



linseed oil paint

for construction work & artwork

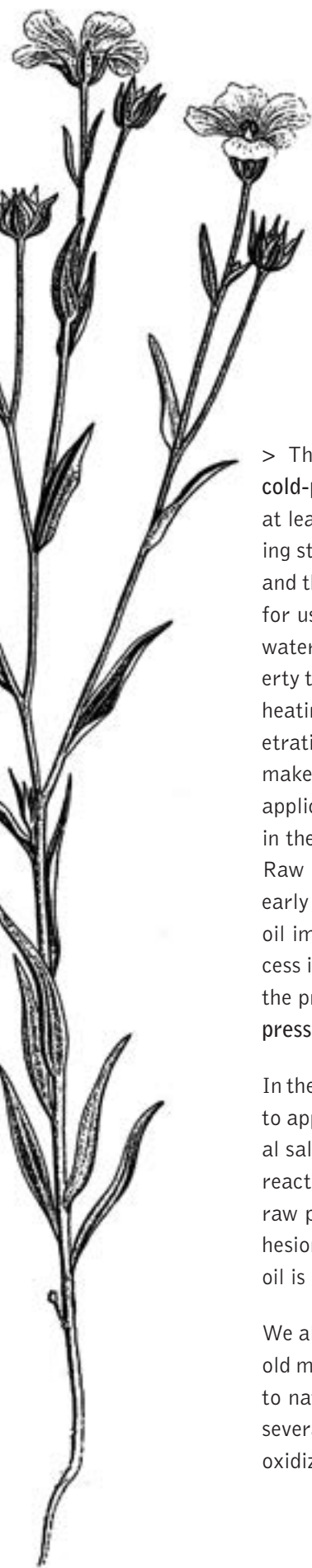




[*Linum usitatissimum*]

⚡ Flax, from which linseed oil is produced, is an extremely old cultivated plant that only grows in temperate climates. The conditions around the Baltic Sea are ideal for the cultivation of a high quality product and the linseed oil that we use comes from flax that is cultivated and pressed in southern Sweden. Linseed oil has a unique property in that it oxidizes through a reaction with oxygen in the air and transforms from a liquid state to a solid. ⚡





[product] Linseed oil

The linseed oil that we use is only extracted by cold pressing. This method of pressing the oil from linseed without prior heating gives a small exchange but in return a cleaner and clearer product.

> The newly pressed linseed oil is called **cold-pressed raw linseed oil** and stored for at least half a year prior to being used. During storage, the impurities fall to the bottom and the clear pure oil is drawn off and ready for use. As its surface tension is lower than water, the raw oil has an unequalled property to penetrate into the substrate. No prior heating of the oil is necessary for this penetration process to take place. This property makes it suitable for use for primer paint applications outdoors. We also use this oil in the manufacture of our artist's oil paints. Raw linseed oil dries relatively slowly. Very early on it was discovered that heating the oil improved its drying properties. This process is generally referred to as "boiling" and the product is retailed under the name **cold-pressed boiled linseed oil**.

In the boiling process we use, the oil is heated to approx. 140° C and both oxygen and metal salts are added to make the product more reactive. The oil is slightly thicker than the raw product but has the same excellent adhesion and penetration characteristics. This oil is used as a binding agent in our paints.

We also refine raw linseed oil by using a very old method that consists of subjecting the oil to natural sunlight and oxygen outdoors for several months. During this process, the oil oxidizes and thickens and is also bleached by

the sunlight. The oil is called **sun-thickened linseed oil** and used an additive to paint in the final coat in order to improve the gloss, covering and drying properties.

[the pigments]

Colour pigments are chemically divided between organic and inorganic compounds. Organic pigments are made up of hydrocarbons and the inorganic mainly of metal compounds and minerals. Inorganic pigments are generally more stable to light and air and function best with linseed oil. Examples of inorganic pigments include all naturally occurring earth pigments, all iron oxide pigments, zinc oxide, titanium oxide and cobalt. Our endeavour is to use inorganic pigments in our paints at the same time as satisfying market demands for a wide range of paint shades in combination with being environmentally friendly. Recently, we have discovered modern inorganic pigments that can replace the old colour strong chromium, cadmium and lead pigments. These pigments consist of other metal compounds which, from an environmental perspective, are approved. You can be sure that in our production, no naturally occurring ochre, umbra or terra has been replaced by any similar iron oxide pigments. Therefore bensvart (bone black) still consists of incinerated animal bone and koboltblätt (cobalt blue) contains genuine cobalt pigment. >



+



=



[the craft] The Process

In the production of linseed oil paint the two ingredients, linseed oil and colour pigments, are combined. The craftsmanship primarily involves understanding and evaluating the relationship between the characteristics of the various pigments in combination with linseed oil. The pigments are individual and behave differently when mixed with linseed oil.

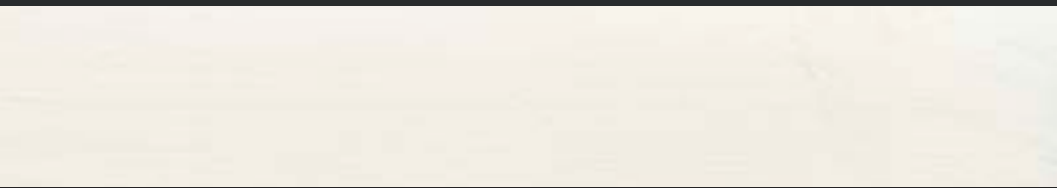
> "Primarily it is the mechanical process that is most significant. We use various kinds of mixers and mills in order to achieve optimal effect. I would particularly like to highlight our triple-cylinder mixer. This method of "grinding" paint, i.e. refining the pigments evenly in linseed oil, is mentioned in literature dating back to the 16th Century. Up until the 1840ies, this was done entirely by hand but later this grinding process was progressively taken over mechanically using triple-cylinder mixers. Some of our paints are ground in modern dissolver machines, but some special natural pigments require a rolling mill to achieve the best results. Linseed oil is added to the torn paint paste to acquire the desired viscosity, which resembles thick yogurt. The balance between linseed oil and pigment is important for reasons of storage. In our sealed cans, linseed oil paint should be suitable for use for many years.

