ThermoDyn®

Innovation in Baustoffe

www.thermodyn.co.uk

dry-composite-screed

100% NATURAL

Our motto: protecting the environment - save money, time and material!

ThermoDyn is an environmentally friendly building material, since it is 100% based on the use of clay and natural rubber. You save money when you use *ThermoDyn*, because *ThermoDyn* is easy to process (time saving) and the floor construction (material saving) is completely uncomplicated.

When browsing through our brochure you will find valuable arguments for using *ThermoDyn*.

C O N T E N T

ThermoDyn®
Innovation in Baustoffe

BAGGED GOODS

All advantages at a glance

- Renovation of buildings and new construction
- For even substrates
- Building material for flood areas
- Indoor and outdoor areas
- No moisture in the room
- Underfloor heating suitable and integrable
- Short curing time >24h
- Sound and heat insulation in one
- No outgassing after setting
- Low overall height (depending on panel type)
- Low weight (statics)
- No setting after installation
- High abrasion resistance after sealing
- 100% environmentally friendly - ergonomic
- Non-slip, non-rotting
- For all areas (wood, concrete, sand, clay...)
- For time-consuming areas
- Can be laid in several steps
- Reduces total construction costs
- Very easy to use
- Can be easily changed after installation

ThermoDyn **bagged goods** is a rubber-clay-modified, statically homogeneous and stable dry composite screed. It is ideal for quick and gentle surface remediation. For particularly economical production of fast-setting surfaces that are ready for covering at an early stage and are in great demand at an early stage.

Field of application
Leveling, smoothing and repairing of floor surfaces made of concrete, wood, bricks, tiles, stable fillings and rigid foam panels. For the subsequent laying of floor coverings of all kinds: e.g. ceramic tiles and slabs, natural stone coverings, carpets, parquet, wooden flooring, linoleum and PVC coverings.

Suitable substrates
Cement screeds, concrete and raw concrete surfaces (min. 3 months old), old tiles, old terrazzo floors, natural stone, heated floor constructions, plaster boards, metal-bearing elements, rigid foam panels, load-bearing wooden constructions, clay and gravel floors.

Thicknesses
10 – 450 mm/0.39 – 17.71 ins., larger layer thicknesses also in several working steps possible.

Mixing ratio and curing
Mix pre-dosed *ThermoDyn* granulate mixture with binder homogeneously and evenly (without lumps). Empty the binder completely from the container and apply evenly.

Maturation period
Approx. 1 minute - can be processed immediately.

Processing time
30 – 60 minutes, depending on ambient temperature and humidity.

Walk-in
After approx. 24 - 48 hours; no adhesion of the granulates to footwear; in the case of a top coat sealing from a cement-containing compound, please observe the manufacturer's instructions.

Processing temperature
-10°C - +30°C/14°F - 86°F; application is also possible at minus temperatures. It is important that the mixing ratio binder/granulate is correct and mixed evenly and homogeneously. In cold weather, preheat the binder in a water bath (approx. 30°C - 40°C/86°F - 104°F)

Consumption
Approx. 6 kg/m2 at 10 mm layer thickness.

Chair castor suitability
From a top layer sealing over a grain size of 6 mm/0.24 ins. (roller load according to EN 12 529)

Delivery form
Approx. 20 kg/44 lbs. bag incl. binder (*ThermoDyn* Classic).

Curing time, readiness for covering
After approx. 24 - 48 hours; refers to the normal room temperature range of 20°C and 50% relative humidity; higher room and floor temperatures shorten, lower temperatures extend these times.
To increase the pressure surface and level unevenness, a top coat of a self-levelling flow filler with a minimum thickness of 2 - 5 mm above the top edge of the granulate is always required. Depends on the application area of the dry composite screed.
Adjust the consistency of the flow filler as required.
Recommendation - insertion in 2 steps:
Step 1: Mix the filler according to the manufacturer's instructions, apply with a smoothing trowel and

let harden.
Step 2: Mix the levelling system according to the manufacturer's instructions and apply it sufficiently to the spatula using a needle roller and toothed spatula.
The respective consistency depends on the filler/levelling compound used - observe the manufacturer's instructions. The thinner the dosage, the deeper the penetration of the filler/levelling into the pores. Do not forget the primer on the filler.

Tools and machines
Double agitator mixer or compulsory mixer, no concrete mixer.
Clean squeegee, smoothing trowel, tools immediately after use with *ThermoDyn*-ToolClean. Use plastic tool for better cleaning, if available.

Storage
Can be stored dry and frost-proof on pallets in unopened original containers for binding agents approx. 6 months after delivery. Pay attention to the weather and avoid direct sunlight.

Properties
ThermoDyn is a fast setting ecological dry composite screed levelling compound for uneven surfaces. Its adhesive and easy to install properties allow this product to adapt to almost all substrates. No additional insulating materials (polystyrene or foam sheaths for pipes) are required.
Obstacles are easy to ignore. This ecological building material combines sound- and heat-insulating properties in one product.
Suitable for underfloor heating.

Surface preparation
ThermoDyn adheres to almost all solid, load-bearing, dry, dimensionally stable substrates.
No special pre-treatment or cleaning of the substrate is necessary. If necessary, the substrate can be cleaned from coarse dirt, must not contain any moisture and must form a statically supporting layer. The substrate must be able to absorb the pressure loads of the topsoil and continue/deliver them.

The relevant regulations and standards apply for the assessment of the substructures. Secure to the ground with foil as a moisture barrier.

Preparation and processing
Mix *ThermoDyn* granules with binder (included in the package) for approx. 3 minutes until a uniform mixing has taken place. This can be done professionally with a compulsory mixer or fan hand mixer. Only prepare as much material as can be processed in approx. 30 - 60 minutes.
Empty the enclosed binder package completely, preheat if necessary to ensure complete emptying. Avoid direct sunlight and rain.
After a curing time of approx. 24 - 48 hours (at 20°C/68°F ambient temperature) further work can be started afterwards. Curing time depends on ambient temperature, humidity and thickness. The surface must be walkable. The curing time increases depending on the thickness of the structure and the ambient temperature of the floor.
For further processing with tiles, elastic floor systems or similar building materials, the above-mentioned top layer sealants are required (filling and/or levelling).
Unevenness of the substrate does not have to be pre-treated for *ThermoDyn*. Apply evenly mixed mixture (without lumps) to the substrate, fix with a smoothing trowel and press down in steps. Then level out with a levelling bar and smooth out or press down with a smoothing trowel.
Lay pipes without insulation and remove other soft elements (e.g. foam sheathing).

