

ALLBÄCK LINOLJEPRODUKTER AB

Windowcraft & Linseed Oil Paint

Swedish Institute Paris, December 3rd 2015

....the rediscovery of ancient wisdom

WWW.ALLBACKPAINT.COM

• • • OUR VISION 1982

We set out our dream of the good life. As unemployed self-employed people suffering from illness, we were forced to find a way of life that would ensure sustainable, economic, long-term development. Life-balance. **But how?**





• • • PROGRESS OR GOING BACKWARDS?





RESTORATION ALL YEAR ROUND WITH TEMPORARY WINDOWS _____





RESTORATION ALL YEAR ROUND ______



KLINTEHUS YSTAD 1860 – 1910 Restored winter 1987





INNOVATIONS – TECHNOLOGY





Developing different methods for removing putty, paint & timber technology



• • • PUTTY LAMP & SPOT HEATER



The spot heater works with long-wave infra-red light for paint stripping.

The putty lamp work with short-wave infra-red light to soften hard putty.

Linseed Olil Wax will speed up the process.











33 YEARS OF WINDOW CRAFTSMANSHIP

6 EARTH TO SPIRIT



Hans and Sonja with students 1994

Window craftsmanship Old and new technology hand in hand

Seeing the window as a whole

A window craftsman is a carpenter, glazier, painter, blacksmith and builder all in one.

He or she commands knowledge of the interaction between the different materials of the window – wood, glass, paint, putty, fittings and plaster – and takes responsibility for the end result.

We have moved the boundaries of what is technically and financially possible.



• • • "WARM" OLD WINDOWS

- 1. INNER SASH SEALED
- 2. OUTER SASH WITH CONTROLLED VENTILATION
- 3. LARGE GAP BETWEEN PANES

Action taken:

Inner sash sealed using a selfadhesive silicone seal in the appropriate model and size.

Outer sash sealed like inner sash but with gaps cut to obtain "controlled ventilation" in harmony with the moisture balance of the house.





• • CAUSES OF CONDENSATION

Condensation due to

- Unsealed rebates
- Unsealed inner sash
- Combination of 1 & 2
- Lack of ventilation between the glass - sashes painted over
- Deep set windows
- Poor general ventilation





• • "WARM OLD" WINDOWS

Measurement tolerances between frame and sash:

- > Estimate at least half the rebate
- Measurement tolerance at least the thickness of a ruler (approx. 2-3 mm)

Why?

- The window must be able to be opened
- Room for future maintenance
- Break capillary action
- Avoid condensation problems

RENOVATING AND UPGRADING WINDOWS

Research collaboration with

Lund University Faculty of Engineering Building construction theory, prof. Bertil Fredlund.



Test window No. 1 1880 Separate double windows with removable inner sash







••• RESULTS OF U-VALUE MEASUREMENTS

(spring 1998)

Action taken:		Year of manufacture	
	1880	1930	1982
Current condition	2.44	2.55	1.84
Renovated	2.07	2.28	
New LE-glass	1.60	1.77	
Relative improvement	ents		
Renovated 15%	11%		
Renovated + LE-glass	34%	31%	
	Separate 1880	Joined 1930	3-glazed insulating pane 1982



••• ACOUSTICS RESEARCH PROJECT

"SILENT" OLD WINDOWS

Research project in partnership with SP-Borås Report 1998:26 Acoustics Christian Simmons

Results of measurements

Restored windows from 1880

Best in test compared with special noise reduction products on the market!

(separate double windows with removable inner sashes).







Why best in test?