When adding shade nuances to our standard paints we always start from our various base shades that consist of one colour pigment and linseed oil. Different base shades are weighed and mixed to create a new shade. For example, Köpenhamnsgrön (Copenhagen green) is produced from the base shades järnoxidsvart (iron oxide black), kromoxidgrön (chromium oxide green), grön umbra (green umbra), guldockra (gold ochre), järnoxidgul (iron oxide yellow) as well as a little zinkvitt (zinc white). Once the paint is ready it is checked and approved. It is then stored or filled into cans. Much of the work

is performed manually which is why the process is described as an industrial craft. The production of a special shade usually proceeds as follows. A customer requests a shade based on his or her own model. This could be an old paint flake or an object of specific colour. Our knowledge concerning different combinations enables us to quickly assess which of our base shades should be used to achieve the desired shade. This mixing process has striking similarities with a chef seasoning his pot. It's all according to the senses. In the case of the chef, it's with the tongue, in our case, it's with the eye. Linseed oil paint has a high density and its weight per litre ranges from 1.5 to 2.2 kg depending on the pigments contained. The high pigment content of the paint gives it unsurpassed coverage and extensibility." |

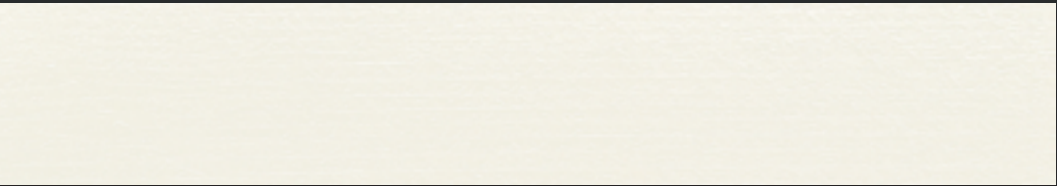
Gunnar Ottosson GF





White primer indoors

For indoor use only!



Matt White indoors

NCS 0502-Y18R

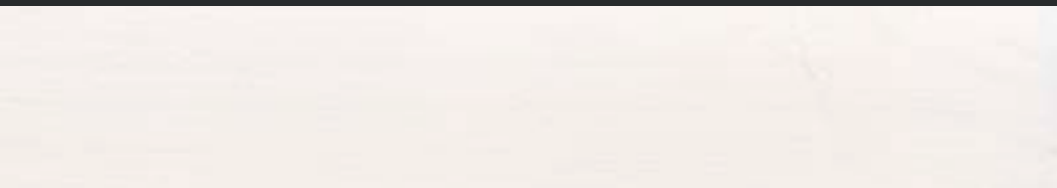
For indoor use only!



Antique White indoors

NCS 0604-Y23R

For indoor use only!

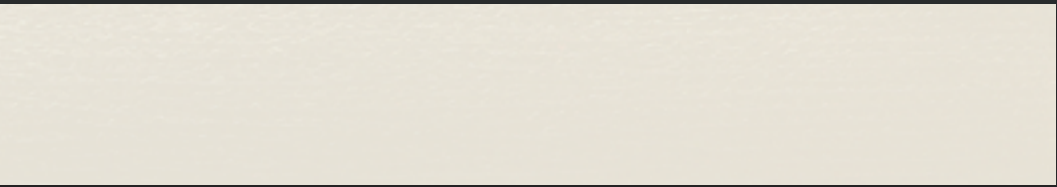


White Titanium-Zinc

NCS 0402-Y07R



perceived color hue*

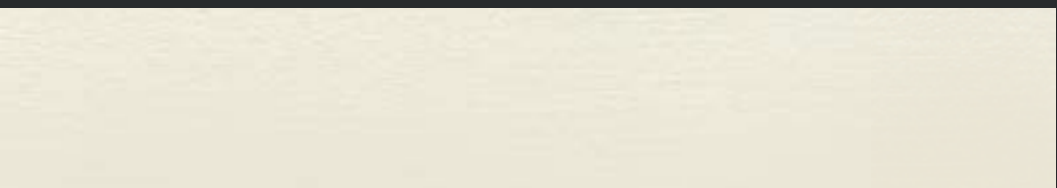


White Cream Tone

NCS 0902-Y25R



perceived color hue*

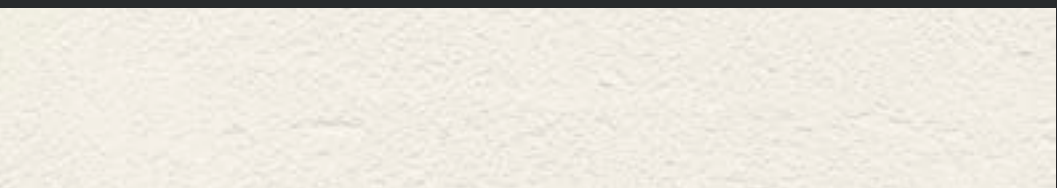


Putty White

NCS 0604-Y26R



perceived color hue*



White Plaster

NCS 0603-G95Y



perceived color hue*



Light Grey

NCS 1000-N



perceived color hue*

WHITE & LIGHT GREY | colour tone



> White shade nuances are those that are in most demand and our white standard shade, White Titanium-Zinc, is included in most of our shade range. All white and light grey shades consist of a combination of the pigments titanium dioxide and zinc oxide.

They complement each other well. Titanium dioxide offers high coverage properties and zinc oxide gives hardness and gloss. Zinc oxide also provides good protection against algae and mould to painted surfaces. We use zinc oxide in all our shades including black.

The combination of black and white results in light blue tones that are sometimes called "poor-man's blue". In order to balance this blue, yellow ochre, umber and iron oxide yellow are used. We also produce various shades of light grey in the same way. |



| Window workshop in Germany | Tongue-and-groove panels indoors | Brevik village museum in Norway painted with White Titanium-Zinc

! N.B. All our standard shades are given an NCS code regulated by Färginstitutet (the Swedish Paint and Varnish Institute) in Stockholm, according to Swedish standard SS 01 91 00 with spectrophotometer.



Colour samples that are very close to white will make a façade appear whiter than it actually is. If the sample has a slight grey-yellow tone, the façade will appear a beautiful white without smarting the eyes. If the sample is light grey without the yellow tone, the façade will appear grey-white and may have a slight tendency towards violet.



Symbol shows the perceived unmixed standard shade and refers to a façade of painted wood panels estimated at a distance of approx. 50 metres. It applies to all shades with the exception of White plaster. The code concerns a completely smooth plastered surface; the impression will be darker if the plaster is coarser.



Wheat Grey

NCS 2611-Y08R

RAÄ kod – 7B-920

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Light Yellow

NCS 1019-Y25R

RAÄ kod – 6A-JOLES

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Yellow Ochre

NCS 1530-Y21R

RAÄ kod – 4A-JOLES

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Sun Yellow

NCS 1339-Y09R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Sand Yellow

NCS 2431-Y17R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Manor house Yellow

NCS 2242-Y19R

RAÄ kod – 4A-920

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Golden Yellow

NCS 2740-Y25R

RAÄ kod – 2A-94

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Gold Ochre

NCS 4144-Y27R

RAÄ kod – 1A-94

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*

YELLOW | colour tone



> In our yellow shades we use the following pigments: various yellow ochres, iron oxide yellow, nickel-titanium yellow and other inorganic metal combinations. Some are mixed with white, umbra and black in order to achieve the correct balance.

The designation "yellow ochre" is well-known to many and has been extensively used throughout history. The best pigments today are still obtained from soil deposits around the Mediterranean and vary in shade from yellowish brown to reddish brown. Iron oxide yellow is produced from scrap iron and has a somewhat brighter yellow tone than ochre. Thus this pigment is the result of a recycling process.