If a light grain solution takes place on the surface after curing, it can be fixed with a finely woven mesh.
Ventilate rooms well during work.
In order to avoid sticking to the tool, we recommend our special anti-stick cleaner „ToolClean".

Top layer and coupling layer
With *ThermoDyn* it is possible to choose the most effective solution for the coupling layer, depending on the top layer.
If a solution with tiles or stoneware is selected, levelling of the intermediate layer to level the surface and increase the printing surface is not absolutely necessary.
However, if a solution with wooden flooring, laminate, PVC or similar is selected, a leveling of the intermediate layer for evenness compensation with min. 2 - 3 mm above grain size is necessary. In principle, however, it is not a disadvantage to fill the surface to level evenness and increase the printing area. This increases the compressive strength and top floor installation properties of *ThermoDyn*.

Safety instructions and other
The rules and safety phrases must be observed.
Keep out of the reach of children. See also the enclosed package insert and work instructions in each container.
The information contained in this information are product descriptions. They represent general information based on our experience and tests and do not take into account the specific application.
No claims for compensation can be derived from the information provided. Please contact our technical support if required.

ThermoDams®
Innovation in Baustoffe
Classic

SHEET GOODS

All advantages at a glance

- Renovation of buildings and new construction
- For even substrates
- Building material for flood areas
- Indoor and outdoor areas
- No moisture in the room
- Underfloor heating suitable and integrable
- Short curing time >24h
- Sound and heat insulation in one
- No outgassing after setting
- Low overall height (depending on panel type)
- Low weight (statics)
- No setting after installation
- High abrasion resistance after sealing
- 100% environmentally friendly - ergonomic
- Non-slip, non-rotting
- For all areas (wood, concrete, sand, clay...)
- For time-consuming areas
- Can be laid in several steps
- Reduces total construction costs
- Very easy to use
- Can be easily changed after installation

ThermoDams is ThermoDyn sheet goods - a rubber-clay-modified, statically homogeneous and stable dry screed. It is ideal for quick and gentle surface remediation. For particularly economical production of fast-setting surfaces that is ready for covering at an early stage and it s an early desirable surface.

Fields of application
For levelling, smoothing and repairing floor surfaces made of concrete, wood, bricks, tiles, stable fillings and rigid foam panels. For the subsequent laying of floor coverings of all kinds, such as ceramic tiles, slabs, natural stone coverings, carpets, parquet, wood flooring, linoleum and PVC coverings.

Suitable substrates
Cement screeds, concrete and raw concrete surfaces (min. 3 months old), old tiles, old terrazzo floors, natural stone, heated floor constructions, plasterboards, gypsum fibre boards, rigid foam boards, supporting wooden constructions, clay floors, fillings.

Thicknesses
From approx. 40 mm panel thickness. Larger layer thicknesses can also be produced in several operations or with several plate layers.
With a *ThermoDyn* fill, unevenness can be levelled out and the construction heights can be adjusted.

Plate connection
Plates must be fixed and stabilized in a force-locked manner using composite adhesive for dimensionally stable interlinking.
Apply *ThermoDams* composite adhesive evenly into the groove and press the offset plates into the groove provided for this purpose.

Maturation period
> 5 minutes

Processing time
30 - 60 minutes, depending on ambient temperature and humidity.

Walk-in
After approx. 1 - 2 hours.

Times
Refers to the normal room temperature range of 20°C/68°F and 50% relative humidity; higher room temperatures shorten, lower temperatures extend these times.

Delivery form
Panel size 780 x 380 x Y mm/30,7 x 15 x Y ins. / *ThermoDams* is available in different panel thicknesses.

Storage
Can be stored dry and lightproof in unopened original containers.

Processing temperature
It can be used at any normal temperature.
ThermoDams composite panels are prepressed and no temperature influences have to be taken into account.

Consumption
3,6 panels/yd2
Panel size: 30,7 x 15 x Y ins.

Chair castor suitability
From a top layer sealing of 6 mm/0.24 ins. (castors according to EN 12 529)

Porperties
ThermoDams composite panels made of ecological material are ideal for areas where the fastest possible surface solution is required. No matter if renovation or new construction, with *ThermoDams-* composite panels the floor area to be worked on is finished in a few easy steps. No further building materials are necessary for the underground design. Place *ThermoDams* composite panels directly on the surface to be covered. The desired sound- and heat-insulating properties are achieved with a single material and work step. *ThermoDams* is balancing and easy to install and therefore adapts effortlessly to almost all surfaces.
No additional insulating materials (polystyrene or foam sheaths for pipes) are required. Obstacles are easy to ignore.
The ecological building material combines sound- and heat-insulating properties in one product. It is suitable for underfloor heating.

Surface preparation
ThermoDyn adheres to almost all solid, load-bearing, dry, dimensionally stable substrates.
No special pre-treatment or cleaning of the substrate is necessary. It must only be cleaned of coarse dirt, must not show any moisture and must form a supporting layer.
The substrate must be able to absorb the pressure loads on the surface and continue or dissipate them.
The relevant regulations and standards apply for the assessment of the substructures.

Top layer and coupling layer
Place *ThermoDams* composite panels evenly offset on the surface to be covered. Wet the grooves extensively with *ThermoDams* composite adhesive and press the *ThermoDams* composite plate with spring into the groove in opposite directions.
Wipe off and remove excess adhesive.
The installation is carried out endlessly in offset. The panels can be cut with a band saw, jigsaw or circular hand saw to obtain the appropriate shape.
Pay attention to diamond-coated cutting tools. In areas where pruning would be too time-consuming, *ThermoDyn* bagged goods can be used to compensate the area in order to achieve the necessary floor levelling.
Once the panels have been laid, continue with the surface structure that is still required. Only the time specifications of *ThermoDyn* composite adhesives have to be considered. The curing times are extended depending on the thickness of the structure and the ambient temperature of the floor.
For further processing with tiles, parquet or similar building materials, the above-mentioned top layer sealants are required (levelling and filling compound).
In order to avoid sticking to the tool, we recommend our special anti-stick cleaner „ToolClean". Lay pipes without insulation (e.g. foam jacket).

