ThermaCote

THERMAL INSULATING COATING

Equipment & Application Guide

ThermaCote - Durieu SA

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DESCRIPTION OF THERMACOTE®

ThermaCote® is a thin thermal insulator of 0.5mm, effective both in summer and winter using ceramic technology.

Applied on interior* and exterior walls and/or roofs, it creates a high-performance thermal barrier to prevent heat and cold transfers.

Available in 54 shades and applied **only with the ThermaCote Airless spray gun**, it meets all the criteria of good insulation in a single operation without losing space.

*: In the case of interior application, ensure the room has sufficient ventilation.

RECOMMENDED EQUIPMENT:

ThermaCote® is a two-in-one coating (no primer*) designed for application via airless spray equipment.

*: see chapter Surface Preparation

CHOICE OF AIRLESS PUMP

ThermaCote® requires an AirLess sprayer capable of maintaining an output of at least 8 L/min.

Equipment Examples:

- Graco DUTYMAX GH300DI PROCONTRACTOR Thermal Honda GX270 Flow= 11.3 L/min

DUTYMAX GH300 DI PROCONTRACTOR Graco

- Graco DUTYMAX DH230DI PROCONTRACTOR Thermal Honda GX200 Flow= 8.9 L/min
- Graco GMAX II 7900 STANDARD Honda Flow= 8.3 L/min
- Graco MARK X MAX PROCONTRACTOR (electric) Flow= 8.3 L/min
- Graco MARK X MAX STANDARD (electric) Flow= 8.3 L/min
- AIRLESSCO HSS9950 Thermal Flow= 8.9 L/min
- Titan POWRTWIN PT6900 DI Plus Thermal Flow= 8.5 L/min
- Titan POWRTWIN 8900 PLUS Thermal Flow= 9.5 L/min
- Wagner Heavy Coat 950 G Flow = 8 L/min
- Wagner Heavy Coat 970 G Flow = 12 L/min

Non-exhaustive list - Other references, please consult us.

CHOICE OF FILTRE

We recommend a 30 mesh filter - machine and/or spray gun - or even the removal of all filters if the equipment does not allow it.

Filter machine 30 mesh Graco

AIRLESS SPRAY GUN

The spray gun should be of the Airless type (e.g., Graco Contractor or equivalent).

Graco Contractor PC adjustable 2/4 finger gun

NOZZLE AND NOZZLE HOLDER

The nozzle holder must be of the same brand as the nozzle.
The nozzle must be reverse cleaning type, such as Graco Rac X Reversible or equivalent.
Most work can be done with a 519 nozzle.
For special points requiring particular attention (e.g., window frame edging, window sills, rain downpipe…), a 317 or 417 nozzle is recommended.
For areas where performance needs to be optimised (e.g., terrace roofs), a 521 or 621 nozzle is recommended.

Graco Rac X Nozzle Holder

Graco Rac X type Reversible nozzle

For more information on the function and choice of nozzle :

https://www.graco.com/content/dam/graco/emea/literature/leaflet/300666/300666ENEU-D.pdf

REMINDER

The first number indicates the fan width of the tip

The first number stands for the width of the spray distribution (the fan width). It matches the angle you are spraying at. If the number is 5, then you are spraying at an angle of 50°. Multiply that number by 5 and you have a fan width if you hold the pistol 30 cm from the surface.

5 x 5 = 25 fan width

The colour tells you which application you can use the tip for

There are four types of tips. Each type is used for a specific application. Each type has its own colour, so you'll be immediately able to recognise them.

- guarantees the best possible finish under lowest pressure for fine finish and wall paints
- for painting walls, suitable for paint spraying in general
- for thin plastering and less fluid materials
- for marking roads

The last two numbers indicate the spray orifice of the tip

The last two numbers of the tip show the size of the spray orifice, indicated in one thousands of an inch. The higher the number, the greater the flow with which you can spray. For example, a '517' tip enables a greater flow than a '515' tip.

'17' matches an orifice of 0.017 inch or 0.43 mm.

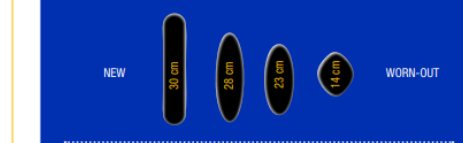
WHAT HAPPENS WHEN A TIP GETS WORN OUT?