To further enhance the clarity and yellowness of e.g. Sun yellow, nickel-titanium is added and the pigment bismuth. These are inorganic metals that are stable, light-fast and approved. They replace the previous commonly used chromium and lead pigments. |

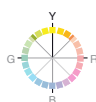


| Door leaf, lintels and panels in the same shade | Unbroken yellow ochre on Bäckaskogs Castle in Skåne | The façade of the Hallanbergs Country House painted with yellow ochre

The two lighter components of each colour sample show a mixture of equal parts of Standard shades and White Titanium-Zinc as well as one part of Standard shade and three parts White Titanium-Zinc. These shades you mix yourself as follows: S = Standard shade and V = White Titanium-Zinc N.B. This combination key applies to all shades

 +  = 50%

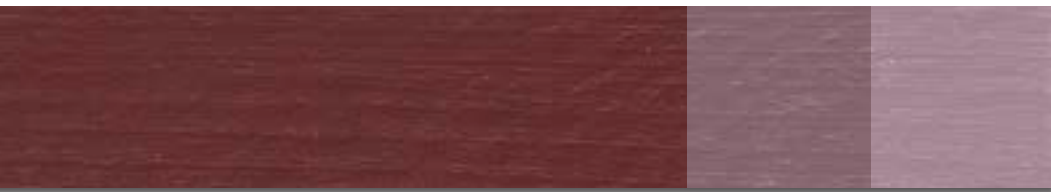
 +     = 75%



Yellow shades on a facade are perceived as being lighter and often a more intensive yellow. A beautiful bright yellow shade sample easily results in the facade having a too bright yellow appearance. To acquire a beautiful yellow facade, a colour sample should be chosen that looks slightly dirty. It is these more subdued yellow shades that belong to the Swedish facade tradition.



Symbol shows the perceived unmixed standard shade and refers to a façade of painted wood panels estimated at a distance of approx. 50 metres. It applies to all shades with the exception of White plaster. The code concerns a completely smooth plastered surface; the impression will be darker if the plaster is coarser.



Caput Mortuum

NCS 6523-Y97R

RAÄ kod – 1A-20D

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Red Ochre

NCS 4544-Y65R

RAÄ kod – 1A-ABRICOT

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Burnt Terra

NCS 5338-Y68R

RAÄ kod – 1A-5876

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Iron oxide minium

NCS 5731-Y78R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Falu Red

NCS 4941-Y79R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Dark Iron Oxide Red

NCS 5536-Y81R

RAÄ kod – 1A-222

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Light English Red

NCS 4353-Y73R

RAÄ kod – 1A-10A

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



English Red

NCS 4746-Y77R

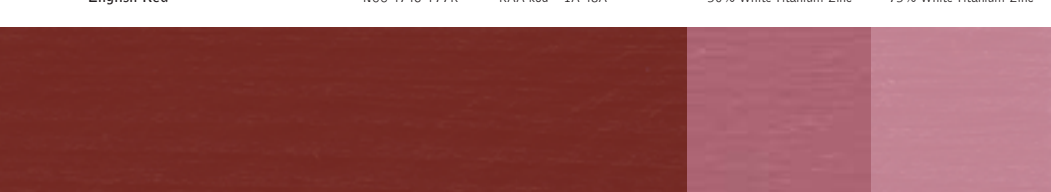
RAÄ kod – 1A 48A

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Empire Red

NCS 4053-Y94R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*

RED | colour tone



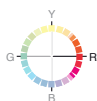
> The red pigments that we use mostly include various iron oxides, burnt terra and red ochre. As Falu Red calcimine or limewash is traditionally used in many situations in Sweden, we are often asked which of our linseed oil shades best corresponds to it.

Our answer is 1A-222 Deep Iron Oxide Red is the shade that best corresponds to Falu Red calcimine, and Falu Red is the shade that best corresponds to the Light Falu Red calcimine. The designation English red describes an iron oxide red shade. We also produce a lighter variant 10A, and a slightly darker shade 48A. Iron oxide minium is used both as a rust protection paint on metal and for wood.

Our red colour tones can be applied as a one coat finish on sawn untreated wood. Mix the paint for a "one coat finish" according to the instructions. This is an alternative to the calcimine for use in weather-exposed locations. The picture to the left below shows a single coating of "one coat finish colour tone" after 15 years on a south facing façade. The picture to the right shows the same façade after being freshened up with a single coat. This is due to the fact that we use a large quantity of iron oxide red pigment without the addition of cheaper filling pigments. |



| One coat finish after 15 years of aging | After being freshened up with a single coat | Red and grey are often a very attractive combination | The old town hall in Niederbrechen, Germany



Red shades on a façade are perceived as being stronger and lighter. They also lessen in intensity a little against blue. When it concerns red facades, Sweden has a strong tradition within the Falu Red – oxide red area. Red shades that are stronger and | or have a more bluish tendency than the more traditional shades, are easily perceived as being loud when painted on facades.



Symbol shows the perceived unmixed standard shade and refers to a façade of painted wood panels estimated at a distance of approx. 50 metres. It applies to all shades with the exception of White plaster. The code concerns a completely smooth plastered surface; the impression will be darker if the plaster is coarser.