Top layer and coupling layer
With *ThermoDams* it is possible to choose the most effective solution for the coupling layer, depending on the top layer.
If a solution with tiles or stoneware is selected, levelling of the intermediate layer to level evenness and increase the printing surface is not absolutely necessary.
However, if a solution with wooden floor, laminate, PVC or similar is chosen, levelling of the intermediate layer is necessary for evenness compensation with at least 2 - 3 mm above grain size and filling.
In principle, it is necessary to fill the surface of *ThermoDams* to compensate for flatness and to increase the printing area, as this increases the compressive strength and topsoil installation properties.

Safety notices and others
The rules and safety phrases must be observed.
Keep out of the reach of children. See also the enclosed package insert in each pallet.
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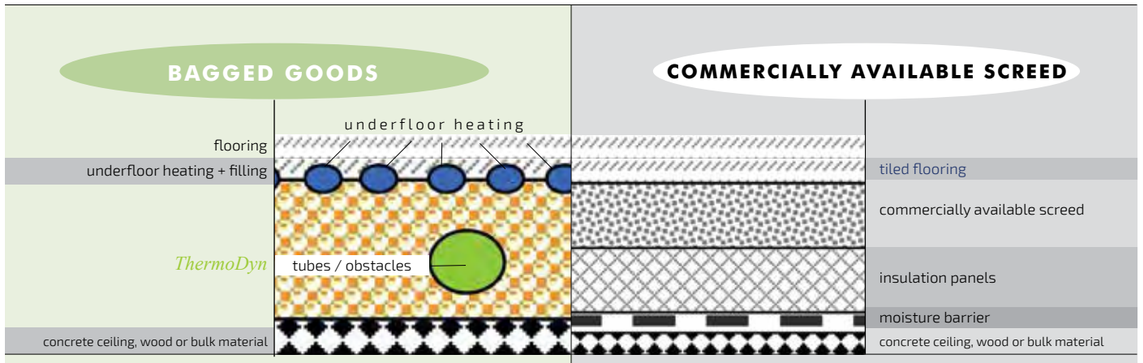
Ventilate rooms during work.

ThermoDyn



Description of building protection:
In terms of thermals, dynamics and weathering, the use of this product is extremely versatile due to its high thermodynamic properties.

With the introduction of this environmentally friendly building material, additional materials are unnecessary and construction costs are reduced.

ThermoDyn consists of substances that can be recycled in an environmentally friendly manner at any time.

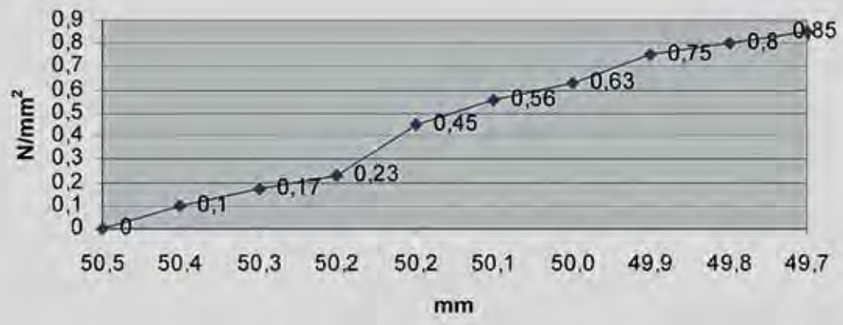
Description of building protection:
Although a wide variety of materials are used to protect buildings, the properties of *ThermoDyn* can only be achieved to a limited extent.

As the load continues, the service life of the building protection decreases.

Since there is no breathability and the building materials become brittle and lose their dimensional stability, cracking in the building protection is unavoidable.

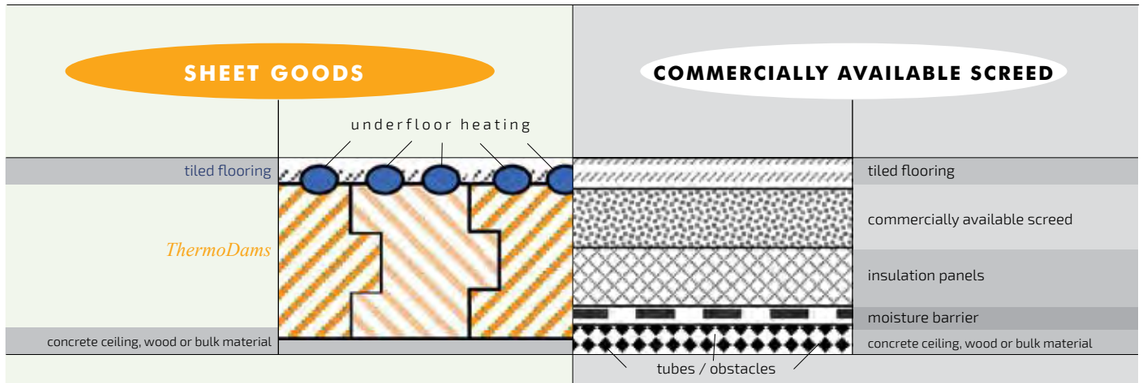
Technical specifications

Bodythickness	10 - ∞ mm
Testthickness	40 mm/1.57 ins.
Gross density	~ 750 kg/m³
Bending tensile strength	0,68 N/mm²
Compressive strength	1,06 N/mm²
Impact sound improvement	19 – 32 dB
Thermal conductivity	z = 0,12/mK
Resistance	to acids and alkalis to oils, fungal attack, insects and microbes
Moisture diffusion	moisture permeable
Cold resistance	approx. -40°C/40°F
Heat resistance	approx. +110°C/230°F



Compressive strength-
The table opposite shows the results of a compressive strength test. The compressive strength requirements correspond to the prescribed safety standards (details see data sheet).

ThermoDams



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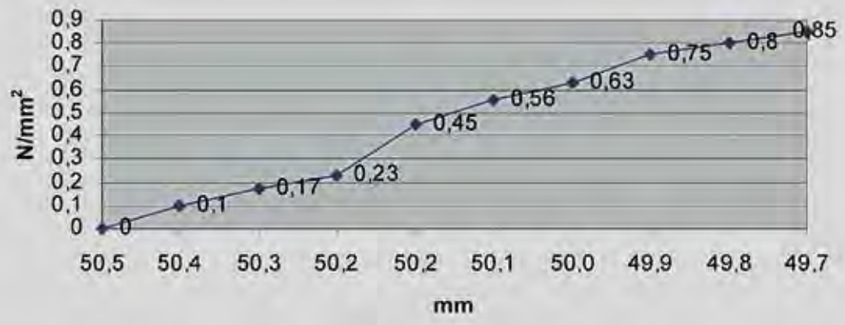
As the stress continues, the service life of the building protection is reduced.