Piston work pressure and abrasive material are the two main causes of worn-out tips.

The fan width decreases: More spray movements are necessary
= more work

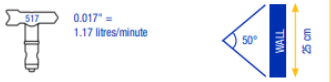
Greater tip orifice: More paint comes out of the piston
= more costs for materials

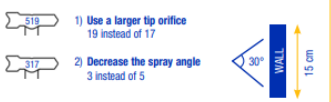
twice as much work
+ 30% more paint for the same surface



TOO MUCH PAINT?

NOT ENOUGH PAINT?





Nozzle Extension for horizontal application

For horizontal application. Improves operator posture.

Available in 25/40/50/75 cm.

Graco extensions with RAC X nozzle holder

Hopper

Connect to the base of the Airless machine pump. Allows the dispensing of several pots of ThermaCote®. Useful for large areas to continuously feed the machine.

Graco hopper for coating and paint

FLEXIBLE HOSE:

The hose should be double-layered nylon suitable for the maximum pressure of the pump.
The hoses used will be of diameter 1/4 inch, 3/8 inch, and 1/2 inch.
The choice of hose type will depend on the total length of hose needed.
We recommend following these configurations:

Total Hose Length (L)	Minimum configuration
L=15m	15m in 1/4 or 15m in 3/8 + handling hose 1/4 *
L=30m	15m in 1/2 + 15m in 3/8 + 1/4 handling hose * or 30m in 3/8 + 1/4 handling hose *
L=45m	15m in 1/2 + 30m in 3/8 + 1/4 handling hose*
L=60m	15m in 1/2 + 45m in 3/8 + 1/4 handling hose*

Minimum recommended configurations

Note that for hose lengths greater than 30m, we recommend using an Airless machine with a flow rate > 11 L/min.

**: the 90cm-long handling hose (whip or whipend hose) provides greater flexibility of application and makes work easier.*

Graco 0.9m handling hose

MIXER

We recommend using a variable speed mixer with a power of over 750W equipped with turbines as described below.

Two-Hand Mixer

Inclined Blade Turbine

*Reverse Rotation Turbine**

** : Turbine or propeller with reversed direction. Ceramic is lighter than water (density <1), so when the pot is opened, the binder is at the bottom of the pot, unlike with conventional paint. Using a reverse turbine will optimise mixing and reduce mixing time.*

Note: it is advisable to avoid touching the edges of the pots with the turbine during the mixing phase. As ThermaCote®'s pots are made of plastic, there is a risk of plastic shavings being sucked up by the pump and hindering or even blocking the application.

Safety Equipment

Protective mask with A1P1 filter

Protective goggles

Protective shoes

Additional Equipment

Protective overalls, shoe covers, protective tarpaulins, splash protection.

Caution: Shoe covers can cause loss of traction and should never be worn on sloped or slippery surfaces.

Cleaning and Storage

Rinse the application pump and entire spray system with clean water (if possible hot) until the outgoing water is completely clear.
Do not add storage liquid to your pump before it is perfectly rinsed.
Refer to your equipment manual for more information.
Properly maintained spray equipment will last longer.

Store ThermaCote® pots indoors, away from sunlight, and at temperatures between 5 and 40°C.
Protect from freezing and direct sunlight.
Maximum shelf life: one year in its original unopened packaging.

SURFACE PREPARATION

ThermaCote® adheres to any properly prepared surface.

The surface must be sound, clean, dry, and free of any non-adherent material, rust, grease, oil, or any other foreign substance.

Take the time to properly diagnose the overall condition before cleaning, treating and repairing (refer to the relevant DTU).

FACADES & ROOFS

Anti-Moss Treatment of the surface

In the case of moss and/or algae stains, the surface must be cleaned at least in accordance with the following recommendations:

- High-pressure cleaning (HP) of the surface, adjusting the pressure to the material.
- Apply an anti-moss product with a sprayer (see table below).
- Let dry* then apply ThermaCote®.