- Large gap/air column between panes
- Asymmetric glazing different thicknesses of glass in outer and inner sash
- Solid wood construction
- Two panes
- Divided by muntins and rails
- Fitted "flush with façade"
- New linseed putty
- Frame fitted
- Caulking between frame and wall linseed caulking
- Seals glued silicone seals



TIMBER QUALITY, PINE

The resin-rich timber does not suit today's production technology and painting systems





Impregnation

Resin = water repellent 70% of the tree's resin is in the root stock

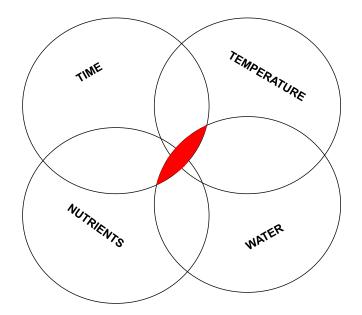
Pinosylvin

Natural fungicide – protection against rot Erdman's discovery in 1950s (Peter Sjömar's thesis Byggnadsteknik & Timmermanskonst)

Choose good timber

Harvested in winter Air dried Heartwood at least 50% High resin content Paint with linseed oil paint







• • • TYPES OF MODERN DAMAGE





• • • TYPES OF DAMAGE

Don't be fooled!

Due to a lack of knowledge, windows are often condemned as being rotten. Our experience shows that damage to windows from 1950 and back in time often has a different cause

different cause.

Dry cracks

Use Linseed Oil for impregnation

Linseed putty in large cracks.

Paint immediately

Maintenance with Linseed Oil Wax





RESTORATION IDEOLOGY



Hand-cranked plane, sixteenth century model

Principle of authenticity according to ICOMOS – Venice 1964

Authentic craftsmanship (the technology)

Authenticity of materials

Authenticity of design

Authenticity of context

Authenticity of function?



Glue 1920s?



• • Krageholm 1726



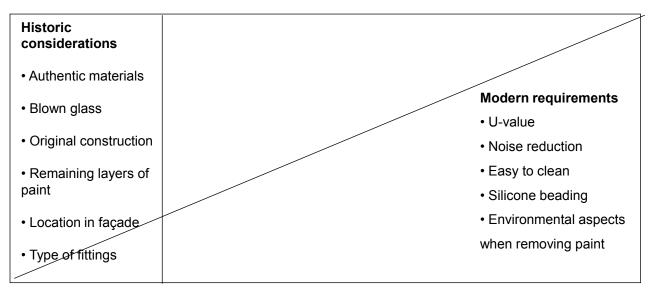


Examination project for window craftsmen



DECISION-MAKING MODEL

According to Boris Schönbeck, Chalmers



Questions that must be answered before project start and pricing!

What has to be done? Why? Level of ambition? When? Restoration? Renovation? Maintenance? Simple "delay ageing measures"? New windows? Rolls? Lada? Push bike?



Inspection & Diagnosis

33 years' experience of practical work

Define the AIM of a test window

Restoration or simple maintenance?

Coordinate with everyone involved

Distribution of responsibilities

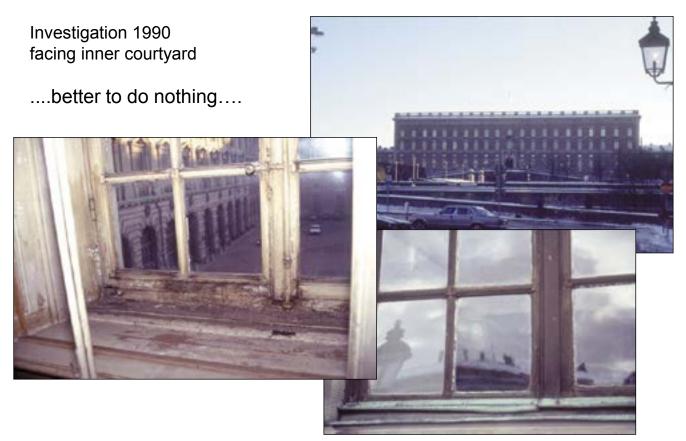
Choice of Method, Tools, Materials, Aids?