Since there is no breathability and the building materials become brittle and lose their dimensional stability, cracking in the building protection is unavoidable.

Technical specifications

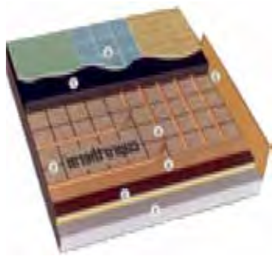
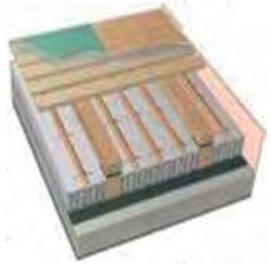
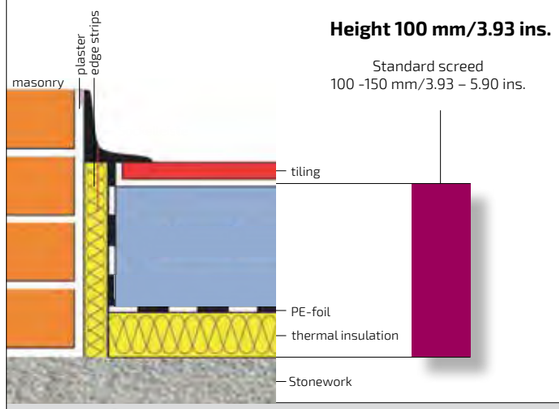
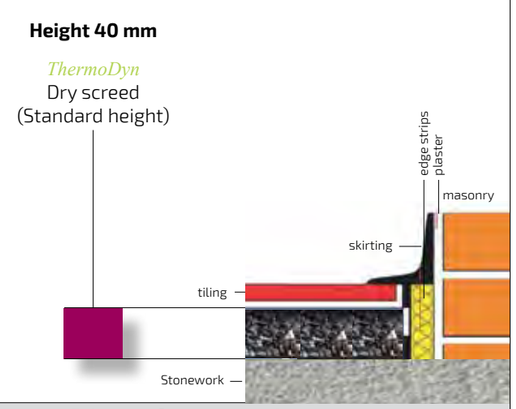
Bodythickness	> 43 mm/1.69 ins.
Plate type	auf Anfrage
Testthickness	40 mm/1.57 ins.
Gross density	~ 750 kg/m³
Compressive strength	1,06 N/mm²
Bending tensile strength	0,68 N/mm²
Impact sound improvement	9 – 32 dB
Thermal conductivity	z = 0,12/mK
Resistance	to acids and alkalis to oil, fungal attack, insects and microbes
Vapour diffusion	vapour permeable
Cold resistance	ca. -40° C/40°F
Heat resistance	ca. +110°C/230°F



Compressive strength-
The table opposite shows the results of a compressive strength test. The compressive strength requirements correspond to the prescribed safety standards (details see data sheet).

Comparison of products *Info*

Test reports Certificates *Certificates*

Commercially available screed		*ThermoDyn*
Cement screed	**Cast asphalt**	**Advantages: less material and time**
		
Many work steps, time and material costs		**Fewer work steps, less material, less time**
1 Foil	Quantity	1 *ThermoDyn* installation Quantity
2 Workload	Time	2 *ThermoDyn* installation Time
3 Thermal insulation	Quantity	3 Flow filling Quantity
4 Wordload	Time	4 Flow filling Time
5 Screed-concrete	Quantity	
6 Workload	Time	
7 Filling	Quantity	
8 Workload	Time	
Height of floating screed		**Height *ThermoDyn*: Advantage: lower height**
		
Price-performance ratio		**Advantage: Price-performance ratio**
~ ca. **40** €/m² to ca. **80** €/m²		~ ca. **40** €/m²

1

Prüfungsbericht-Nr.: 09 049

Prüfung von Estrichproben

Bestimmung der Biegezug- und Druckfestigkeit

2

DEKRA

1 **Test report screed quality**
of the University of Applied sciences Biberach

2 **Test report DEKRA**
degassing behavior

3

URKUNDE

ThermoDyn Produktion&Handel Martin Kern

4

BUNDESREPUBLIK DEUTSCHLAND

URKUNDE

Über die Eintragung der Marke

Nr. 30 2009 004 840

ThermoDyn

3 **climate protection certificate**
to the international energy efficiency

4 **Trademark certificate**
of the Federal Republic of Germany

disorders

disorders

remedy

remedy

Loose deck grain
Too little binder used. Granulate mixture not uniformly mixed with binder (lump formation). Fixing and stabilizing the surface with a filler. Installation height min. 3 - 4 mm/0.12-0.16 ins.

Binder hard in the container
Storage of the binder was not in accordance with the regulations. Binder has come into contact with moisture.

Binder does not set
Ground or outside temperature far below 20°C/68°F. Setting time is extended accordingly.

Bulges/blistering
on the surface after installation
Binder was not mixed uniformly and homogeneously. Press down or scrape off bulges.

Filler/levelling compound seeps off
The filler/levelling compound was applied too thinly. Use medium addition of water according to the manufacturer.
Can also be an optical illusion, as one bag is sufficient for only approx. 1.8 m^2 at 1 mm above grain.

Filler cannot be applied - loose deck grain
Design and cover the surface with a finely woven mesh for grain fixation.

Form filler/levelling compound creates seepage holes
The filler/levelling compound was applied too thinly and therefore seeps off very strongly into the pores.

Hairline cracking after filler/levelling
Due to the different expansion properties (*ThermoDyn*/cementitious levelling compound), slight stress cracks may occur. These web-like cracks do not affect the properties of *ThermoDyn* the levelling only has the property of leveling and increasing the printing surface.

Bubble formation after installation of the bagged goods *ThermoDyn*.
The binder was not mixed evenly enough. This may happen if the binder is still too viscous. Blisters, if still elastic, press down or otherwise knock off with a hammer. If not too large, these can also be covered by the levelling system.

Cracks have formed in the area of the line bridges (obstacles)
Remove pipe insulation material. Since these soft tissues do not have the necessary compressive strength.
ThermoDyn itself has the necessary insulation property for this application.
Even distribution of the product around the pipe or obstacle to avoid hold-ups

Topsoil gets tension curves.
The ground is rising
Decoupling mat is missing to absorb the necessary voltage.
The upper floor was not sufficiently bonded (glued) to the substrate if gluing was carried out.