**: If lichens or ivy are present, the treatment time with the anti-moss product before applying ThermaCote® will be longer. Please consult us for more details.*

Depending on the surface condition, the choice or dilution of the anti-moss product must be adapted:

SURFACE CONDITION	GRAVITY	SOLUTION
MOSS & ALGAE	Low	**PROXYNET*** (ready to use) Coverage: 3 to 5m^2/L or **ATM PRO*** (1L for 29L of water) Coverage: up to 150m^2
	Medium to high	**ATM PRO*** (1L for 9 to 14L of water) Coverage: 30 to 75 m^2/L depending on dilution

Dirty Surface

In case of a dirty surface, it will be at least cleaned according to the following recommendation:

- Apply a cleaner/degreaser (see table below).
- HP cleaning of the surface, adjusting the pressure to the material.
- Let dry then apply ThermaCote®.

Depending on the initial degree of surface contamination, the choice or dilution of the cleaner must be adapted:

SURFACE CONDITION	GRAVITY	SOLUTION
SURFACE CONTAMINATION (DIRT, POLUTION, GREASE ETC.)	Low	**SURCLEAN*** (2 to 4 caps for 10L of water) Rinse after 15 min Coverage: 15 to 30m^2/L depending on dilution
	Medium	**ELIXCLEAN***[(1)] (1L for 10L of water) Rinse after 15 min Coverage: 25 to 30m^2/L
	High	**ELIXCLEAN***[(1)] (1L for 5L of water) Rinse after 15 min Coverage: 15 to 20m^2/L
	Very high	**ELIXCLEAN***[(2)] Rinse after 15 min

(1) Do not apply on aluminium and tannic woods (oak, chestnut, red cedar). Same for more fragile supports (reconstituted stones which may contain chalk in their composition).

(2) Concentration & coverage : consult us.

In all cases, an HP rinse is mandatory. During rinsing, adjust the pressure to the type of support.
Wait for complete drying before applying ThermaCote®.

Crack Treatment

The treatment of a crack will depend on its depth and width:

LESS THAN 0.2MM	BETWEEN 0.2MM AND 0.8MM	BETWEEN 0.8MM AND 2MM	GREATER THAN 2MM
Micro Cracks	Small Cracks	Medium Cracks	Large Cracks
Treatment prior to painting			
Nothing	Caulking with acrylic seal (no silicone or mastic)	Rake out and caulk with acrylic seal (use reinforcing strip for structural cracks)	Masonry (take care to work on stabilised cracks)

*The above information is provided **for information purposes** only. It does not replace standard practices and current DTU*

Application of a Primer

ThermaCote® is usually applied without a primer. However, there are exceptions:

- **Crumbly or slightly powdery mineral surfaces** and surfaces lacking consistency (e.g. old flaky Pliolite®) must first be consolidated using ELIXIMPRESS* (white) or ELIXFOND* (colourless).

  Apply the primer in a thin coat (approx. 6 to 8 m^2/L for ELIXIMPRESS and approx. 5 to 7 m^2/L for ELIXFOND).
  Drying time before covering: 4 to 6 hours.

- **Difficult surfaces** (bituminous, very old, very dirty before preparation, identified water retention areas, etc.) must be treated with PRIMTHERM* primer.
  Apply PRIMTHERM* in a thin coat (approx. 10 m^2/L)
  Drying time before covering: 4 hours minimum. Maximum recommended recoat time: 1 week.
  When treating a water retention area, apply PRIMTHERM on a dry surface and cover with ThermaCote® after 20 to 30 min maximum (PRIMTHERM must still be tacky).

METAL SURFACES

Ferrous metal substrates

Proceed with sand or grit blasting to SIS-Sa2.5, followed by thorough dust removal and then 1 or 2 coats of PID60* (dry film thickness: 100 to 140 µm per coat, with a coverage of 5 to 7 m^2/L).

If sand or grit blasting is not possible, ferrous metals should be manually prepared to at least SIS-St3 by grinding (P24-P36) or sanding (40-120 grit) to remove corrosion, and the substrate treated with the appropriate product (see table below).

METALLIC SUBSTRATE CONDITION	SOLUTION
NON-OXIDIZED SURFACE	Degrease (mechanically roughen smooth and shiny areas) followed by 1 coat of PID 60*. ▪ Apply PID 60* in a thin layer (approximately 10 to 13 m^2/L). Drying time before overcoating: 4 hours
SLIGHTLY OXIDIZED SURFACE	Degrease, scrape/brush oxidized areas followed by 1 to 2 coats of PID 60*. ▪ Apply PID 60* in a thin layer (approximately 10 to 13 m^2/L per coat). Drying time before overcoating: 4 hours.

