

# SELDER & COMPANY AB

## WORK MANUAL FOR LINSEED OIL PAINTS

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[www.selder.com](http://www.selder.com)



**The work differs significantly both from painting with synthetic paints and with other linseed oil paints. READ CAREFULLY FOR A GOOD RESULT.**

**First read the summary and then check the parts that are of relevance to you in the TABLE OF CONTENTS below.**

### SUMMARY

Selder's linseed oil paints remain **durable and fine practically forever** when you prime and paint as described in this work manual and perform the simple maintenance measures described below.

The paints are tinted to the desired NCS, RAL and our own colours on modern machines that use our tinting system. **The ordered colour is identical from delivery to delivery.**

They can be painted with a **brush, sprayer or roller on any surface - from wood to metal.**

**Water in the substrate** and movements in wood due to significant variations in moisture cause the paint to flake off. **Make sure** that water does not get into the substrate and affects the painted surface from the back. **Paint only on a dry substrate**, on wood with a maximum moisture content of 12%, i.e., air dry. **Impregnate wood** that is exposed to water and moisture with Selder PRIMER OIL before painting as described below.

**Porous substrates are pore-saturated** with PRIMER OIL or LINSEED VARNISH OIL before priming with LINSEED OIL PAINT PRIMER. Otherwise too much binder is absorbed into the substrate and too little is left in the pigment, the optical properties of the paint change, the colour fades and becomes matte and often blotchy.

**First paint** a covering but not thick coat of **LINSEED OIL PAINT PRIMER**, i.e., of 70-120 µm (0.07-0.12 mm) thickness. It adheres particularly well as it is especially greasy, and it prevents the growth of mould, algae and lichens for decades on the finished paint surface as it contains 0.5 kg of zinc oxide / litre. However, it is not as weatherproof as the topcoat paints.

**Let the paint dry** thoroughly between coats. The paint dries within 24 hours at 20 °C / 68 °F and good ventilation; dark, clear shades slightly slower.

Then paint two covering coats of LINSEED OIL PAINT SEMI-GLOSS OR SEMI-MATTE of similar thickness.

**Wash** used brushes, tools and containers with strong soft soap before the paint dries. Rinse sprayers with white spirit.

### **WARNING: RISK OF SELF-IGNITION**

The paint contains oxidizing fatty acids. Cloths and other porous materials moist with paint must be immersed in water without delay. Painted or oil treated surfaces do not ignite spontaneously - the risk only applies to fibrous materials.

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## PRE-TREATING THE SUBSTRATE

### WHY PRE-TREAT

- Dust and dirt prevent the paint from adhering to the substrate.
- Movements in wood in an exposed location outdoors where the humidity fluctuates strongly cause even linseed oil paint to flake off.
- The more porous the substrate is, the more of the linseed oil paint's binder is absorbed by it. If too little binder remains to bind the pigment in the paint, its optical properties change; the colour "chalks". The topcoat should therefore be applied to a closed, i.e., pore-saturated, substrate. Pore saturation is achieved with LINSEED OIL PAINT PRIMER on many materials, but not on very porous ones.
- The topcoats are made to be painted on LINSEED OIL PAINT PRIMER, not directly on the substrate. The primer is especially greasy and adheres effectively. It contains 0.5 kg of zinc oxide / litre, which prevents growth on the final coat for decades. However, the primer is not as weatherproof as the final coat.

### CLEAN THE SUBSTRATE

Brush off dust and loose dirt, knock off loose rust with a hammer, sand off stuck dirt or blast with dry ice. Do not use water or alkaline detergents as even a minimal residue prevents the paint and oil from adhering to the substrate. If the substrate is greasy, you can degrease it with 99 % alcohol, of the carburetor spirit type.

### PRE-TREATING DIFFERENT SUBSTRATES

#### SEAL KNOTS AND RESIN POCKETS WITH SHELLAC

It prevents resin from bleeding through the paint and discolouring the surface. Selder's shellac, SHELLAC is dissolved in 99.5% alcohol. Shellac with a lower alcohol content contains water that evaporates after the alcohol has evaporated and the shellac has started to settle. The result is pores in the shellac - in a microscope the layer looks like a sieve and the resin bleeds through. Shellac dries in a few minutes.

**Apply oil treatment** if necessary, according to the instructions below.

**Prime** with LINSEED OIL PAINT PRIMER.

#### SURFACES OF UNTREATED SOFTWOOD AND HARDWOOD IN PROTECTED LOCATIONS

Pore-saturate with LINSEED OIL PAINT PRIMER.