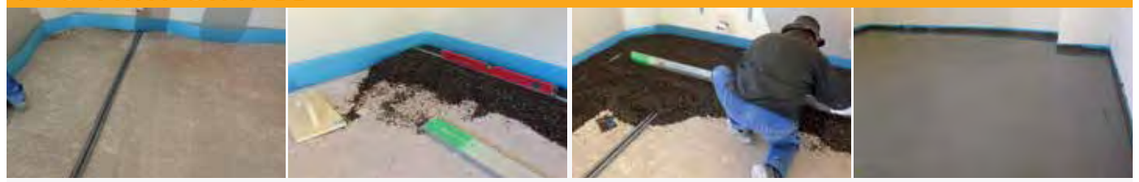
Cracks have formed after the tiling has been grouted
1. On pipes or obstacles the soft tissues were not removed.
2. Shrinkage cavities (holes) under the piping or material has been not professionally installed.
3. Material used for installation was not sufficiently pre-compressed.
4. No surface course levelling or is too thin.
5. The lower layer to which *ThermoDyn* has been raised, is not sufficiently supporting.
6. Tile adhesive too small or incorrectly applied and processed.
7. Tile adhesive and joint filler not plastic-coated. Too brittle in the basic structure.
8. Point load above the permissible limit value.

Lump formation during mixing
Processing temperature is too low.
Pre-heat the binder in hand-hot water.
ThermoDams plates cannot be plugged together evenly
Check groove for clearance. There may be grains or dirt in the groove.
Underbody is not level or evenly structured.

Filler does not harden after installation and detaches from the substrate
1. Filler mixture was mixed in an unprofessional way.
2. Underfloor heating was not switched off.
3. The installed floor was loades too early.
4. Damages caused by draughts during drying out the filler.
5. Damages due to non-uniform sun¬radiation

Installation Info

IT'S THAT SIMPLE



ThermoDyn combines numerous technical features in one: low construction height, reduction of construction costs, adaptation to the statics, simple installation

1. **Rough pre-cleaning is sufficient…** broom-clean pre-cleaning is sufficient (dust-free vacuuming).
2. **Time saving application…** indoors and outdoors: mix pre-dosed bagged goods and apply to all kinds of load-bearing substrate (e.g. wood, concrete…).
3. **Simple integration of …** Pipelines, shafts and other obstacles are easy to integrate into the installation work. It is only necessary to ensure that the mass is evenly pressed into the cavities and soft insulating material is removed.
4. **Subsequent changes …** can be easily performed. Pipelines can be installed quickly and easily.

APPLICATION AND INSTALLATION IN FIVE STEPS

1. **tools required**
2. **assessment of the subsoil/premises**
3. **preparation of the substrate and surroundings**
4. **install *ThermoDyn* dry screed**
5. **subsequent optimization and application of the floor covering**

average turnaround time for a 100 m2/120 yd.2 apartment approx. 2 - 3 days

1 Required tools:

- mixing container (approx. 90 liters/20 gal.)
- plastic trowel
- gloves
- edge strips
- manual mixer or compulsory mixer
- pulling strip made of plastic, wood or aluminum
- lamp or headlight
- hand-warm water for the preheating of binders

2 Assessment of the subsoil and the premises:

- If the substrate is supporting, does not yield and does not have any breakthroughs in which the applied material could flow off?
- Have all preparatory work and installations been carried out professionally?
- Are all transitions and door entrances/thresholds in the installation height of *ThermoDyn* has been considered?
- Are there wet spots on the floor to be covered?

3 Preparing the substrate and the environment

- Insertion of the metre mark for the subsequent installation of the dry screed *ThermoDyn*. Alternatively, wood battens can also be used, grid system and level-direction-fill.
- Fix obstacles and pipelines accordingly. Check for compressive strength and remove any pressure-sensitive additives.
- Remove all interfering materials from the floor to be coated. The floor does not have to be broom-clean.
- If working to the ground, was an additional moisture barrier taken into account?
- If desired, an edge trim has been professionally applied.
- If a higher installation height is required, this can be bridged by means of rigid foam plates, *ThermoDyn* fill or *ThermoDyn* grilles with up to approx. 70 % of the installation height.
- Provide sufficient bagged material for fast mixing.
- If the ambient temperature is very low, the binder must be preheated in a hand-hot water bath to mix ThermoDyn. This facilitates the subsequent mixing of the goods.

4 Installing the *ThermoDyn* dry screed

- Open material bag and pour granulate into mixing container. Empty the binder bottle completely into the pellets.
- Mix material homogeneously and evenly with hand whisk or compulsory mixer.
- Pour *ThermoDyn* (granulate mixture) onto the floor to be coated.
- Use a trowel and pull-off bar to adjust the pellet mix to the desired installation height and distribute it. Pay attention to the previously marked heights.
- Slightly compress the surface of the pellet mixture with a trowel, and if necessary, add material for height compensation.
- If there are any obstacles, make sure that the granulate mixture is in positive contact with the object.
- If it becomes necessary to interrupt the work for a longer period of time, this is not a problem. When work is resumed, the new granulate mixture can simply be added to the existing and cured area.
- Let the whisk run off in dry granulate for better cleaning after a longer interruption of work.

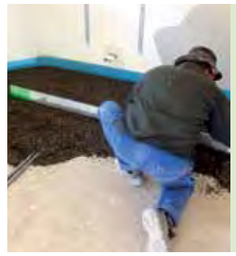
5 Subsequent optimization and application of the floor covering

- Step 1: Filling the surface with filler. Material for pore sealing – (*ThermoDyn* NiviLock - NL 01)
- Step 2: Apply primer if levelling is required. (*ThermoDyn* NiviGrund - NG 02)
- Step 3: Applying the primer (*ThermoDyn* NiviPlan - NP 05).
- Step 4: Apply topsoil professionally.

Reference properties


2005 / House of marksmen

Project:
Rehabilitation of public sanitary facilities
Problem definition:
Old tile covering with constant surface moisture.
Insufficient floor insulation.
Risk of accident from slipping.