Silver Grey

NCS 4901-B25G

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Hardeberga Blue

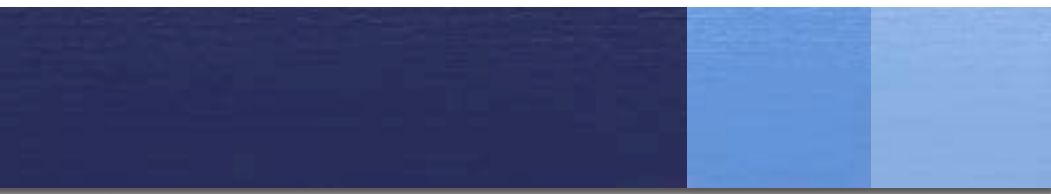
NCS 5311-R78B

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Ultramarine Blue

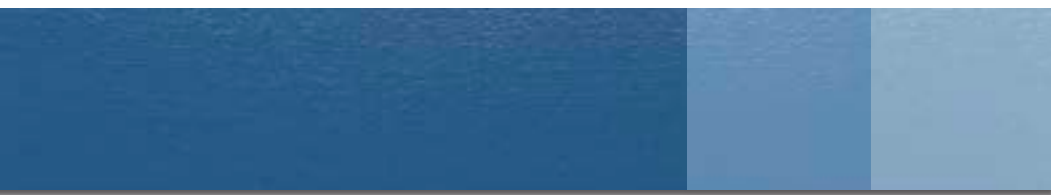
NCS 5742-R66B*

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Cobalt Blue

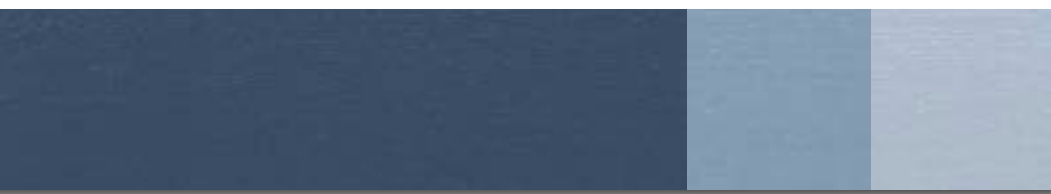
NCS 4539-R87B*

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Per Hans Blue

NCS 6022-R82B

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Mountain Blue

NCS 5919-R98B

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Öja Blue

NCS 5919-R98B

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Verona Grey

NCS 3108-B75G

RAÄ kod - 4B-264

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*

BLUE | colour tone



> The semiprecious stone Lapis Lazuli [natural ultramarine blue] was for a long time the only available pure blue pigment. It was so expensive that it was used only as an art material. When at the beginning of the nineteenth century a synthetic variant of lapis lazuli [synthetic ultramarine] was produced, the use of blue increased particularly within the manufacture of wallpaper.

At the beginning of the nineteenth century it also became possible to manufacture cobalt blue and Paris blue. In 1930, the organic pigment Monastral blue was introduced. Blue linseed oil shades require more maintenance than other shades. The most stable pigment is cobalt blue. The pigment is expensive and as a consequence the paint per litre is often more expensive. However, in order not to be deterred by the price per litre, you should consider the following. Cobalt blue paint is seldom used on facades but most often on windows and doors etc. Supposing there are 10 windows that you want to paint. All that is required is max. one litre per three coats. If a litre of paint costs SEK 990 and you divide that by 10, the cost will be SEK 99 per window. Can you name anything else on the window that costs so little?

Ultramarine blue is sensitive to acids present in the air. This can prove problematic when the pigment partly transforms to plaster and fades. Today, we use an encapsulated ultramarine blue pigment that insulates against such acids. In addition to the blue pigment in our blue shades are also black, umbra, ochre and white. The mixture of black and white results in mild blue tones that are otherwise called "poor-man's blue". |



| Mild grey-blue tone on kitchen fixture | Colourful facade section in an aging cobalt blue



The facade will be much bluer than the sample. It is sufficient for the sample to be slightly blue-grey for the facade to be perceived as being blue, and stronger blue shade samples will give the facade a loud impression. In addition, the facade will be lighter than the sample. Due to blue facades not being part of the Swedish building tradition, they are noticed very easily. Fingertip sensitivity is required to make the facade a beautiful blue shade.



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Ribban Green

NCS 2314-G66Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Leaf Green

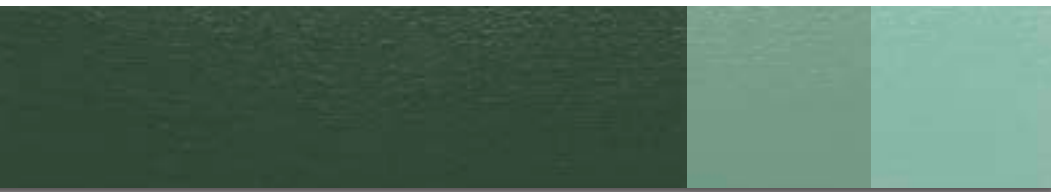
NCS 4820-G27Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Copenhagen Green LIGHT

NCS 7215-G14Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Copenhagen Green

NCS 7116-G37Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Ardbeg Green

NCS 7313-G71Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Core Green

NCS 6717-G28Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Chromium Oxide Green

NCS 5433-G25Y RAÄ kod – 1A-811

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Thott Green

NCS 5530-G30Y*

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Öveds Green

NCS 5919-G37Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*

GREEN | colour tone

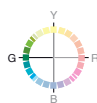


> The pigment mostly in use for the production of green linseed oil paint is chromium oxide green; not to be confused with the older chrome green or zinc green pigments, which are toxic. In order to produce our various green tones, we break chromium oxide green with black, umber, ochre and iron oxide yellow and so forth.

Green shades can also be easily mixed with black or blue shades together with yellow shades. This results in a wide range of shades. On the right is a picture from the 1999 restoration of Ribersborg kallbadhus [open-air swimming facility] in Malmö. The original design dating from 1904 has been restored and everything has been repainted in the original shades using linseed oil paints. The restoration was rewarded a diploma from "Föreningen til Hovedstadens förskönelse" [The association for the beautification of the capital city] in Copenhagen. |



| Darker green shades can certainly be used on windows and doors | Ribersborgs kallbadhus (open-air swimming facility) in Malmö



Green shades appear brighter and stronger on a façade than on a sample. The tone also changes and becomes colder and sometimes almost blue-green. Green is unusual within Swedish façade traditions. In order to reflect the green colours in nature, the sample must be both dark and distinctly yellow in tone.



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perceived color hue*



75% White Titanium-Zinc

50% White Titanium-Zinc

NCS 3407-G80Y

Grey Green



perceived color hue*



75% White Titanium-Zinc

50% White Titanium-Zinc

NCS 4112-G60Y

Antique Green



Warm Grey

NCS 2502-Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Umber Grey

NCS 3005-Y27R

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Mid-grey

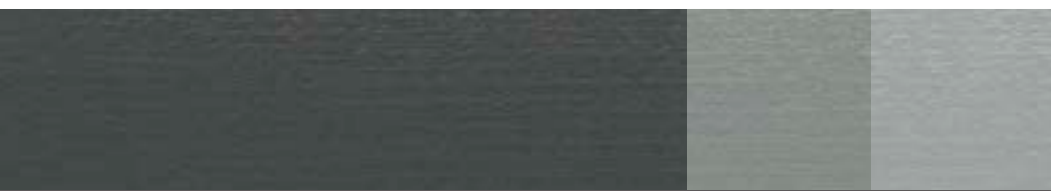
NCS 3402-G50Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Dark Grey