HEAVILY OXIDIZED SURFACE	Degrease, remove non-adherent rust, scrape/brush oxidized areas, then treat with OWATROL® C.I.P.*. ▪ Apply OWATROL® C.I.P.* in a thin layer (approximately 10 to 15 m²/L). Ensure no rust particles are still flaking off. Minimum drying time before overcoating: 72 hours.

Note 1 : For specific anti-corrosion protection, consult us.

Note 2 : Substrates with localized damage can be repaired/reinforced with THERMACOTE ROOF REPAIR TAPE*, COSMOFER®*, or CHOUKROUT*.

Non-Ferrous Metal Substrates

New non-ferrous metal surfaces (aluminium, zinc, copper) and new galvanized steel should be degreased and roughened with OWAPHOS*:

Spray OWAPHOS* pure (approximately 6 m²/L).
Leave to act for 30 minutes.
Rinse thoroughly with warm water.
Cover after complete drying and within 8 hours.
PID 60* primer is recommended to prevent any risk of corrosion.

** : OWATROL® range product, refer to the technical data sheet.*

PREPARATION OF THERMACOTE®

MIXING

Do not open the pot until you are ready to apply.
It is highly recommended to use the entire pot once mixed.

Note : Overmixing can reduce performance.

1. Open the pot of ThermaCote®.
2. Immerse the mixer head to the bottom of the pot and hold firmly.
3. Mix ThermaCote® at low speed, gradually increasing the speed; perform upward and downward movements and ensure there are no lumps.
4. Mix until a liquid, homogeneous mixture is obtained. Do not scrape the bucket with the moving mixer head as this could contaminate the coating with plastic shavings.

   Do not mix at high speed.

A plastic spatula (such as a marbling spatula) can be used to remove residual material on the sides of the bucket, which will be remixed with the mixer.

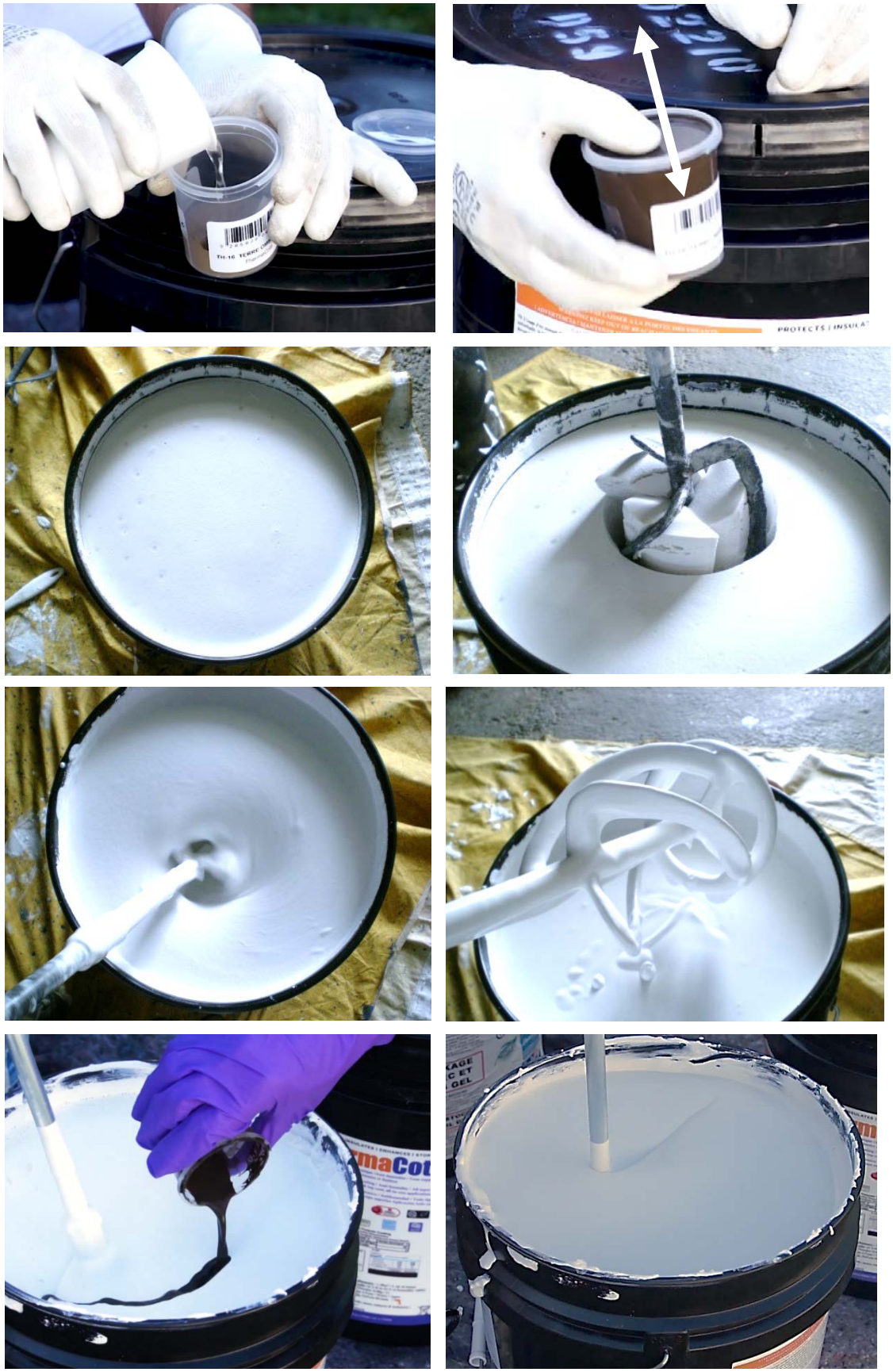
Note: An experienced applicator homogenises a pot of ThermaCote® in less than 3 minutes.