Check against reference window

Draw up a CARE PLAN

Document and learn from mistakes

STOCKHOLM'S ROYAL PALACE – 18th CENTURY



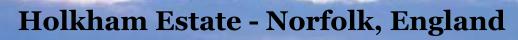


••• SWEDISH INSTITUTE - PARIS



ALLBA







Sir Edward Coke, Lord Chief Justice of England (1352-1654) neil, das Henry Colar (1991 - 1981) official Index - In-HL-h-Mary Ro bert Colla Lidy Anto Odono dan. of the Duke of Caluted Hollow Carey Marstein 4.97 dy Mage ort. Tailous (1706) - 1778) of Lais Laty Margaret Tab Barraria de Chillord dou: of the telt Earl of Thurst 1 179 Woman Rody (1717 + 1776) of COMER 1780 Many Campbe of Dubic of Au (STUR - STREE 10 of the Lo of Le f 3nd Creatin (1754 - 1842) 43 Lake. 1.11 d East of Le (1952 - 19 of 2nd Lord Che . former William C Ind East of Laicas (1848 - 1940) Hars Ad 2nd Lond Assails Hon. Arthur (1867 - 1915 9 2 Lady C hady: ID Yok Earl of L (h.1934) in Polly Wheel 200 εj 16.26

The Coke family at Holkham 1552 - 2000



Conservation Officer Michael Knights, Norfolk County Council and Tom Coke, Holkham Estate, England

Windowcraft and Allbäck Linseed Paint to Norfolk, England 2000



FROM OUR DOCUMENTATION 1982

Alkyd paint inside after 2 years Repaired under guarantee



Linseed oil paint inside after 9 years First maintenance 2010

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17

PÅLSSONHUSET MALMÖ RESTORED 1987





After 23 years - south side. Topping up the putty on one window.

One coat of paint on all sides.





MAINTENANCE WITH LINSEED OIL OR LINSEED OIL WAX



oil after 9 years





• • AMALIENBORG PALACE – COPENHAGEN 2002



Copenhagen 1760s Training project Working only from the outside on outer sashes and outer frame.



Client and craftspeople agree on the status, action and the end result



• • • AMALIENBORG PALACE, COPENHAGEN

Utmost historical priority - Renovation - Re-putty with linseed putty







AMALIENBORG PALACE – COPENHAGEN 2004

Work on sashes in Ystad, Sweden and in Copenhagen



Work on the sashes in the winter from lift.

Specially built, insulated temporary windows.



• • HOUSING ASSOCIATION BRF MALMÖ 1944



TECHNICAL MAINTENANCE 1990 - MALMÖ

- Define the problems
- Make test windows
- Decision
- Action
- 1.4 million or 7 million





IMPREGNATE WITH LINSEED OIL

Impregnate with raw or boiled warmed cleaned linseed oil





The oil must be well absorbed by the timber. Use hot air or heat the linseed oil to about 60 degrees. The linseed oil will become as thin as water. Paint immediately with Linseed Oil Paint



••• CHATEAU DE VERSAILLES – FRANCE 2014

Plastic paint creates problems



Original eighteenth century oak window Better to do nothing





••• CHATEAU DE VERSAILLES – FRANCE MAY 2012







LINSEED OIL PAINT AROUND THE WORLD AGAIN











• • • WHAT IS PAINT?



- PIGMENT
- FILLER
- ADDITIVES

GLAZE = THIN PAINT:

EMULSION = LINSEED OIL PAINT + WATER (Interiors and plastered exteriors)

What is to be painted and why? Paint as a decoration, or as a wear layer/for protection?

Outdoors or In?



QUALITY DIFFERENCES OF RAW LINSEED OIL



According to an old recipe: "Linseed oil must not be used to serve man before it has been **cleaned**". (*Gutle 1790s*)





GOVERNMENT COMMITTEE FOR BUILDINGS RESEARCH

No. 24

Reports

1951

EXTERIOR PAINTING OF WOOD

Discussion at conference held 26 February 1951

Quote page 59

"...If the gentlemen do not believe me, I can recommend that you take the most high-class linseed oil you can obtain, for example **degummed**, bleached, cold-pressed linseed oil, that has undergone a number of procedures to remove all traces of pollutants".

