

SUTHERLAND WELLES LTD.®
P.O. BOX 1387
MORRISVILLE, VT 05661
TEL: (800) 322-1245
FAX: (802)888-3346



MILLIE'S™ ALL PURPOSE PENETRATING TUNG OIL

Millie's™ All Purpose Penetrating Tung Oil was developed as a foolproof, easy-to-use, low-toxic, earth-friendly Polymerized Tung Oil. It is safe to use on all types of **porous** surfaces. Unfinished wood surfaces such as salad bowls, butcher blocks, cutting boards, furniture, floors, wooden garden tool handles (even coating the metal for winter storage will inhibit rust), timber frames and beams. It is the perfect, easily renewed, sealing agent for paint, brick, concrete, porous slate, terra cotta tile and milk paint.

Millie's™ is totally botanical, made from all biodegradable, all natural and plant-derived ingredients ! It is formulated with our Pure Polymerized Tung Oil - a vegetable oil, Di-citrusol™- our citrus-derived solvent and beeswax. **There are no petroleum distillates or driers added to Millie's formulation.**

Polymerization and Formulation

As Tung Oil dries and cures, the molecules join together in a tight complex formation. This process is the secret to Tung Oil's effectiveness as a finish. The cross linking of the oil's molecules makes the surface waterproof and impervious to many chemicals. The bonding also gives flexibility to the surface, making it capable of withstanding wear and tear.

Sutherland Welles Ltd.® uses a process, polymerization, to intensify Tung Oil's natural cross-bonding tendency. Polymerization utilizes a cooking process that changes the molecular structure of the oil and further improves the natural cross-bonding reaction of raw Tung Oil.

Many other manufacturers of Polymerized Tung Oil will claim that they polymerize their oil, but their "cook" is not as extensive as ours and requires formulation which includes additives such as varnishes and urethanes to improve the hardness, durability, and lustre of the finish. This adds to the toxicity of the finish and inhibits the penetration of the oil into the wood fibers as well as slowing the drying and curing time.

The polymerization process used by Sutherland Welles Ltd.® is very sophisticated and "cooks" the pure, raw Tung Oil to its "*maximum thermal threshold*". Controlling the "cooking" and the "cooling" is an expensive process that, at its perfect point, produces a finishing oil with maximum durability and a gorgeous sheen. If the process isn't well controlled, the oil solidifies to the consistency of an erasure and the entire batch is lost. The intricacy and therefore expense of the process is what leads most companies to formulate with modifiers. They believe they can achieve the same results with a cheaper process and formulation. In time, the varnishes and urethanes discolor and deteriorate and with it the finish.

Polymerization increases the viscosity of the Tung Oil making it difficult to work and reduces penetration. The Polymerized Tung Oil must be formulated with solvents to thin the oil to maximize its workability and penetration. The beeswax adds protection to the surface and helps create the beautiful low sheen of a hand-rubbed finish.

There are no driers in this finish, therefore there is no set-up time or cure time required between applications. The surface is treated as a sponge. Coat after coat of Millie's is applied until the surface is saturated as evidenced by the gummy accumulation of the oil on the surface. No wiping or rubbing is required until the final coat.

Application of Millie's on wood:

The best results with Millie's™ are achieved on new, unfinished, wood surfaces. This allows maximum saturation to occur which provides maximum protection. The final sanding on the new wood surfaces should be **no higher than 180/200 grit**. For turnings, start applying Millie's at around 120 grit and then polish off to final sanding and apply a thin, hand wiped coat as a topcoat. Millie's can be applied with a clean natural bristle brush, foam brushes are fine or for floors, use a short-napped lamb's wool applicator. Warming Millie's by setting your pail full of Millie's into another pail of hot water will increase penetration. Simply flood out a coat so the entire surface is wet with Millie's and allow that coat to be absorbed. Most wood species will absorb three applications. You may re-coat as soon as the previous coat is absorbed, there is no need to wait for the surface to dry or cure.

You will know when the wood is saturated as the absorption time is longer and the surface feels gummy as Millie's Oil is lying on the top of the wood. The final step is to apply one last coat of Millie's in the same manner, using less oil but enough to cover the entire surface. Allow 10-15 minutes (or less) for this freshly applied coat to saturate and dissolve the Millie's that has gummed up on the surface. Using a #0 or #00 steel wool pad, rub the wet surface vigorously using a circular motion. Buffing removes the burr of the wood and builds the sheen on the surface. Replace the steel wool pad when it becomes saturated with Millie's. The final wipe should be done with a clean soft rag to pick up any excess Millie's not absorbed by the steel wool. Wipe in the direction of the grain. After the final wipe, the wood should be completely dry to the touch with the Millie's **completely and thoroughly removed from all surfaces**. Allow approximately 72 hours for the surface to cure before using.

Millie's on wood floors:

Apply Millie's per the above instructions. After you have reached saturation (surface is gummy), apply the last coat of Millie's and allow 10-15 minutes for Millie's to dissolve the oil that saturated to the surface. You need to work in small sections as the surface becomes very slippery. Using a buffing machine with #1 steel wool pads, buff in Millie's, changing the steel wool pads when they become saturated. If using a buffing machine, simply use a synthetic white polishing pad for your final buff on the entire surface or a clean terry cloth towel under the buffing machine. Buff/wipe in the direction of the grain. If wiping by hand, the final wipe should be done with a clean soft rag to pick up any excess Millie's not absorbed by the steel wool. After the final wipe/buff, the wood should be completely dry to the touch with the Millie's **completely and thoroughly removed from all surfaces**. Allow approximately 72 hours for the surface to cure before using.

Millie's on other porous surfaces:

Surfaces such as brick, concrete, cork, porous slate, terra cotta tile and milk paint should be as clean as possible before applying Millie's. Apply with a brush or rag, **do not wipe**. After each coat is absorbed, reapply until the surface becomes saturated. The saturated surface will feel gummy. Reapply another coat of Millie's wait 5-10 min. for it to dissolve the gummy coat and then buff completely off with cheesecloth or a clean soft rag. Allow the surface to cure 72 hours before use. If the surface appears too shiny after curing, buff with #0000 steel wool or a fine grade synthetic Scotch pad.

Maintaining a Millie's™ finish surface

Periodic coating with Millie's™ will protect as well as clean the surface. The frequency of maintenance is a function of how much the surfaces are used. Apply when the surface looks dull or feels dry. More use will require a more frequent re-coating. If the surface has been maintained regularly, apply only one coat and buff into the surface immediately. Wipe thoroughly dry. Allow to cure 6-8 hours before using the surface. If the surface hasn't been maintained regularly, you may need 1-2 coats. Test the surface by applying a thin coat and observe to see if the surface absorbs the finish quickly. If it does, apply a coat and wait for it to absorb. When completely absorbed, apply another coat and buff the surface dry with a white polishing pad or terry cloth towel beneath the buffing machine or buff by hand for small surfaces.

Coverage: For unfinished wood: Quart: First coat: 75-150 sq.ft. Second coat: 150-200 sq.ft. **Gallon:** First coat: 300-600 sq.ft. Second coat: 600-800 sq.ft. Successive coats require less oil and are dependent on the type of surface. Most wood surfaces finished according to the directions stated above, will take 3-4 coats to achieve total saturation.

For other porous surfaces: Such as concrete, cork, slate, brick, terra cotta tile, saturation may be achieved in one coat with coverage averaging 200-250 sq.ft./quart or 800-1000sq.ft./gallon.