#### OLD PAINTED SURFACES TO WHICH THE PAINT STILL ADHERES, STUCCO AND CONCRETE

Pore-saturate with LINSEED PRIMER OIL at room temperature.

Apply liberally with a brush. Spread from places that are saturated to places that still absorb oil. Apply and spread until the entire surface is saturated.

**Wipe off:** After 1-2 hours, thoroughly wipe off any oil remaining on the surface, otherwise it forms a sticky skin.

**Wash** brushes, tools and utensils with strong soft soap.

**Allow time to oxidize:** At 20 °C / 68 °F and with good ventilation, the paint dries within a day. It dries by oxidation and the drying time depends on 1. the oxygen supply and 2. the temperature. In wind and solar heat, the surface can become touch-dry in a few hours, in a cool garage with poor ventilation it can take a week.

**Prime** with LINSEED OIL PAINT PRIMER.

## **SURFACES FROM WHICH THE PAINT HAS BEEN REMOVED WITH A HOT AIR GUN OR AN IR-HEATER**

The heat treatment makes the wood extremely dry and absorbent. Such surfaces should be pore-saturated by applying PRIMER OIL at 130 °C / 266 °F with a brush. Read the instructions below, under "WOOD IN EXPOSED LOCATIONS OUTDOORS".

## **MDF BOARDS, PRESSURE IMPREGNATED WOOD, POROUS ROOFING TILES OF FIBRE CEMENT OR CONCRETE**

Pore-saturate with our thickest and "greasiest" oil, LINSEED VARNISH OIL. Apply liberally with a brush. Spread from places that are saturated to places that still absorb oil. Apply and spread until the entire surface is saturated or, if the surface continues to absorb, interrupt and allow time to oxidize.

**Wipe off:** After 20-30 minutes, thoroughly wipe off any oil remaining on the surface, otherwise it forms a sticky skin.

### **Allow time to oxidize**

At 20 °C / 68 °F and with good ventilation, the oil dries within a day. It dries by oxidation and the drying time depends on 1. the oxygen supply and 2. the temperature. In wind and solar heat, the surface can become touch-dry in a few hours, in a cool garage with poor ventilation it can take a week.

**If the surface continues to absorb, repeat the process** until the entire surface is saturated relatively quickly.

**Wash** brushes, tools and utensils with strong soft soap.

**Prime** with LINSEED OIL PAINT PRIMER.

## WOOD IN EXPOSED LOCATIONS OUTDOORS

### IMPREGNATION TO 1-3 mm DEPTH WITH A BRUSH

**For 1-1.5 mm penetration**, heat PRIMER OIL to 130 °C / 266 °F in a deep fryer. Apply liberally with a natural bristle brush. Spread from places that are saturated to places that still absorb oil. Apply and spread until the entire surface is saturated.

**For 2-3 mm penetration**, heat the surface with a hot air blower or an IR heater while working.

When treating wood at 130 °C / 266 °F with PRIMER OIL, moisture in the wood evaporates, bordered pits open outwards due to the vapour pressure in the cells, and the warm, thin liquid PRIMER OIL penetrates. You can see small steam bubbles on the surface when you apply warm PRIMER OIL.

You can safely work with PRIMER OIL at 130 °C / 266 °F - it will neither burn nor fume. Its boiling point is 300 °C / 572 °F, and it will start to exude a white, sharply smelling steam at 180 °C / 356 °F. At 130 °C / 266 °F, it will only emit a smell of linseed oil.

**Wipe off:** After 20-30 minutes, thoroughly wipe off any oil remaining on the surface, otherwise it forms a sticky skin.

**Wash** brushes, tools and utensils with strong soft soap.

**Allow time to oxidize:** At 20 °C / 68 °F and with good ventilation, the oil dries within a day. It dries by oxidation and the drying time depends on 1. the oxygen supply and 2. the temperature. In wind and solar heat, the surface can become touch-dry in a few hours, in a cool garage with poor ventilation it can take a week.

**Prime** with LINSEED OIL PAINT PRIMER.

### DEEP IMPREGNATING WOOD BY “DEEP FRYING” IN SELDER OIL

Wood impregnated with Selder oil forms a water-repellent, rot-resistant, stiff and dimensionally stable composite of wood and dried oil.  
Ask us about suppliers of timber impregnated with Selder oil.

### DEEP IMPREGNATING END WOOD

**Heat** PRIMER OIL to 130 °C / 266 °F, preferably in a deep fryer. Continue heating the oil. **“Place** the workpieces vertically in the warm oil and leave them there until the bubbling of steam has ceased. Then all the moisture in the wood has evaporated, and the pressure from the steam, which was generated in the cell cavities and exited through the bordered pits has opened them outward - they do not open inward. (The same happens during vacuum drying of timber.)