Stockholm

PAINT GROUPS	SOLVENT	DRY MATTER CONTENT	DRYING TIME	SURFACE
PLASTIC- ACRYLIC LATEX	• WATER • SPIRITS • PLASTICISERS • FORMALIN • MILDEW PROTECTION	About 40%	1 TO 8 HOURS	NO PENETRATION
ALKYD PAINT ARTIFICIAL OIL PAINT	PETROLEUM SPIRITS = PARAFFIN OIL + TOLUENE	About 55%	24 HOURS 24 DEGREES	NO PENETRATION
LINSEED PAINT	NONE		24 HOURS 24 DEGREES	PENETRATION

Re. turpentine in linseed oil paint

Extract from

Book of Crafts – Painting in 1930

page 138

Under normal conditions, adding turpentine to oil paint is **not necessary** and in some cases **damaging**.

The habit that some have of mixing all oil paints with turpentine is **condemnable.** If this is done for reasons of comfort, so that the paint is easier to apply, it can in many cases be **judged to be bad workmanship.**

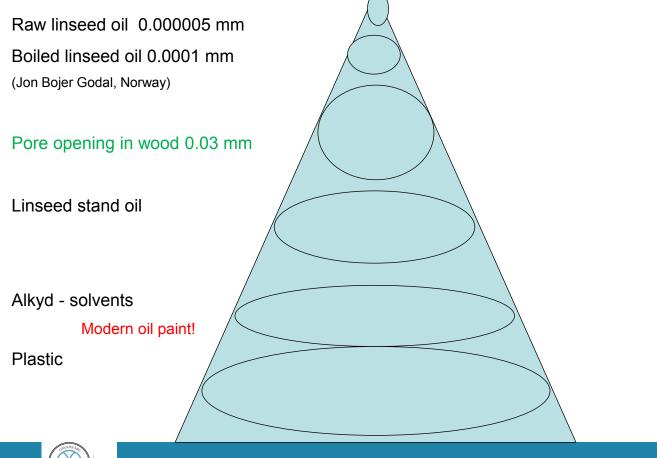


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COMPARISON LINSEED OIL PAINTS 2011





	Alcro 0.94 L	Allbäck 1 L
Price	SEK 330	SEK 310
Drying time	48 hours	24 hours
Coverage	5-7 sq. m/litre	15-20 sq. m/litre
VOC	over 300 g/litre	less than 1.1 g/litre
Labelling	Dangerous for environment	Environmentally friendly
Dilution	Aliphatic naphtha	No solvents
Price/sq. m.	SEK 52	SEK 16
Red Arro	W	Green Arrow



LINSEED OIL PAINT ON DEGUMMED LINSEED OIL

Linseed oil paint from before 1938 - Exterior

Solvent-free Natural pigment Natural signals Single pot system Long life time Storage friendly

Penetrates into the surface Attaches to most surfaces Paint in sunshine Good rust-protection effect on metal Easy maintenance

Low cost – Coverage 15 – 25 sq.m/litre Drying time approx. 24 hours

User friendly - Paint full coverage layer





Emission tests 1999 - 2000

All products give off very low emissions and are completely free of poisons. Long-term tests and working hygiene tests are carried out at the SP Technical Research Institute of Sweden in Borås and by Tekomo, Eva Nyman.

