemical treatment systems are entering the market with very little scrutiny from regulators, while one of the most promising treatment alternatives, TimberSIL, is the target of a campaign by the industry to get regulators to reclassify it as a toxic chemical—even though it isn’t toxic.”

Of interest to wood and mixed C&D recyclers, the story’s author also writes, “[M]eanwhile, the 60 billion board feet (140 million m³) of CCA-treated lumber that’s been put in service over the past 40 years is getting old; huge quantities are coming out of service and being disposed of, posing an environmental nightmare.”

The story notes that although CCA is no longer used in applications “where direct contact is likely, including playgrounds and most residential uses, such as decks,” the additive remain in applications such as “plywood (for both residential and commercial buildings), permanent wood foundations, timbers in commercial construction, marine pilings and piers, farm fencing, guardrails and sound walls along highways, and utility poles.”

Many of the CCA alternatives have indeed dropped the toxic heavy metals, but according to EBN, “Without chromium, which in CCA helps the copper bond tightly to wood, the protective chemicals may leach out. Perhaps more significantly, metal fasteners used with copper-based preservatives are more subject to galvanic corrosion and oxidation.”

The story’s author suggests, though, that a different new product could be a better option. “TimberSIL, produced by Timber Treatment Technologies, LLC (TTT) [uses] patented technology [that] essentially converts sodium silicate to an insoluble glass that surrounds and protects wood cells, making it unavailable to fungi and insects as a food source.” The product was named as a “Top 10 Green Product for 2004” by EBN-affiliated Web site BuildingGreen.com.

More information on BuildingGreen and its affiliated services and publications can be found at www.BuildingGreen.com.

Thursday, August 3, 2006

[Post your comments on this story on the Construction & Demolition Recycling Message Board](http://www.cdrecycler.com/news/news.asp?ID=2762)
<http://www.cdrecycler.com/news/news.asp?ID=2762>

New products: Editor's Picks: HGTVPro.com, the site for homebuilding professionals

TimberSIL's Wonder Lumber

This new glass-impregnated lumber still looks like wood, but performs like a pro in challenging environments.

By Mark Clement

Article Summary: When a new product like TimberSIL's glass-impregnated pressure treated lumber comes around, there's only one thing to do: shine a Klieg light on it and tell everyone you know. It looks like this material could be the biggest advancement in lumber engineering since plywood.

The product TimberSIL makes is the next generation of barrier protected Southern Yellow Pine. But instead of impregnating the lumber with a mix of nasty chemicals and heavy metals, it's treated at very high heat with a sodium silicate formula, which is glass. Instead of looking engineered, it still resembles wood.

TimberSIL's Sodium Silicate Technology (SST) is a revolutionary process. It binds sodium silicate with the wood fibers, essentially surrounding them in glass (called "amorphous glass") creating a permanent bond with the wood fibers at the molecular level. "TimberSIL's protective characteristics match or exceed those of other treatment chemicals," according to the company. "[It] outperform[s] ACQ, CA and straight borates. Indeed, if you could use all of these other products at once, the benefits would not match those of TimberSIL."

Add to that, SST is totally non-toxic and can't leach its preservative into the ground like other treated materials can, even when soaked with water for long periods of time. And, while TimberSIL is totally harmless to people and animals, bugs and micro-organisms have no interest in eating it. That's good stuff.

TimberSIL is so new that it's just entering distribution. It's currently priced competitively with cedar according to the company. But, like anything new that's good, once demand rises and distribution channels fill, that may change.

TimberSIL is targeting their marketing efforts at deck builders right now. There are about 70-different stock dimensions presently, from 1-by, 2-by, 4-by, 6-by and baluster stock. The 5/4 decking comes in both standard and premium grade. Even if your customers spec synthetic decking and/or handrails, you can still frame with TimberSIL. If you deck with TimberSIL, the material accepts stains and sealers as well.

Decks, however, aren't all TimberSIL is good for. In addition to being essentially inert to the environment, it's fire retardant which makes it attractive for stick framing and wood applications where fire codes are an issue. "TimberSIL will burn at temperatures that are well above what you would normally need to start or sustain a flame," according to the company, "But TimberSIL will not sustain a flame up to several thousand degrees, which provides excellent protection against accidental fires." Combine that with its insect resistance and it's a winning combination for challenging building environments.

With all this going for it, it looks like there's no question TimberSIL is suitable for sill plate applications right out of the chute—and more. "Timber Treatment Technologies TimberSIL™ formula is designed to be used for interior applications, exterior above ground and in ground applications," according to the company's website.

TimberSIL also provides a 40 year warranty that covers "biological degradation, damage in exposed environments, and damage from most common wood protection problems." Plus, it's not any harder on your tools, bits and blades than untreated wood.

Get ready. Change is coming.

[www.TimberSILwood.com](http://www.timbersilwood.com)

Mark Clement is a remodeler and author of The Carpenter's Notebook and The Kid's Carpenter's Workbook, Fun Family Projects! Find out more at www.TheCarpentersNotebook.com.

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