



TURNINGS

September 2007

WCWA (Physical address), Pinelands Hobbies Club, Nursery Way, Pinelands

WCWA (Internet home page), www.wcwa.za.net

AWSA (Home page), www.awsa.org.za

Central Ohio Woodturners (WCWA Sister Club): <http://www.biosci.ohiostate.edu/~awolfe/COW/cow.html>

Apologies

This is a rather incomplete Turnings and I offer my apologies to the members of the WCWA . I regret to inform you that I have resigned as secretary with immediate effect.

Committee details

Eric Thornton (Chairman) / 021 531 1559, 082 465 4237 / notinorth@mweb.co.za

Darryl Bailey (Vice Chairman) / 021 531 3709(H), 021 552 2095(O), 082-818 2824(C) / suebailey@polka.co.za

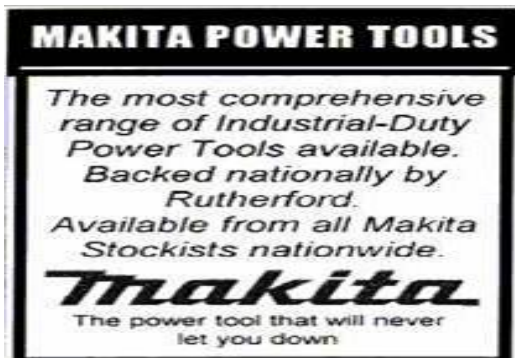
Mike Bester (Treasurer) / 021 976 3606(H), 021 692 1107(O), 083-285 7277(C) / bozo@iafrica.com

Mike Richards (PRO) / 021 552 5572, 073 660 1282(C) / leerichards@wam.co.za

Bernie Swanepoel (Workshop/Training) / 082-381 0304(C) / bernies@vodamail.co.za

Banking details

- Western Cape Woodturners Association
- Bank: *Nedbank*
- Savings Account Number: *2204012882*
- Branch Code: *120405*



Club News

Subscriptions

Members are reminded that subscriptions are due and should be paid to the treasurer ASAP or by 31/07/07, whichever is earlier. WCWA subs for the year ending 2007-2008 are R240.00

AWSA dues are R100.00 pp.

Family Membership of WCWA is R195.00 pp.

Any member who is experiencing cash-flow problems is invited to discuss the matter with the Chairperson, in order to come to an interim arrangement.

The Committee would like to remind members who do allow their membership to lapse that they will be expected to pay the visitors fee (R25) for each meeting that they might attend thereafter.

Important Note

- When making out a cheque, please make it payable to the "*Western Cape Woodturner's Association*" (**NOT** just the **initials "WCWA"**). It costs the Club money if not done correctly, since the bank will no longer accept these cheques or altered cheques.
- The Club will in future bill offenders with the charges incurred.



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Committee News

Open Workshop evenings

- Please check with Eric Thornton or Bernie Swanepoel.

Lourensford & the Annual Flower Show

- Members are invited to submit their names to Eric Thornton if they wish to assist at the WCWA-stall during this event during October.

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arranged through the workshop manager, Bernie Swanepoel. During workshop sessions it is important to note that friends and or family members are, under no circumstances, to use the tools or work on any of the machines.

Proposed WCWA program for 2007/2008 (The venue for all meetings is the Hobbies Club in Pinelands at 19:00 unless an alternate venue and time are given.)

- September 19th, demonstration on making wooden jaws by Mike Bester.
- October 17th, product demonstration (details to be announced later).
- November 14th, handing in of items for the summer showcase.
- November 21st, summer showcase plus DVD (DVD details to be announced later).
- December 8th, (Saturday) collaboration turning and braai.
- January 16th, sharpening jig demonstration by Graeme Hill.
- February 20th, video on oval turning.
- March 19th, product demonstration (details to be announced later).
- April 16th, AGM and turning challenge.
- Forest walk date still to be finalized.
- Possible family outing, suggestions from members will be welcomed. The final details will be given once they have been finalized.

Proposed dates for WCWA Committee meetings 2007/2008 (The venue for all meetings is the Hobbies Club in Pinelands at 19:30 unless an alternate venue and time are given.)

Prospective members & visitors

- WCWA-members are reminded of the ruling regarding visitors and prospective members. Visitors or prospective members must be introduced to Committee members and they must sign the register. The visitor's fee (R25 per visit) must be paid to the treasurer, at the meeting. Prospective members must join after one month. Tool use is free for the two months after joining but access to the workshop and the use of the tools must, at all times, be

- Tuesday September 25th.
- Monday October 22nd.
- Monday November 26th.
- Monday December 10th.
- Monday January 21st.
- Monday February 25th.
- Tuesday March 25th.



Trees of Southern Africa

Regrettably this item will not appear this month.

Oil

Some points on oil, in particular Linseed Oil, which might be of interest to members.

Linseed Oil – origin and composition

Linseed oil, also known as flax seed oil, is a yellowish drying oil obtained from the dried ripe seeds of the flax plant, *Linum usitatissimum*. When prepared only by pressing, it is referred to as cold pressed oil and generally marketed as flaxseed oil. Pressing can be followed by an optional solvent extraction process.