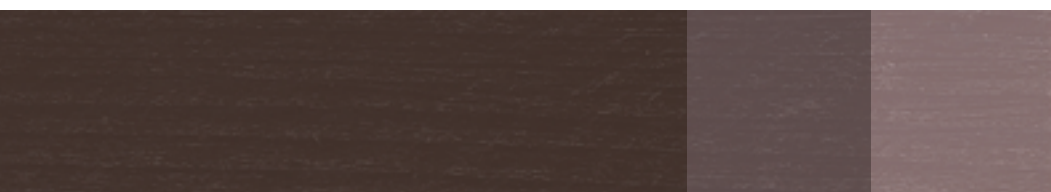
NCS 7601-G37Y

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Iron Oxide Brown

NCS 8107-Y76R

RAÄ kod – 1A-663

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Burnt Umber

NCS 8404-Y73R

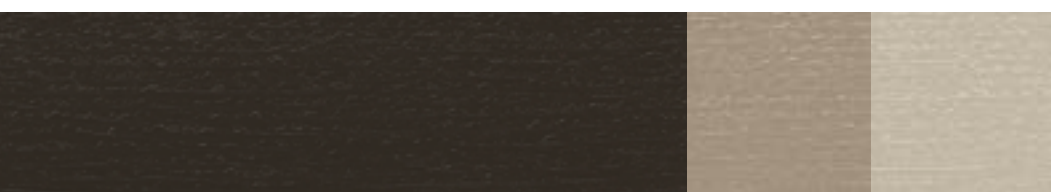
RAÄ kod – 1A-711

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Italian Green Umber

NCS 8505-Y20R*

RAÄ kod – 1A-786

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Iron Oxide Black

NCS 8901-R65B

RAÄ kod – 1A-4950

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*



Bone Black

NCS 9100-N

RAÄ kod – 1A-98

50% White Titanium-Zinc

75% White Titanium-Zinc



perceived color hue*

GREY, BROWN & BLACK | colour tone



> We use two black pigments in the production. Iron oxide black which is very stable and has high coverage and the historical Bone Black, which is produced from burnt animal bones.

Iron Oxide Black gives very good coverage and is a warm colour tone. Bone Black is a deep and pure black colour tone and is very useful when mixing due to its transparency. The brown shades are produced using Iron Oxide Brown, Green umber and Burnt umber. The pigment Green umber is not particularly green but brownish in colour like all other umber pigments. This pigment has lesser redness making it particularly useful as a tint colour in all possible shade mixtures. Mixed with black, brown or white produces a wide variety of grey shades. |



| Renovated windows in a 17th Century house in Germany | The courtyard, Stockholm Palace | Black private houses in Stockholm built in 1914



Brown and dark grey shades are lighter on the facade than on the colour samples, and really coal-black facades are almost impossible to produce.



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perceived color hue*



NCS 1805-G88Y

Pearl Grey



perceived color hue*



75% White Titanium-Zinc

50% White Titanium-Zinc

NCS 4004-G99Y

Hastings Grey



perceived color hue*



NCS 8400-N

Graphite



[info]

> In 1989, Gunnar Ottosson started a sole proprietorship that, in 2001, developed into the limited company Ottosson Färgmakeri Aktiebolag. Since 1992, the company has been located in Genarp, Skåne. Operations are conducted in buildings in which aesthetics, materials and functions go hand-in-hand with the business philosophy.

The frames and facades of our premises are constructed using concrete, brick and wood. The walls of our factory are made of recycled bricks dating from 1850. As the first industrial building in Sweden, we chose a "green roof" consisting of Sedum. Flax wool is used for all insulation purposes. The ventilation is a natural ventilation system with wind-driven exhaust valves. We are now self-sufficient in electricity and heat thanks to our own facilities consisting of a wind turbine, solar cells and geothermal heat pump.

In 2014, the company turnover was approx. SEK 17 million. Approx. 75% of the turnover is through sales in Sweden and 25% through export, particularly to Norway, Denmark, Finland, Germany, the Netherlands, England, Switzerland and Czech Republic. |

[the company] Philosophy

By the end of the 1980ies, linseed oil paints had almost disappeared from the market. At the same time it was being reported that relatively new wooden facades were rotting after only a few years and house owners were having to change panelling. Such incidents do not occur when linseed oil paints are used and as a result questions were raised concerning new and modern plastic paints. Not by everyone, but a sufficient number to create a demand for linseed oil paints.

> Up until the 1950ies, linseed oil paint had been the dominant paint in use throughout most of Europe. When we began production of our linseed oil paint, the concept of oil paint and linseed oil paint was often confused and we were accused by many trade organisations of manufacturing a potentially dangerous product containing solvents. People had become accustomed to presuming that oil paints were synthetic alkyd oil paints containing large amounts of solvents. However, traditional linseed oil paint consists of natural oil with no or extremely low quantities of solvents. Knowledge concerning linseed oil paint hardly existed during this time. Alkyd binding agent is generally so thick and viscous that it requires high levels of solvent for it to be applied, whilst boiled linseed oil is highly liquid on its own and penetrates into the substrate in a way that is unequalled compared to other binding agents. Linseed oil has a lower surface tension than water.

The last twenty years have very much been characterised by considerations concerning the environment. In many ways this has proven a great advantage to us as linseed oil fulfils many of the criteria placed on environmentally friendly products. Flax from which linseed oil is derived is cultivated and not a burden on our resources. Linseed oil

decomposes naturally without leaving any harmful waste. Linseed oil paint can almost always be applied without adding solvents. Today it is common to hear that paint is not harmful if it is "water-based". However, the concept of "water-based paint" is misleading as the paint is not based on water but is only soluble in water. The paint itself is based on completely different chemical substances and it is the affect these substances have on the environment and people that has to be considered.

We are convinced that pure linseed oil paint has very strong possibilities of competing with other types of paint even in the future. The materials, smell and dignified aging of the paint are characteristics appreciated by many. The paint can be understood and is logical and reveals weaknesses in the substrate in a way that contributes towards future conservation. |



[directions for use] Indoors

> Our directions are intended as a guideline. Several variations are presented. Note that the instructions below are based on untreated, non-oiled substrates. Using linseed oil paints indoors requires know-how and experience and the paint should always be applied in thin and even layers. It is important to follow the specified drying times. Pig bristle brushes of good quality are required for applying the paint. N.B. When painting indoors, add 1% extra drying agent to the paint [10 ml | 1 litre of paint] unless otherwise specified. [see instruction films on www.ottossonfarg.com]

[ALT. 1] PAINTING WITH STANDARD PAINTS DILUTED USING SKONSAM THINNERS OR TURPENTINE.

Sawn | planed wooden surfaces as well as pH-neutral plaster. Gives a semi gloss finish. Apply shellac [knotting varnish] 1-2 times on any knots before applying the paint.

1. Dilute the paint using approx. 15% Skonsam thinners or Balsamic turpentine. Allow at least 2 days to dry. Fill any unevenness using Rubinol oil based filler, which, after drying, should be prime painted. Level any unwanted unevenness with Rubinol oil filler. Then sand the surface lightly and prime the filler spots. Sand lightly. Fill any unevenness using an oil based filler, which, after drying, should be prime painted.
2. Apply the undiluted paint. Allow at least 2 days to dry. Sand lightly.
3. Apply the final coat using undiluted paint.

REPAINTING PREVIOUSLY PAINTED SURFACES

Wash using a paint cleaning agent and lightly sand. Prime any clean wooden areas according to point 1. Apply undiluted paint according to points 2 and 3.

[ALT. 2] PAINTING USING STANDARD PAINTS WITHOUT SOLVENTS. THIS OPTION REQUIRES SLIGHTLY LONGER DRYING TIMES.