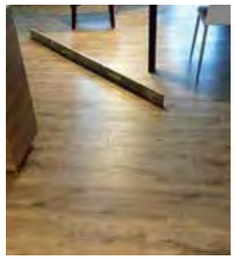
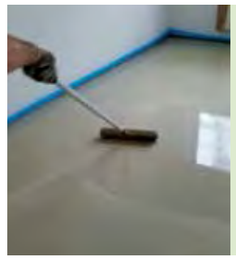



2006 / Renovation of old buildings

Project:
Renovation of a half-timbered house
Problem definition:
Building was totally gutted and there were,
in various construction phases, with *ThermoDyn*
the problem areas fixed.

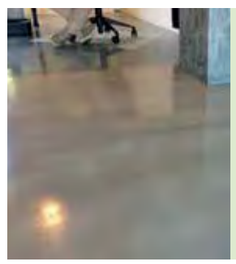

2004 / Housing renovation

Project:
Reconstruction and refurbishment
Problem definition:
Load-bearing wooden ceiling substructure with
soil subsidence. Construction height
ThermoDyn 8 – 60 mm/0.31 – 0.39 ins.

2003 / Housing renovation

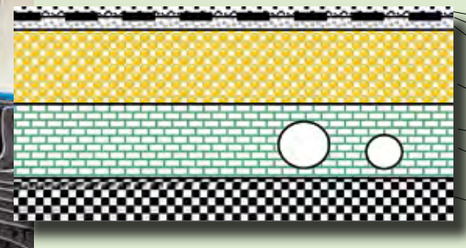
Project:
Bathroom and WC renovation
Problem definition:
Compensation of partial areas with different
floor structure (wood, concrete and fill).

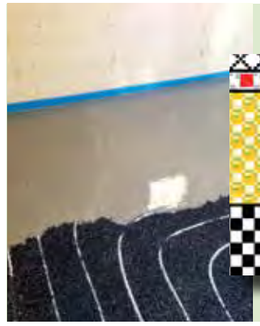
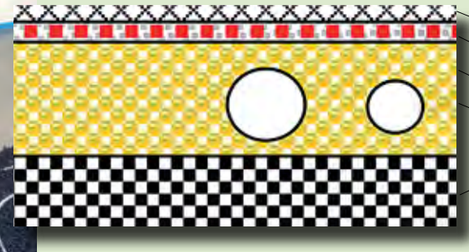
2007 / Renovation of old buildings

Project:
Reconstruction and redesign
Problem definition:
Substrate concrete, wood and fill.
Additionally provided with obstacles.
The statics had to be taken into account.

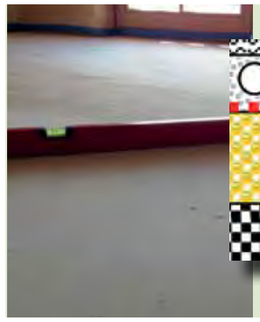
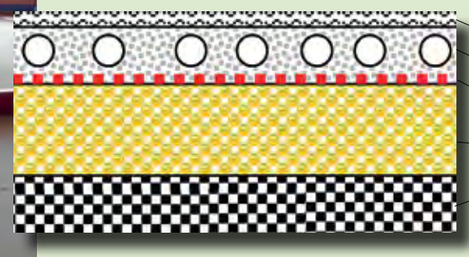
Construction scheme

Laminates, PVC, Parket or wooden floor
Soft mat / decoupling plate
Spatula / Leveling amount
„*ThermoDyn* " - sacks
Supply lines, Underfloor heating
„ThermoDamsCore" - petek öz-levha
foundation / underground

Tiles or stoneware
Spatula / Leveling amount (if nesessary)
„*ThermoDyn* " - sacks
Supply lines, Underfloor heating
foundation / underground / fill

Wood or tiles
Underfloor heating + „*ThermoDyn* "
Spatula / Leveling amount
„*ThermoDyn* " - sacks
foundation / underground / fill


Plastic sealing
Spatula / Leveling amount
„*ThermoDyn* "
foundation / underground / fill

Frequently Asked Questions

I have dumped building sand or gravel/ chippings as substrate in the areas to be repaired. Can it remain as a substrate or should I take it out again?

Building sand or gravel/chippings is ok. As long as the substrate forms a load-bearing, homogeneous and firm layer. Basically this is always important. If this can be guaranteed, it is always possible to use *ThermoDyn* as a further floor structure.

How high would you apply *ThermoDyn* ? As recommended 40 mm?

The 40 mm construction height you mentioned is good. I wouldn't do less either. There should also be sufficient heat and sound insulation from other rooms and the ground.

Do you think the installation of the machines is problematic? (machines run very quietly: sliding table saw, jointer, band saw)

Compressive strength and dynamic vibrations: *ThermoDyn* has a compressive strength of approx. 10 kg/cm². This is increased to approx. 20 - 30 kg/cm² if the surface of *ThermoDyn* is levelled by approx. 2-3 mm. Then the compressive strength increases. This should be sufficient. To ensure that your machine also stands securely, I would in any case also assume adjustable feet for pressure surface distribution.

Since I have to do the floor construction in two steps, I thought of a bound dry fill with increased load capacity. During research, I came across your product and wonder whether this would be a good solution to my problem.

Floor structure in several steps: It is possible to install *ThermoDyn* in several steps without any problems. The supplied binder, which gives the granulate (*ThermoDyn*) the required strength, ensures a perfect transition to the individual existing surfaces in several installation steps.

For larger surfaces, e.g. 50 m² and more, are the mixes always mixed with the agitator? Is it possible to use a compulsory mixer or another machine? I can imagine that a normal mixing machine does not work.

To mix the product, you need a compulsory mixer or a manual agitator in order to be able to produce a homogeneous and lump-free mixture. Unfortunately, it is not possible with a commercially available concrete mixer, as no uniform mixing is carried out here.

Substrate faulty soil, low construction height. All rooms, incl. bathroom, top floor wooden parquet in connection with underfloor heating.

Installation height: From 10 mm *ThermoDyn* Classic can be installed.
Substrate: The type of substrate is unimportant - it must be load-bearing. No soft insulation must be present.
Underfloor heating: In all rooms? Yes - it only depends on the type of installation. Embedded in *ThermoDyn* or on top!
Top floor parquet with underfloor heating: Basically, not a problem. Care must be taken how the underfloor heating is to be integrated. On top of *ThermoDyn* or inside *ThermoDyn*. If integrated into *ThermoDyn*, the surface must then be levelled with 2 - 3 mm. This would improve evenness compensation, pressure surface enlargement and heat transfer of the underfloor heating.