Extract from examination of emissions Allbäck Linseed Oil Paint

Exposure in professional use		
	Hygienic limit values Short term value SVEFF	Measured value
Acetone/Acroleine	1 200 000	42
Formaldehyde	1 200	12

Report 1 in pdf format in Architectural Conservation Journal - website

Emission tests long-term tests		
	Air threshold value (SVEFF)	Measured value
Nonanal	13	0.14
Formaldehyde	150	0.28

Report 2 in pdf Architectural Conservation Journal - website

CONSTRUCTION MATERIALS ASSESSMENT

A common system for environmental assessment of construction materials

GREEN ARROW Recommeded
YELLOW ARROW Accepted
RED ARROW Avoided
www.byggvarubedomningen.se
www.allbackpaint.com



PROCESSING LINSEED OIL



LIFE TRAJECTORY

CLEANING AND PAINTING WITH LINSEED OIL PAINT



Clean with Linseed Soap or ammonia.

Rinse and leave to dry. Fill cracks with Linseed Putty.

Paint wood and metal to full coverage with at least three coats out onto the glass.

Use a stiff natural brush or Micro Syntet Brush.

Don't paint over invisible condensation





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MAINTENANCE WITH THINNED PUTTY





Simple "delay ageing" measure for unsealed rebates and cracks. Brush on, wait until it goes sticky. Wipe off the excess and paint immediately with Linseed Oil Paint.



RE-PUTTY WITH LINSEED PUTTY









Stir the paint well. Paint out on the glass at least three coats



• • • CUTTING THE EDGES OF THE PUTTY





Moisten the glass with a weak solution of Linseed Soap and water. Cut the rebates to 2 mm over the glass with a scraper and filler.







Silicone showing through? Too greasy a surface? Chemical paint stripper? Wrong brush? Chemicals? Cold surface? Damp surface?





Finish the painting!



PAINTING METAL AND STORAGE



Paint new zinc-coated window sill or any metal. Clean with Linseed Soap or ethanol. Paint immediately with Linseed Oil Paint on a dry surface. Surface temperature minimum 14 degrees C



Store brushes hanging in raw linseed oil. Use the oil for impregnation.

Dry the brush and carefully paint out the oil before the next coat. Use the residue for undercoat.



• • • LINSEED OIL WAX



National Property Board – floor treatment

Lund University – window maintenance with Linseed oil paint and window cleaner



Water-resistant treatment



• FULLY MATT EMULSION LINSEED PAINT



For interior wallpaper, brick/plaster, ceilings and wood

GREEN ARROW





Linus Wall Paint



LINSEED SOAP



Linseed soap is a saponified linseed oil that can be used for all cleaning apart from in dishwashers.

Rusty fittings:

- Boil in an approx 50/50 soap-• water solution
- Leave to stand overnight
- Rinse and brush clean in water.
- Leave to dry •
- Paint with linseed oil paint



SAND & PLASTER



Plaster with Linus + Pumice flour

sponge.



Sand and paint immediately.

minutes.

HOW HAVE WE SUCCEEDED?

The power of the vision

Trust in life and each other Documented practical work Eco-friendly linseed oil products New inventions Old tools and methods

Respect and **cooperation** across boundaries between clients, craftspeople, academics, bureaucrats, entrepreneurs and agencies.

Together we can formulate **a shared vision** for **sustainable development** in harmony with the earth's resources and sound economics.

Circular economy

Read more at <u>www.allbackpaint.com</u> Journal of <u>Architectural Conservation Issue 1 & 2, 2004</u>.





🕨 🛡 THE ALLBÄCK RESIDENCE YSTAD - SWEDEN



Thank you for listening - Do come and visit us





INSPECTION TO MAKE A DIAGNOSIS - 2013

Background	Date
Owner/contact	
Address	Tel:
Class/Type	Year of construction
Existing construction	
Number of windows	Doors Storeys
Size of windows	Doors
N/S/E/W-facing/sketch	
Quality	Condition
Working time available/stage	S
Financing – state or private	
Insurance and responsibility	
Authority	
Historic building – Overseer	
Distance from workshop	
Sub-contractor	
Fire safety	
Other craftsmen working	
General condition	
Water damage, leaking balcon	nies, guttering
General ventilation in buildin	g
Insect damage – insurance ag	ainst house longhorn beetle
Fittings	Absent
Standard of glazing	Standard of glass
Wall attachment	
Positioning of frames. Outwa	rds or inwards
Wood quality	
Accessibility	
Fit balcony	
Construction windows – spec	ial manufacture
Furniture and curtains	
Access	Keys
	-
Cleaning – protective coverin	
Cleaning – protective coverin Stores for tools/equipment	