Sawn | planed wooden surfaces as well as pH-neutral plaster. Gives a semi gloss finish. Apply shellac [knotting varnish] on any knots before applying the paint.

1. Mix a primer paint consisting of 2 volume parts cooked linseed oil and 1 part paint. Apply very thinly and allow at least 3 days to dry. Sand the surface lightly.
2. Apply the undiluted paint. Allow at least 3 days to dry. Sand lightly.
3. Apply the final coat using undiluted paint.

REPAINTING PREVIOUSLY PAINTED SURFACES

Wash using a paint cleaning agent and lightly sand. Prime any clean wooden areas according to point 1. Apply the undiluted paint according to points 2 and 3.

PAINTING WITH ANTIQUE WHITE

This paint is particularly adapted to provide interior carpentry with extra durability and hardwearing surfaces. The paint requires no additional drying agent and should not be diluted. Smooth | planed surfaces where a high gloss finish and even distribution is required.

Apply shellac [knotting varnish] on any knots before painting.

1. Prime using our White Primer. Allow at least 24 hours to dry. Sand lightly. Fill any unwanted unevenness using Rubinol oil filler. Then sand the surface lightly and prime the filler spots.
2. Mix equal volume parts of White Primer and Antique White. Apply the paint thinly. Allow 2 days to dry. Sand lightly.
3. Apply the final coat using Antique White. Apply the paint thinly using a good brush [Spoon and flat brush]. Distribute the paint well.

REPAINTING PREVIOUSLY PAINTED SURFACES

Wash using a paint cleaning agent and lightly sand. Prime any clean wooden areas according to point 1. Paint with Antikvit Antique White 1-2 times.

PAINTING WITH STANDARD PAINTS SINGLE APPLICATION

On absorbent untreated surfaces. This treatment is labour saving and best used on large untreated tongue and grooved wooden surfaces as well as pH-neutral plaster. Dilute the linseed oil paint with 30% boiled linseed oil. Apply the paint thinly and evenly. Work carefully and all the time wet on wet, avoiding double coats. Paint from corner to corner and do not stop in the middle of the wall. The paint has such good covering properties that only a single coat is required. As the substrate absorbs the linseed oil, a matt to silk-matt finish is achieved already after 24 hours. This work saving treatment is best used for large areas of plaster and untreated tongue and grooved board.

PAINTING WITH MATT LINSEED OIL PAINT.

Matt linseed oil paint requires no additional thinning agent and should not be diluted. As wall paint, our matt linseed oil paint is an excellent choice. It provides a durable, washable surface. As a stock item, it is white but can be broken into a variety of shades and colours. If the surface has not previously been treated, it needs first to be primed using White Primer. Apply the paint evenly using a brush or roller. Drying time 12-24 hours.

PAINTING WITH STANDARD PAINTS ON METAL

The linseed oil paint is applied thinly 1-2 times using a paintbrush or varnish roller. For a more even distribution dilute 10% with turpentine or Skonsam thinners.

PAINTING WITH STANDARD PAINTS ON OTHER TYPES OF PAINT [E.G. ALKYD, ACRYLATE]

Wash to a matt surface. Scrape away any loose paint and prime the clean wooden surface with paint diluted with 10-20% turpentine [Skonsam thinners or a mixture of boiled linseed oil and paint. linseed oil and paint. Fill where necessary using an oil filler. Apply the paint undiluted 2 times.

GLAZING WITH STANDARD PAINTS

What is meant by glaze is a paint which is transparent where the substrate being painted on is visible and incorporated in the perceived finish. All our standard paints can be diluted as glazes. Use Ottosson Linseed oil to dilute the linseed oil paint to the desired degree of transparency. The most requested Glaze paints in our standard range include; Oak, Mahogany, Teak, Walnut, Sandstone, Aged Wood, Black and White.

PAINTING WITH TRANSPARENT WHITE. READY DILUTED

Untreated joinery. Semi gloss. Prepare any planed joinery surfaces by brushing on water and allowing it to dry. Sand off any raised wood fibres. Apply the glaze thinly one time.

WHAT TO CONSIDER WHEN PAINTING AN INTERIOR.

The requirements for 'beautiful' surfaces are usually higher when painting interiors. Mechanical wear is also greater in certain areas such as floors and kitchen fittings. We supply additives such as Ottosson drying agent, Ottosson Linseed oil varnish, Ottosson sun-thickened linseed oil as well as high quality brushes that can help you achieve the desired result of the painted surface. Always test paint on a small area first if you are unsure of the technique required

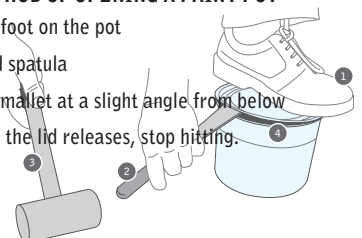


It is difficult to describe painting techniques in words. We therefore invite you to view our instructional video films and product information available on our website

www.ottossonfarg.com

THE BEST METHOD OF OPENING A PAINT POT

1. Place one foot on the pot
2. Use a rigid spatula
3. Hit with a mallet at a slight angle from below
4. As soon as the lid releases, stop hitting.





| Outdoors

[ALT 1] PAINTING WITH STANDARD PAINTS DILUTED USING TURPENTINE | OIL

Sawn | planed wooden surfaces as well as pH-neutral plaster. Semi gloss finish.

1. Mix the primer paint as follows: 35% paint | 50% raw linseed oil | 15% turpentine. Apply the primer well. Drying time varies according to weather conditions. Estimate 3-4 days in dry, warm weather. The surface should feel dry and somewhat rough to the touch. On resin-rich wood the quantity of raw linseed oil can be reduced and the turpentine increased.
2. Apply the next coat using undiluted paint on planed even surfaces. Apply the paint using 10-20% turpentine on sawn rough surfaces. Allow at least 2-3 days to dry.
3. Apply the final coat using undiluted paint. For more even coverage, dilute with approx. 5-10% cooked linseed oil or alternatively sun-thickened linseed oil or linseed oil varnish.

REPAINTING SURFACES PREVIOUSLY PAINTED WITH LINSEED OIL PAINT OR OTHER TYPE OF PAINT

Scrape away any loose paint and wash the surface. If the cleaned surface is greatly absorbent, apply the paint according to point 1. If the surface is oily and saturated with old linseed oil, apply the paint diluted with 10% turpentine. Then paint according to 2 and 3.

[ALT 2] WITHOUT SOLVENT

Painting with Standard paints diluted with oil without turpentine. Sawn | planed wooden surfaces as well as pH-neutral plaster. Semi gloss finish.

1. Mix the primer paint as follows: 30% paint | 70% raw linseed oil. Allow 4-5 days to dry.
2. Apply the undiluted paint. Allow at least 2-3 days to dry.
3. Apply the final coat using undiluted paint. For more even coverage | gloss dilute with approx. 5-10% boiled linseed oil alternatively sun-thickened linseed oil or linseed oil varnish.