Note 2: Any opened pot should be used within 8 hours.

TINTING

Tinting of ThermaCote® is done during the mixing phase on-site with pre-dosed pigment pots. A single shade can be made up of 1 to 3 different pigment pots per ThermaCote® pot.

1. Open the pigment pot.
2. Add clean water up to the top line.
3. Close the pot and shake vigorously until the pigment is completely dissolved.
4. Open the pot and pour the entire content into the ThermaCote® pot.
5. Homogenise with the mixer.



Procedure for mixing a pot of ThermaCote® with tinting

APPLICATION CONDITIONS

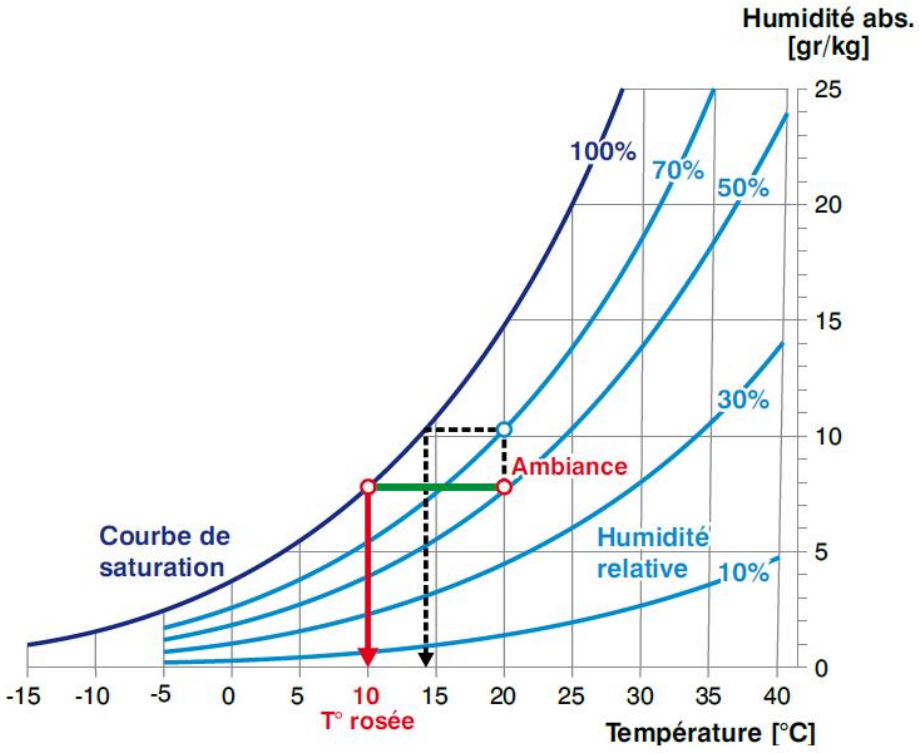
Application conditions:	Substrate and ambient temperature between 10°C and 40°C*. Relative humidity below 80%. Minimum substrate temperature of 5°C and 3°C above the dew point**. Do not apply if there is a risk of rain.