Notes

- I Backman, H., Glass in Houses, Esselte Studium, Lund (1975).
- Ullmann, F., Enzyklopädie der technischen Chemie (Chemical Technical Encyclopaedia), Urban & Schwartsenberg, Berlin (1922).
- 3 Lindgren, F. and Rengman, G. (Eds.), Meyers Varulexicon (Mayers Product Encyclopaedia), 5th ed., Alb. Bonniers, Stockholm (1952).
- 4 Lehman, O., Physikalische Technik, G. Wilhelm Engellmann, Leipzig (1885).
- Schönbeck, B., Stad i Förvanling (City in Change), Byggforskningrådet, Stockholm (1994).
- 6 Becker AB, Nyckel för Målningsbehandlingar enligt Hus AMA 83 kodbeteckning (Key for Painting According to House AMA 83 Codes) (1997).
- 7 Dreijer, C., Jerkbrant, C., and Wikner, C.E., Arkitekter om Färg & Målen (Architects on the Subject of Paint and Painting), Byggförlaget (1992).
- 8 Eljoit, S. and Patrikson, H., Fukubalans i målad träpanel enligt CTH-metoden (Moisture Balance in Painted Wooden Panelling According to the CTH-Method), Report P94:4, Chalmers University of Technology (Department of Building Materials), Gothenburg (1994).
- Nylén, P. and Andersson, H., Om Linolja (About Linseed Oil), Linoljeföreningen, Gothenburg (1953).
- Lindberg, B.O., Cennino Cennini Den akände målaren (Cennino Cennini The Unknown Decorator), Institutionen för konstvetenskap, Lund (1989).
- 11 Ullmann, op. cit. (1922).
- 12 Gutle, J.C., Grundlig Anvisning att förfärdiga Goda Femissor (Thorough Instructions on How to Produce Good Varnishes), Holmberg J.C., Stockholm (1799).
- 13 Asser, E., Farbe und Lack, Centralblatt 1936. Extract from lecture, Berlin, 14 October 1936.
- 14 Herrman, J., Praktisk handbok i luckering (Practical Manual for Varnishing), 3rd ed., Sigfrid Flodins Förlag, Stockholm (1879).
- 15 Andersson, B. and Nyléo, P., Färger för inflning av trä monthus (Exterior House Paints), The National Committee for Building Research, Stockholm (1950).
- 16 Andés, L.E., Nyaste handbok för Målare och Lackerare (The Newest Manual for Decorators and Vanishers), 9th ed., Albert Bonniers Förlag, Stockholm (1946).
- 17 Kjellander, K., Färg-Teknisk ordlista (Paint-Technique Dictionary), Sveriges Färghandlares Riksförbund, Stockholm (1931).
- 18 Antony, W. (translated by Knutson, C.), Målarfärger och bindemedel de vanligast förekommande (Paints and Binders – the Most Common Ones), Andersson & Co., Boktryckeri, Malmö (1926).
- 19 Nyman, E., Emissioner från linoljebaserad färg (Study of Emissions from Linseed-Oil Paints), TEKOMO Byggnadskvalitet AB (Sweden's Research and Test Institute), Borås (2000).
- 20 Ibid.
- 21 Thunström, O. and Åström, V., Hantverkets bok måleri (The Craftsman's Handbook – Decoration), Lindfors Bokförlag, Stockholm (1934).
- 22 Hector, D.S., Kemisk-teknisk receptbok (Chemical Technical Recipe Book), 5th ed., Björck & Börjesson, Stockholm (1913).
- 23 For example, International Council on Monuments and Sites, International Charter for the Conservation and Restoration of Monuments and Sites (Venice Charter), ICO-MOS, Paris (1964).
- 24 Kemikalieinspektionen, Giftfri miljö: Miljökvalitetsmål och delmålen (Environment witkout Dangerous Chemicals: the Quality Goals), 2nd ed., Swedish Chemicals Bureau, Stockholm (2002).