REPAINTING SURFACES PREVIOUSLY PAINTED WITH LINSEED OIL PAINT OR OTHER TYPE OF PAINT

Scrape away any loose paint and wash the surface. If the cleaned surface is greatly absorbent, apply the paint according

to point 1. If the surface is oily and saturated with old linseed oil, apply the paint diluted with 10% raw linseed oil. Then apply undiluted paint 1-2 times.

PAINTING WITH STANDARD PAINTS SINGLE COAT

Sawn wooden surfaces. Matt finish. Choose a standard shade and mix as follows: 50% paint | 40% raw linseed oil | 10% turpentine. Apply the paint evenly. The paint covers so well that only one coat is necessary. The substrate will absorb any excess linseed oil and the surface will have a matt finish after only one day. This simple treatment is suitable on planking, fences and facades where a limewash-type effect is required. Compare with our standard paints.

PAINTING WITH STANDARD PAINTS ON METAL

Semi gloss finish. For rust protection on iron, paint with iron oxide minium. Apply two coats of paint. Dilute the first coat with 10% turpentine. The iron oxide minium need not be painted over if the shade is the one required. If another shade is wanted, select one of our standard paints and apply two coats of undiluted paint. Wait at least 2 days between painting the two coats.

PAINTING WITH WHITE PLASTER

This paint should not be diluted. And painted on pH neutral plaster surfaces or previously painted plaster surfaces. Contains turpentine. Apply 2 times thinly and evenly using a paintbrush or roller. The paint dries with a semi-gloss finish.

TIPS

- Should a more glossy surface be required with a varnished appearance, the painted surface can be treated using Le Tonkinois Bio impression, after two weeks at the earliest.
- To achieve a dirt-repellent surface to sawn timber, coarse sanding is recommended after priming.



AGEING MAINTENANCE

Depending on its exposure to sunlight, linseed oil paint will begin to fade after a while. This is first noticed in south facing positions. This is due to the decomposition of the linseed oil in the paint. The matting process of the paint is natural and no direct action is required. When the paint is totally matt it becomes "chalky" i.e. the colour comes off when touched. Linseed oil paint does not flake off from the underlying surface. This chalking process can be positive in so much as the "paint washes itself" and any dirt and possible mould | algae is eroded from the surface. However, it can create certain practical problems e.g. stains left from garden furniture. We would like to point out that this decomposition process only takes place on the exterior of the linseed oil paintwork and that the interior of the paintwork has an almost infinite lifespan.



MAINTENANCE USING ONLY LINSEED OIL ON FLAT PLANED SURFACES

Clean the area to be treated and brush on the raw or boiled linseed oil thinly. After half an hour wipe off any excess oil and the paintwork will have regained its original colour and lustre.



MAINTENANCE USING LINSEED OIL | TURPENTINE ON ROUGHLY SAWN SURFACES.

Clean the surface as required. Mix raw linseed oil and turpentine equally and apply it thinly once. Check that the linseed oil penetrates into the substrate and remove any excess using a dry paintbrush.

REPAINTING?

When the linseed oil painted surface becomes matt it is often believed that it must be repainted. However, as far as durability is concerned this is not the case. Externally, linseed oil paint lasts a long time with a matt appearance. The time for repainting can lie between 8-15 years. It is more a matter of aesthetics than of durability.

[preservative] Substrate

For some time now we have been producing rust preventive linseed oil paint, ironoxide minium, and have received many very favourable responses from our customers. Linseed oil paint can be used on almost any substrate including wood, metal, plaster, gypsum, glass etc.



> The first time we read about iron oxide minium was in "Hantverkets bok Måleri" (Handicraft book on Painting), second edition printed in 1934. On page 37 was written the following: iron oxide minium has very good coverage properties and from a purely chemical perspective is completely neutral making it extremely suitable as rust protective paint. Suspended in oil, iron oxide minium also seems to have preservative properties on wood." This information was all that we had when, almost 15 years ago, we began testing an environmentally friendly alternative to the toxic red lead oxide.

The sample to the left shows one coat of iron oxide minium painted on metal plate. The sample has been hanging in a south facing position for 7 years. Substantial rust can be seen forming on the metal surface that has not been covered by paint. The surface that has been painted with iron oxide minium has been scraped with a knife in order to remove the paint film. The metal

plate beneath shows absolutely no signs of corrosion and still remains shiny. The pigment we use comes from Spain and is an earth pigment called hematite. Due to the structure of the pigment, in a film of paint it lies in a pattern resembling fish scales. In combination with linseed oil, it is very difficult for water to penetrate to the metal plate surface.

Graphite, by tradition, is a much used pigment for the painting of metal outdoors. However, it is not a rust protective pigment and any iron surfaces must first be painted using iron oxide minium primer paint. Graphite is first mentioned in literature in 1604. It is a mineral modification of carbon with a metallic luster and used, for example, in the manufacture of lead pencils. Due to the character of the pigment, the graphite linseed oil paint that we produce has a slightly different consistency than our other paints. Graphite easily leaves marks and should therefore not be used on chair seats etc. |

The sample to the right shows a metal strip that has first been prime painted with iron oxide minium, and then with a coating of graphite. the iron oxide minium offers perfect first coating protection and can be painted over with all types of our standard shades.



Colophon |

design Carl Fredrik Widén images, illustrations, all reproduction and color management
print CA Andersson, Malmö | Printed by Frequency Modulated screen technology, point size 20 microns
paper Galerie art silk paper, insert 170 g, including cover 250 g
photo Rebecca Bryne: Brevik village museum, page 7 | Albin Dahlström: black houses, page 17 | John Engman: newly painted Royal Palace, page 18 | Ulf Ernfors: Ribersborg Kallbadhus, page 15 | Marie Grönvold: portrait Gunnar Ottosson, page 5, paint can and shop, page 18 | Ann-Sofie Gyllenhak: tongue and groove panels indoors, page 7, mansion facade, page 9, green door, page 15 | Niklas Hofvander: two pictures aging maintenance | Anders Kjellberg: aerial photo page 19 | Gunnar Ottosson: demolition colour page 4, window factory, page 7, door page 9, three pictures, page 11 windows and Royal Palace page 17 | Sandra Persson: wind turbine page 18 | Carl Fredrik Widén: cover, linseed oil and paint can page 4, yellow door page 9, two images p13, brush, filler & paint cans page 21,2 images page 22, small paint can page 23, paint can page 24 and all colour samples.

All reference images show objects painted with our linseed oil paints.

Special thanks to Karin Fridell Anter, Associate Professor, Architect SAR | MSA for the work of translation to approximate perceived facade paints.

[ottossons] Glossary

APPLICATION Linseed oil paint should always be applied thinly. The paint does not spread out by itself but must be well distributed using a paintbrush. The paint must be applied in even coats. If the paint is applied on the surface in varying thicknesses it will be noticed by developing an uneven gloss. Using a varnish roller, the paint can also be rolled thinly onto an even surface [e.g. sheet material, metal, smooth plaster]. In general, linseed oil paint can be applied using a variety of methods and tools provided it is done in thin, even coatings .