**Turn off the heat** and let the temperature drop to 90 °C. The lower temperature causes a negative pressure and oil is sucked into the wood. Half an hour is enough for oil to be absorbed 5-6 cm into the end wood. Too long an absorption time leads to the cells'

cavities being filled with oil, where it does no good, but only prevents the supply of oxygen and thus the drying of the oil.

**Lift** the workpieces up and let them cool.

**Wipe off:** After 20-30 minutes, thoroughly wipe off any oil remaining on the surface, otherwise it forms a sticky skin.

**Wash** brushes, tools and utensils with strong soft soap.

**Allow time to oxidize:** At 20 °C / 68 °F and with good ventilation, the oil dries within a day. It dries by oxidation and the drying time depends on 1. the oxygen supply and 2. the temperature. In wind and solar heat, the surface can become touch-dry in a few hours, in a cool garage with poor ventilation it can take a week.

**Prime** with LINSEED OIL PAINT PRIMER.

## **RUSTED (CORRODED) METAL**

**Remove** loose rust, lichens, dirt and loose paint residues. Tap away loose rust with a hammer. Feel free to burn a surface that is covered with lichens and flaky rust with a gas burner - then it is easier to brush them off with a wire brush. Do not use water or alkaline cleaners as even a minimal residue will prevent the paint and oil from sticking. If the surface is greasy, you can degrease with 99% alcohol, such as carburetor alcohol.

**Rust dust, tightly adhering rust and point corrosion** do not need to be removed. Remove any moisture from the surface with a blow torch.

**Apply** RUSTPROOFING OIL with a brush or a sprayer on a dry surface when the daily temperature stays above 5 °C / 41 °F.

**Wipe off:** Oil that remains on the surface forms a sticky skin. If you want a clean and dry surface e. g. for painting, thoroughly wipe off any oil left on the surface after 20-30 minutes.

**Wash** brushes and utensils with strong soft soap.

**Allow time to oxidize:** At 20 °C / 68 °F and with good ventilation, the oil dries within a day. It dries by oxidation and the drying time depends on 1. the oxygen supply and 2. the temperature. In wind and solar heat, the surface can become touch-dry in a few hours, in a cool garage with poor ventilation it can take a week.

**Prime** with LINSEED OIL PAINT PRIMER.

## **GALVANIZED, PLASTIC LAMINATED TIN ROOF**

Remove all paint before treatment, but not the galvanizing.

Blasting with carbon dioxide snow works well. Paint according to the instructions for corroded metal above.

## CLEAN METAL

**Prime** with LINSEED OIL PAINT PRIMER.

## GLASS

has traditionally been painted with linseed oil paints, e.g. display windows. Preferably paint on the backside of the glass, which provides a perfect surface viewed from the front. Apply the topcoat directly without prior priming.

## PAINT WITH A FINE AND DURABLE RESULT

### GENERAL

**Selder linseed oil paints can and should be painted into covering layers;** paint them as thick as you would paint alkyd- or water-soluble paints. If the paint starts to run, drip or form puddles, you paint too thick. The paint dries straight through provided it is a layer of paint, not a puddle. You can paint with a light hand and do not need to rub the paint into the surface - the binder penetrates into the substrate by itself.

### **Do not paint on damp surfaces,**

in case of risk of rain or if the daily temperature is expected to go below 5 °C / 41 °F during the next 24 hours.

**Provide good ventilation** when painting indoors.

First paint **one coat of LINSEED OIL PAINT PRIMER** and then two coats of topcoat.

Carefully paint **all coats to covering layers** so the consumption is 8-14 m<sup>2</sup> per litre per coat, which means 0.12 - 0.07 mm paint layers.

**Let the paint dry** thoroughly between coats.

### **HALF SHEEN (HM) OR SEMI-GLOSS (HB) TOPCOAT**

Use Selder half sheen topcoat for outdoor panels and other coarser surfaces where a matte finish is desirable and brushstrokes are not noticeable. The brush strokes remain visible on surfaces painted with half sheen paint.

Use Selder semi-gloss topcoat for carpentry and other smooth surfaces, on which as imperceptible brushstrokes as possible are desirable. The semi-gloss topcoat is to some extent thixotropic, i.e., the brushstrokes are smoothed out by themselves out during painting.

### **MIX SO THAT THE PAINT BECOMES HOMOGENOUS**

Mix the paint thoroughly. Be sure to scrape up all the pigment from the bottom of the can. The pigment forms a solid cake on the bottom of a can after long-term storage. Scrape up all such pigment with a flat stick.