The wooden floor is to be glued. How should I proceed here?

It would be best to use a decoupling mat between your top layer and the filler. If necessary, this will compensate for the surface tensions that arise

I have covered an old floor with an old PVC floor. The PVC is not damaged. Is it possible to install your system directly on the PVC without having to remove the old PVC?

In principle, it is better to remove the old floor covering. Because nobody knows exactly what it looks like under the old flooring (compressive strength).
However, if you are sure that there will be no subsequent complications, it is important that you coat the PVC flooring with a quartz sand coated primer beforehand. This will give you a sufficient bonding bridge to the substrate.
It is also important that you always keep an eye on the old floor covering during the work process, if difficult areas still turn out where you have to do preparatory work.

What if the granules of your product are still loose after installation? How can I still save the installation without having to dismantle it again?

This problem can occur if the binder has not been sufficiently mixed with the granulate. As a result, not all grains are wetted with a binding agent and therefore cannot exert any adhesive force in the screed system.
To solve this problem as easily as possible, place a finely woven reinforcing fabric on the surface of *ThermoDyn* and apply a levelling layer over it, which is not too thinly mixed. This partly seeps into the structure of *ThermoDyn* and fixes the loose granules. After curing, you can continue with your top floor.

Underfloor heating available? Does *ThermoDyn* have to be heated out like a normal screed before laying the top floor?

If *ThermoDyn* is applied directly to the underfloor heating pipes, then only the setting time of *ThermoDyn* has to be taken into account. Once this has hardened, the floor structure can be continued without further temperature control of the underfloor heating. However, the residual moisture should not be too high.

I filled my underfloor heating with *ThermoDyn*. Now I can't get my floor warm enough.

If the *ThermoDyn* structure was built too thickly over the pipes, it can happen that the heat energy takes too long to keep the floor at a sufficient temperature.
It is best to increase the flow temperature.
Here you have the advantage that after switching off, a kind of heat accumulator is created by the clay granulate and keeps the soil warm longer.
You may have considered too few heating loops.

With which underfloor heating does your screed system work?

Regardless of whether you use an electric or water-operated underfloor heating system, all variants can be used. It is advantageous if the heating systems are fixed to a reinforcement net. This makes the subsequent embedding in the floor system easier. You can embed the heating system in *ThermoDyn*, if the construction height is important.

Can I repair and level an old cast asphalt with your product?

Yes - our product is suitable for repairing cast asphalt and directly attaching a further surface extension. With our product you are able to carry out repairs easily.

Is there resistance to moisture and floating of the screed in case water should penetrate?

All components of *ThermoDyn* are absolutely water resistant.
Due to the open porosity there is no capillarity and the floor system will not float up even if it is full.

Unfortunately, we cannot insulate the basement ceiling. Does your product have sufficient sound and heat insulation?
Due to the optimal combination of sound and heat insulation, an application of *ThermoDyn* for insulation is advantageous and advisable compared to the basement room.

Disadvantage of standard screed in old

- can intensively inhibit diffusion and cause fungal and mildew damage
- are often very thick and extremely heavy
- are often ergonomically unfavourable for the processor due to the high screed thickness
- can often not be compacted over the entire cross-section
- are often not suitable for underfloor heating and cooling
- require increased flow temperatures of the underfloor heating system and react to the sluggish on heating
- are therefore often energy-intensive
- hardly leave room for additional insulation
- often offer low vibration and impact sound insulation
- may show too little fire resistance
- often shrink intensively and dry slowly
- are not always suitable for all types of installation and floor coverings
- are often not water resistant
- can pollute the indoor air through emissions
- may have too low a load-bearing capacity
- are often not recyclable and expensive to dispose of
- are primarily suitable for the development of undifferentiated large areas

Tipps

Tips for efficient modernization

Procedure
At least four months before the start of renovation, the client should commission an energy consultant with an expert opinion. At the latest three months before one should catch up offers with the craftsmen. As soon as reliable cost estimates are available, the bank can decide on the financing application. Attention: If KfW funds are planned, they must be applied for and approved before construction begins.

Construction supervision
Laymen should invest in a professional construction supervision. Depending on the region, this costs 60 to 100 €/h and, according to estimates, accounts for around 1.5 % of the construction sum. Experts advise a combination of modernization and energy consultation already in the apron. Important thereby: the owner should attach importance to absolute independence of the building companion and also examine the references.

Insurance
In order to prevent financial losses, the insurance company should be asked to what extent and to what extent the liability (private or landowner's liability) also applies during the modernization phase. In addition: The household contents insurance should also be informed. In addition, it makes sense to take out what is known as construction insurance, which covers damage to materials and the house.

Personal contribution
Many building owners want to reduce the loan amount through the so-called „muscle mortgage". This is legitimate, but also entails risks if the overall process comes to a standstill as a result. If acquaintances or relatives should help, these must be called also in each case the professional association building, so that they are insured.

Complications
No modernization, no energetic renovation, no conflicts. Of course, experienced craftsmen are reluctant to be talked into by building owners who regard them as laymen. Who has no specialized knowledge, should leave therefore to a competent and independent building companion the control of the craftsmen and the examination of the quality. An expert civil engineer, technician or architect can save the owner many costs.

Tipps

Rubber - a fascinating material

Rubber has some outstanding qualities, e.g. the ability to withstand high loads elastically. Rubber is therefore used for products that have to meet the highest quality standards, such as car tyres, baby soothers or special seals in industry. The rubber acquires its elastic properties during processing. Vulcanisation makes it permanently elastic and, after it has been deformed, it returns to its original shape.

Highest performance
Rubber floorcoverings are extremely resilient and wear-resistant. Their extremely long service life is well above the average of other elastic floor coverings. It is precisely for this reason that rubber floorcoverings are also used in highly frequented areas, such as airports. A long service life also means the conservation of resources through relatively rarely necessary replacement and disposal.

Advantages in cleaning and care
The extreme density typical of rubber floorcoverings, in combination with the closed surface, enables problem-free and economical cleaning without subsequent coatings. These advantages have an extremely positive effect on the price/performance ratio, especially for longer periods of use.