ALLBÄCK LINSEED OIL PAINT – QUALITY CONTROL FOR HANDLING LISE AND MAINTENANCE

TUK HANDL	AND, USE AND	MAINTENANCE
Allbäck Linoljeprodukter AB	Product name:	Allbäck Linseed Oil Paint
Balkåkravägen 18	Binder:	Cleaned, boiled and matured linseed oil
271 91 Ystad, Sweden	Thinner:	Cleaned boiled linseed oil max 5%

Areas of use:

The Linseed Oil Paint contains only cleaned boiled linseed oil, titanium dioxide and chalk. Where required, add max 20% Allbäck pure zinc paint to all colours. The paint is solvent-free and must <u>never be thinned with solvent.</u>

Surface	The paint may be used on all clean, dry surfaces, exterior and interior. Max. moisture content 15%. Temperature approx. 5–35°C. May be applied in direct sunlight.
Application	Stir the paint thoroughly.
	Brush (stiff natural bristles) or spray (high pressure, small nozzle).
Cleaning	Ammonia, Chlorine or Allbäck Linseed Soap. Wash hands and brushes with Linseed Soap and
	water.
Storage	Store brushes suspended in raw linseed oil (never in water).
Keeping	May be kept indefinitely even below freezing.
Coverage	15–20 m ² per litre. Each coat should <u>cover the surface completely</u> and be painted in <u>even</u> layers.
	Apply the same paint in at least three coats on exterior surfaces. Apply four coats to particularly
	exposed surfaces.
Dry matter	100%
Transport	No restrictions – not hazardous goods
Risk of self-ig	gnition – always soak rags in water and discard!

Waste management

No specific restrictions. Paint remnants can be used down to the last drop. Combine any remaining paint and use as primer or mix with about 30% water to make an emulsion for concrete floors and brick walls. Tins can be discarded as normal metal waste. In Sweden, we have an agreement with REPA on recycling packaging.

Technical specifications, safety data sheet and emission tests

These are available on our website www.allbackpaint.com

VOC – Allbäck Linseed Oil Paint contains <1.1% VOC

Cleaning & Maintenance

Linseed Oil Paint is elastic and thus absorbs more dirt in the initial phase. After a few years, the pigment grains start to fall out and the paint becomes "self-cleaning".

Assuming that the surface has been given three full coats of paint, dirt and mould can be cleaned off using Allbäck Linseed Soap. Avoid too high a pH. Mix the Linseed Soap with water until it foams. Clean the surface using a sponge or a brush. Rinse thoroughly and allow to dry. When the surface turns matt and starts to become chalky, treat with Linseed Oil or Linseed Oil Wax or a coat of Linseed Oil Paint. The need for maintenance varies considerably depending on the original treatment, exposure to the elements and other stresses. Interior surfaces have much longer maintenance intervals and retain their shine for many years. Touch-up work will have a different shine initially.

Comments:

The results of applying Allbäck Linseed Oil Paint depend on the structure, surface, preparation, temperature,
humidity, light and method of application. Detailed instructions can be found in the Little Handbook on our
website <u>www.allbackpaint.com</u> .
Always paint a test area first. In the event of a complaint, please include your documentation and quality
control details.
Treated surface
With paint type Date

I/We have read the instructions, carried out the preparatory work and painted.....



Paint on clean and dry surface Clean with linseed oil soap Dryingtime 24 hours 215 square foot/quart Covers 20 m²/l





www.allbackpaint.com