Stir and scrape until the paint appears to be well mixed.

Then close the lid and shake the can.

## **DON'T DILUTE THE PAINT**

Paint "directly from the can". NOTE: The paints are anhydrous and will be ruined if diluted with even a drop of water.

## **PAINT CORRECTLY WITH A BRUSH**

Linseed oil paint does not flow out by itself but must be worked out into even and covering coats.

You do not need to press hard with the brush; the binder penetrates into the surface structure of the substrate even if you do not press at all.

Pick up a small quantity of paint on the brush, directly from the can.

Then work out the paint with light brush strokes until the paint layer is even and covering but not thick and runny.

Repeat when enough paint no longer comes from the brush.

## **PAINT SMOOTH SURFACES WITH A FINE RESULT**

In order to obtain a smooth surface with as invisible brushstrokes as possible on smooth surfaces, e.g. panels, doors, smooth metal surfaces: use semi-gloss topcoat.

**Work out the paint** with light brushstrokes in one direction until the coat is even and covering but not thick. Repeat when no more paint comes off the brush.

**Then even out the coat** with long brushstrokes in the perpendicular direction without loading more paint onto the brush.

**Finally, even out the remaining brushstrokes** by moving the brush in the direction in which you applied the paint. Do this with a feather light hand, barely letting the brush touch the painted surface.

If you apply too thick a coat, it's difficult to even out the brushstrokes.

## **PAINTING WITH A SPRAYER OR A ROLLER**

Observe special care to achieve even surfaces.

**Wash** brushes and rollers with strong soft soap, rinse the sprayer with white spirit.

## **THE DRYING TIME VARIES**

The paints dry, i.e., harden by oxidation of the binder and the drying time depends on 1. The supply of oxygen and 2. The temperature. In a dryer box, the paint can become dry to the touch in a few hours' time - in a poorly ventilated cold garage, it can take a week or more. At 20 °C / 68 °C and with good ventilation, the paint dries in one day.

Paints in strong colours made with tinting base C have a somewhat longer drying time than the other paints.



## LINSEED OIL PAINT HARDENS SLOWLY AFTER IT HAS DRIED

Once the paint is dry, the oxidation, i.e., the hardening of the binder continues for a few weeks. During this time, microscopic cracks appear in the coat, allowing molecules of water vapour to pass through, but not liquid water, which has surface tension. The surface gets its final luster when the hardening is complete. If you've painted somewhat unevenly, the luster may be uneven, but this disappears once the hardening is complete. The surface may smell faintly of linseed oil during the hardening. Thereafter, it is odourless.

## MAINTENANCE

Painted surfaces can be washed with water and acid or neutral detergents after the paint has dried.

**NOTE:** DO NOT use alkaline detergents, e.g. STRONG SOFT SOAP, as the paint reacts with bases. If this happens, the outermost layer of paint dissolves and the surface must be repainted after thorough rinsing and complete drying.

Selder's linseed oil paint is durable because the refined linseed oil used as binder is non-biodegradable and polymerizes naturally to 100%. Therefore, no microbes can attack it.

However, Selder's linseed oil paint ages slowly as UV radiation gradually breaks down the molecular chains of the polymerized binder. When this happens, the paint becomes chalky, i.e., the surface fades and becomes matte and small quantities of pigment powder come off the surface when it is touched.

Aging is prevented by applying a thin layer of Selder's LINSEED VARNISH OIL to the dry and grease-free surface with a brush or a sprayer. The oil replaces the binder that the UV radiation has broken down and the surface immediately regains its original colour and gloss. You obtain an even better result with semi-gloss paint by ordering Selder's MAINTENANCE OIL, which is identical to the original binder.

If you still have lighter patches or areas after such an oil treatment, the outer pigment layer has been damaged as well. Sand such places lightly with a # 320 paper thoroughly moistened with oil to regain the original colour and gloss.

The required maintenance interval depends on the amount of UV radiation - from a couple of decades in shady places in the North to a few years in sun-drenched places in the tropics. You can give the surface a light oil treatment as often as you wish to make the surface look freshly painted.

If maintenance is neglected for a long time, most of the binder is eventually destroyed and the paint cracks into small irregular squares that flake off. The flakes are extremely hard and have sharp, cutting edges. Such surfaces can be seen on outdoor surfaces painted with linseed oil paint in the 19th century or during the first half of the 20th century.

Flaking paint must be removed and the surface under it must be repainted. Wooden surfaces beneath such old paint are extremely dry and should be pore saturated using PRIMER OIL heated to 130 °C / 266 °F. Read the work manual above under "WOOD IN EXPOSED LOCATIONS OUTDOORS".