Comfort and safety
Rubber floorcoverings are slip-resistant, pleasantly warm to the foot, permanently elastic and combine high walking comfort with good impact sound insulation (peak values up to 20 dB). They are resistant to cigarette burns, classified as flame-retardant and free of PVC, plasticizers (phthalates) and halogens (e.g. chlorine). Therefore, in the event of fire, they do not release any hydrogen chloride gas, which can lead to burns of the respiratory tract and form hydrochloric acid in combination with extinguishing water. The emission of substances in concentrations that are hazardous to health is excluded with floor coverings. Thus the use by children, even in direct contact with the floor, is harmless.

Environmentally friendly solutions
Environmental orientation is a declared corporate objective and has been implemented for years: from the selection of raw materials, through development, production and use, to recycling and disposal.

Special technical requirements:
- electrostatically dissipative „ed"
- electrostatically conductive „ec"
- suitable for forklift trucks
- extremely notch resistant
- extremely fire-resistant
- toxicological harmlessness (DIN 53 436)
- largely resistant to oil and grease

Insurance
In order to prevent financial losses, the insurance company should be asked to what extent and to what extent the liability (private or landowner's liability) also applies during the modernisation phase. In addition: the household contents insurance should also be informed. In addition, it makes sense to take out what is known as construction insurance, which covers damage to materials and the house.

1. Purchase checklist:
ThermoDyn - Classic (sack goods)
ThermoDyn - pouring
ThermoDyn - NiviLock 01 (floor levelling compound)
ThermoDyn - edge strips
ThermoDyn - Tool Clean
ThermoDyn - film moisture barrier
ThermoDyn - NiviGrund NG02

2. Which tool is required:
Plastic trowel, compulsory mixer/beater, straightener, spirit level, folding rule, peel-off bar, *ThermoDyn* cleaner (Tool Clean), immersion heater, mortar pan, gloves, rubber hammer, cartridge press, edge strip fixing, or as required

3. The special quality of *ThermoDyn*:
ThermoDyn facilitates the insulation and levelling of demanding substrates. Its simple installation and processing as an optimum levelling compound enables time-consuming and labour-intensive work to be carried out simply and uncomplicatedly. The material guarantees a full-surface, void-free connection of the most diverse materials by simply penetrating the levelling compound. There are no limits to the application indoors or outdoors. Optimal application for building renovations (wood, concrete, steel, etc.), terraces, winter gardens, damp rooms or anywhere where inexpensive and quick installation is necessary.

4. Important - the substrate:
ThermoDyn adheres to all solid, load-bearing, dry and dimensionally stable substrates. No special pre-treatment or cleaning of the substrate is necessary. If necessary, it should be cleaned of coarse dirt, must not contain any moisture and must form a load-bearing and stable layer. The substrate must be able to absorb and dissipate the compressive loads of the topsoil. Suitable substrates are e.g. concrete, wood, wooden beam ceilings, stable fills, floor surface combinations and many more.

5. Consumption:

height	consumption ca. (kg/m²)	Area per bag ca. (m²)
20 mm	11	1,70
30 mm	16	1,30
40 mm	22	0,85

6. Preparation ratio:
Mix *ThermoDyn* granulate with binder (enclosed packaging) evenly with a compulsory mixer or double whisk for approx. 2 minutes until a uniform mixing has taken place. Only prepare as much material as can be processed in 30 minutes. Empty the enclosed binder packaging completely, if necessary warm it up in a warm water bath (approx. 40°C/104°F) for better spillage. Pay attention to direct sunlight and rain and avoid knitting. After a curing time of approx. 24 - 48 hours (at 20°C/68°F) ambient temperature), further work can then be started (surface must be walkable). The curing time increases depending on the thickness of the structure and the soil/ambient temperature.

7. Simple processing and preparation:
Unevenness of the substrate does not have to be pre-treated for *ThermoDyn*. Apply evenly mixed mass (without lumps) to the substrate, fix with plastic trowel and press in steps. Then level out with a screed and smooth down with a plastic trowel.
To prevent adhesion to your tool, we recommend using plastic tools or our special non-stick cleaner „ToolClean".
Lay pipes without insulation (without foam jacket).
If a light grain solution takes place on the surface after hardening. You can fix it in the floor bed with a filler (ThermoDyn NiviLock).
In order to improve the impact sound properties of *ThermoDyn* and to install the top floor properly, an edge strip must first be attached to the contact surface with the wall.
The working time is approx. 1 - 2 hours. It is possible without any problems to interrupt the installation and to continue working at the transition point without loss of quality after curing ThermoDyn.

8. The topcoat/topsoil:
The surface of *ThermoDyn* must always be covered with a wear layer in order to avoid grain detachment (e.g. filler, tiles).
With flexible and bulky top floors (e.g. PVC, carpets, wood, laminate, stone ...), an increase in the pressure surface by means of a floor levelling compound (NiviLock) is necessary (min. 2-3 mm/0.08-0.12 ins.) coverage over grain). The proportion of water added to the levelling compound should always correspond to the manufacturer's specifications. If the mass is too thin, this is not a disadvantage, but more material is needed as a result. As a result, the mass is increasingly seeping into the open pores of *ThermoDyn* and an increased compressive strength is achieved. The increased infiltration of the mass will take place in the millimetre range. There will never be a complete penetration of *ThermoDyn*. Provided ThermoDyn has been properly processed and installed.
For further processing with laminate, tiles, carpet, wooden flooring or similar utility floors, the above-mentioned top layer sealings on *ThermoDyn* are required (floor levelling compound).
To improve the coupling surface, a primer must be applied to the levelling compound for further application of the topsoil.
If it is intended to stick the top floor/usable floor (laminate, carpet, wooden floor...) firmly onto *ThermoDyn* the filler must be sanded down beforehand in order to create a sufficient coupling surface for the bonding. If possible, a decoupling mat should be considered and installed.

9. General notes:
Ensure adequate ventilation
Processing ambient temperature -20°C to +30°C/-4°F to +86°F
Store well closed and dry (room temperature min. 5°C/41°F).).
Storage temperature: 0°C - 30°C./32°F - 86°F. Avoid direct sunlight.
Protect uncured surface from sun and rain.
Wear gloves.
A moisture barrier layer is recommended when laying plastic floors as top floor.
The above information can only be general information. The working conditions beyond our control and the multitude of different materials exclude any claim from this information. In case of doubt, we recommend sufficient self-testing. Our General Terms and Conditions apply, which you can view on the Internet. The S and R sentences apply.

Disposal instructions:
Dispose of product residues accordingly. Shelf life - 6 months after delivery note date or packaging date.

IMPRINT

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