WORKING TEMPERATURE The paint contains no water and can withstand frost. Application of the first coat can be carried out during minus temperatures provided the substrate is dry and the paint is kept at room temperature. The optimal temperature for painting is 15 - 25° C.



FIRE RISK Rags soaked in linseed oil can combust spontaneously. Soak the rag in water after use and dispose of it in a container with a lid.

ECONOMY If you estimate the price per square metre rather than the price per litre you will be surprised as to how cheap linseed oil paint actually is. Linseed oil paint covers 2-3 times the surface area per litre compared to other types of paint.

GLOSS After three coats the paint has a high gloss finish which will gradually become more matt until after approx. 3-4 months when it will have acquired its final semi gloss finish [gloss scale 30-40]. Often when painting indoors, the high gloss finish is noticed immediately after applying the final coat but already after a week a more matt finish will be seen.

YELLOWING Linseed oil yellows in the dark and fades in the light. This means no yellowing takes place outdoors, insignificant yellowing takes place indoors in rooms with daylight and intense yellowing in rooms without daylight. This yellowing process is reversible i.e. a surface that has yellowed in the dark and which is then exposed to light will revert to its original shade and the yellowing will disappear.

STREAKS can occur when the linseed oil penetrates unevenly into the substrate and the shade of the paint appears darker. Uneven penetration can result in blotchy bright | dull, light | dark surfaces. Particularly when painting indoors where greater demand is required to achieve an even finish, this blotchiness can cause a degree of concern when applying the primer and middle coats. This is most clearly seen when applying grey shades. Before applying the final coat, areas that absorb a lot must first be prepared in order to create an evenly absorbent substrate. Follow the drying times and apply the paint evenly. Stains can

also occur as a result of excessive dew formation. Avoid painting during damp autumn evenings.

STORAGE of linseed oil paint can take place indefinitely provided no oxygen comes in contact with the paint. When storing paint in an already opened container, cover the surface of the paint with a plastic bag and replace the lid securely so that no air can enter. The paint is best stored in a cool place and it can withstand frost. During long storage periods the colour pigments can sink to the bottom. Therefore, make sure the paint is stirred well before reuse.

SOLVENTS | DILUTION Apart from some exceptions [see the colour samples], the paint contains no solvents. In cases where dilution using solvents is indicated, we refer to Balsam turpentine [oleo-resin balsam], when painting outdoors. It consists of 100% vegetable turpentine, distilled from conifer resin. Turpentine has the ability of transporting oxygen which improves the drying process. When painting indoors, we recommend the product Skonsam thinners as an alternative to turpentine. Skonsam thinners is an aroma free naphtha with a benzene content ten times lower than the permissible limit. Solvents are a technical aid facilitating the work of painting. Many of our customers use our paints to good effect without diluting them with solvents. See our directions for use.

MOULD | ALGAE ATTACK on the painted surface is unusual but may occur outdoors. Most often it appears as small black dots [of earthy character]. These are located on the surface and, other than for aesthetic reasons, do not affect the function of the paint. If the attack is intensive and troublesome, wash it off using algae | mould soap. Washing-up detergent also functions well. The reason for the attack can be due to the wood already being affected. Mould attack from the surrounding environment is difficult to trace. Old dry grass is known to be a cause. The attack takes place very differently locally and the extent can change from year to year. No fungicide additives are used in our paints. However, zinc oxide, which we consider has a more long-term effect, is included in all our linseed oil paints.

OXIDATION | DRYING takes place when linseed oil comes in contact with oxygen in the air. Light and heat accelerate the process. Generally, linseed oil paint dries between 1-5 days depending on external conditions. Drying takes place best outdoors during the summer months. When painting indoors during the winter months, we recommend the addition of 10 ml extra drying agent per 1 litre of paint. In an unheated dark cellar, the paint dries very slowly. The cold delays the oxidation process.

PIGMENTS Traditionally inorganic pigments have always been used with linseed oil paints. Such pigments include e.g. all earth pigments, iron oxides and other metal compounds. In recent years, environmental legislation has forbidden the use of cadmium, chromium and lead in building materials. Previously they were used commonly when producing strong colour shades. Modern research has developed new environmentally friendly inorganic pigments, which we now use.

CLEANING of hands and paintbrushes is best done using soap and water. Solvents can also be used. Do NOT use soap on painted surfaces!

FURROW FORMING on surfaces after painting is an indication that the paint has been applied too thickly. Furrrows often occur in profiles where too much paint can easily collect. If the paint is cold it thickens and the risk of painting too thickly subsequently increases.

SHELLAC is a spirit-soluble secretion obtained from an Asiatic scale insect. In painting terminology [often referred to as knotting varnish], it is used to insulate knots and resin flakes on wood indoors prior to painting. If shellac is not used, the resin can penetrate or bleed through the painted surface and result in a discolouration in the form of brown stains. Shellac varnish is applied primarily on pine surfaces. Spruce is considered less susceptible to risk from resin bleeding. Shellac is applied relatively plentifully 1-2 times and can be painted over after half an hour. Should the resin continue to penetrate after painting, shellac can be re-applied on the painted surface afterwards. Shellac can also be used on strongly absorbent fillers to reduce absorption in the substrate.

SUBSTRATES which may consist of various types of wood, plaster, gypsum or metal must be dry with a moisture content below 15% and have a neutral pH value. Painting directly on paper or textiles is not recommended as the oxidation process of linseed oil can make the material brittle. Insulate the underlying surface first using an adhesive substance or emulsion paint. Silicon based and waxed surfaces cannot be painted over.

ADHESION Linseed oil has fantastic adhesion properties and in general adheres to all types of surfaces. In our experience the paint adheres well even when applied to surfaces painted with other types of paint.





Our client list includes everything from the Swedish National Property Board to individual private persons. Amongst other objects we have had the privilege of supplying paint to the following: The Royal Palace in Stockholm, the Royal Mews, Drottningholm Palace, China Palace, Karlberg Castle, the Museum of History, University Hall in Lund, Skansen in Stockholm, Kulturen in Lund, Christinehof Castle, Björnstorp Castle, Häckeberga Country House, Övedskloster, Swan Castle, Krapperup Castle, Fredriksdal in Helsingborg, Börringekloster AB, Hovdala Castle, Gunnebo Castle, Kalmar Castle, Kalmar Cathedral, Ribersborg Kallbadhus and Katrinetorp Farm in Malmo, Torsebro Gunpowder Factory, Arnas Manor Farm, Lanner Mill, Headquarters OKTANT in Gothenburg, University of Bergen, Brevik village museum in Norway and Banverket Swedish Railway Museum

[see our instruction films on www.ottossonfarg.com]

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