*: For any condition above 40°C, consult us for an adapted procedure.

**: *The dew point is the temperature at which air is saturated with moisture (and thus condenses). Each temperature corresponds to a dew point. To calculate it, three values must be considered:*

- *Dry temperature or ambient temperature in a room.*
- *Wet temperature or relative humidity at the reference ambient temperature.*
- *Absolute humidity or the amount of water vapor in the air that will be determined.*

These parameters allow determining the dew point.



Determination of the Dew Point

FILLING THE AIRLESS SYSTEM WITH THERMACOTE®

Refer to the operating instructions and safety information for your Airless pump.

1. Prime the pump with clean water and expel air from the system (at low pressure).
2. Insert the suction tube into the ThermaCote® pot.
3. Increase the pressure for ThermaCote® application (may vary depending on machine types, approximately 150 to 220 Bars).
4. Drain the water from the system to have only ThermaCote®.
5. Adjust your machine's pressure to obtain optimal spray quality. Perform an application test on a flat and closed surface if possible. Holding your gun at the desired application distance (20 to 30 cm from the substrate), make a single pass of product.
    a. If the application shows streaking (presence of a thin overdosing "ridge" on each side of the paint film), your application pressure is likely insufficient. Gradually increase it until the defect disappears.
    b. If the paint film is correct but the application causes heavy overspray depositing on each side of the application, your application pressure is likely too high. Gradually reduce the pressure.
6. ThermaCote® can be applied in layers of 250 to 500 µm thickness (0.3 to 0.4mm indoors and 0.5 to 0.6mm outdoors for facades and roofs). Apply in cross passes. 2 cross passes on smooth to lightly textured substrates, 4 cross passes on highly textured substrates. The wet thickness can be checked with a wet gauge or comb gauge only on smooth, slightly porous substrates.

Wet Gauge or Comb Gauge

7. Allow ThermaCote® to dry completely between coats when applying multiple coats (e.g., in industry).

The coverage of ThermaCote® on a smooth surface is on average 25m² per 19L pot (1.30m² per Litre for an average thickness of 0.5mm). Yield depends on the nature and porosity of the substrate.

COVERAGE AND DRYING TIME

COVERAGE

For surfaces with a high degree of roughness (coarse rendering, etc.) or relief (stone facing, etc.), to maintain the same theoretical film thickness, the developed surface must be taken into account when forecasting product consumption. This will have an impact on the coverage per simple surface.

Substrate Qualification	**Estimated coverage for 500µm**
Smooth closed or with a primer	23 to 25 m²/pot
Particularly porous smooth	22 to 24 m²/pot
Rough or low relief (fine to medium textured plaster, ribbed plaster, facing stone, etc.)	20 to 22 m²/pot
Very rough (coarse plaster, faux louver, etc.)	18 to 20 m²/pot

DRYING TIME

Drying time may vary depending on several parameters: the condition and porosity of the substrate, temperature, and relative humidity.

ThermaCote® is touch dry in 2 hours at 20°C with relative humidity ≤60% and fully dry in 6 to 24 hours.

ThermaCote® can be recoated with itself in 12 hours and with a siloxane in 24 hours (20°C and Hr ≤60%).

OTHER FINISHES

ThermaCote® can be overcoated with OWAXANE* (siloxane paint) for a bi-tone facade, for example.

Using the same colour chart as ThermaCote®, OWAXANE can also be used to match the facade colour without using ThermaCote® (e.g., walls, chimneys).

Apply in 2 coats with a 14 to 18mm roller.

Coverage: 6-8 m²/L.

** : OWATROL® range product, refer to the technical data sheet.*