Fatty acid content	% by weight
Arachidic acid	0,5
Palmitic	6,0
Stearic acid	2,5
Oleic acid	19,0
Linoleic acid	24,1
Linolenic acid	47,4
Other	0,5

Drying oils – general background

A drying oil is an oil which hardens to a tough, solid film after a period of exposure to air. "Drying" is possibly not quite the correct term here as the process is not due to the evaporation of water or a solvent, as one would justifiably presume. The process is a chemical one in which the oil undergoes an auto-oxidation – chemical combination with atmospheric oxygen. Drying oils are a key component of oil paints and many


varnishes and some of the more common oils in this category, other than linseed oil, are tung oil, walnut oil poppy seed oil and perilla oil. Perilla oil is obtained from the seeds of perennial herbs of the genus *Perilla* usually *Perilla frutescens*. The oil dries has a shorter drying time than linseed oil and forms a film that is harder and yellows more than that of linseed oil. The paint and varnish industry use it and it is also used in the manufacture of printing inks and linoleum. It is a very rich source of the omega-3-fatty acids and is used as a food additive.

Drying oils – some chemistry

All drying oils are characterized by high levels of poly-unsaturated fatty acids (those fats the health gurus are always exhorting us to eat more of!). As I pointed out earlier the "drying" process is not drying in the conventional sense, but rather a, hardening, or, probably more correctly, a curing of the oils as the result of an auto-oxidation process. Vegetable oils all consist of fatty acids and triglycerides (combinations of glycerol and fatty acids). Many of these fatty acids are unsaturated – contain double bonds – and auto-oxidation involves, amongst others, the reaction of oxygen with these double bonds. One of the byproducts of this reaction with oxygen is the production of a free radical, a highly reactive chemical entity. This reaction is an exothermic one, (it gives off heat) an important aspect I will get back to later. As this reaction proceeds additional free radicals are produced and new chemical bonds are formed between the oil molecules which result in the oil polymerizing – forming extended chains of molecules and the liquid becomes less and less fluid. The net result is that the surface no longer flows as a result of gravity and feels "dry" to the touch, if still somewhat plastic (soft) when pressure is applied.

As the drying process progresses compounds are produced that do not contribute directly to the polymer network. These include unstable hydroperoxides which quickly decompose, forming carbon dioxide and water, as well as a variety of secondary compounds, many of which are volatile. In unpigmented oil, these compounds would be quickly lost to the environment. However, in paints, such volatiles may react with metal containing compounds (lead, zinc, copper or iron compounds) in the pigment, and remain in the paint film as coordination complexes or salts. In addition a large number of the original ester bonds in the


triglycerides (between the fatty acids and the glycerol) undergo hydrolysis, releasing the individual fatty acids. The acid groups of the free fatty acids also interact with metals in the pigment, producing metal carboxylates. The various non-cross-linking substances are not fixed in position, as are the components of the polymer network, they are capable of moving and diffusing within the film, and can be removed using heat. These compounds probably play an important role in plasticizing the paint film - preventing it from becoming too brittle.



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Non-drying oils

By contrast, non-"drying" waxes such as hard-film carnuba or paste wax, and resins such as, copal, and shellac, consist of long, spaghetti-like strands of carbon chains, which interlace and compact but do not bond chemically, as in drying oils. Thus, waxes and resins can be redissolved far more easily than cured oil varnish or paint.

Combustion

I mentioned earlier on the question of heat production and it is a very important one. All rags, cloth, and/or paper saturated with drying oils can potentially combust spontaneously (set themselves on fire) due to the heat generated by the curing process. This is especially the case where oil-soaked materials are folded, bunched, compressed, or piled together as this allows the heat to accumulate and actually accelerate the reaction – producing more heat, faster! Precautions include: wetting the rags with water and spreading them to dry in a safe place away from direct sunlight (the

UV-rays in sunlight are very efficient accelerators); immersing them completely in water inside air-tight metal containers designed for such applications; or storing them immersed in solvents in suitable closed containers.

Linseed Oil – nutritional use

Fresh, refrigerated and unprocessed, linseed oil is suitable for human consumption. It is rich in omega-3-fatty acids, which appears to be beneficial for preventing heart disease, inflammatory bowel disease, arthritis and a variety of other health conditions. Flaxseed also contains a group of chemicals called lignans that may play a role in the prevention of certain types of cancer.

Linseed Oil – as paint additive

Linseed oil is the most commonly used carrier in oil paint. It can also be used as a painting medium, making oil paints more fluid, transparent and glossy. It is available in varieties such as Cold Pressed, alkali refined, sun bleached, sun thickened, and polymerized or stand oil.

Linseed Oil – a wood finish

When used as a wood finish, linseed oil does not cover the surface as varnish does, but soaks into the (visible and microscopic) pores, leaving a shiny but not glossy surface that shows off the grain. Wood treated with linseed oil not only is resistant to denting, and scratches are easily repaired, but the wood and oil surface is not as hard as a modern varnish, and it slowly absorbs moisture if allowed to stay wet. Soft wood benefits from the protection from denting but requires more applications and even more drying time than harder wood does, if the grain is to be completely filled. The oil penetrates deeply and fills the grain, because it dries slowly and shrinks little or not at all on hardening. It is a traditional finish for gun stocks, however a very fine finish may require months to obtain. Oiled wood is yellowish and darkens with age.

Linseed Oil – boiled

Boiled linseed oil is used as a paint binder or as a wood finish on its own. Heating the oil makes it polymerize and oxidize, effectively making it thicker and shortening the drying time. Today most

products labeled as "boiled linseed oil" are a combination of raw linseed oil, petroleum-based solvent and metallic dryers. The use of metallic dryers makes boiled linseed oil inedible. There are some products available that contain only heat-treated linseed oil, without exposure to oxygen.

Heat treated linseed oil is thicker and dries very slowly. These are usually labeled as "polymerized" or "stand" oils, though some may still be labeled as boiled.