



NOEplast

NOEplast formliners the art of patterned concrete



NOEplast for textured concrete finishes: the right way to create aesthetically pleasing concrete surfaces. NOEplast textured fair-faced concrete surfaces bring buildings to life with an ever-changing interplay of light and shadow. The visual effect varies as the lighting conditions change with the time of day.

Light and shadow play games with one another, depending on the position of the sun.

When used in the right way, NOEplast can create a visually consistent textured finish over large and small areas of fair-faced concrete. The NOEplast range can cater for the customer's individual wishes in every case. The large selection of textures offers the perfect choice for every project: From delicately proportioned, life-like wood grain to plaster or natural masonry textures, from eye-catching bush-hammered concrete to artistically designed reliefs.

Using NOEplast:

NOEplast can be used on site for in-situ concrete as well as in the factory for precast concrete units (balustrades, beams, columns, pillars, parapet elements, walls, troughs and other shapes). The formliner material is flexible, which makes casting curved concrete components a relatively easy task. Given careful handling and the use of one of NOEplast special release agents and adhesives, NOEplast TOP textured formliners can be reused for 80 to 100 concrete pours without problem. NOEplast PRO formliner can be used 30 to 50 times.

NOEplast Light formliner can be used up to 10 times. Please note that the maximum shelf life and usability of NOEplast Light formliner is 6 months from the date of delivery.

The NOEplast matrix cleaner is not suitable for NOEplast Light formliner.

Important:

Our release agents ease the task of stripping formwork, protect the NOEplast formliners and extend their useful life. In strong sunlight, the spray-coated formliners must be kept under shade if they are to stand for a long time before concreting. If weather conditions have caused the NOEplast release agent to evaporate, it must be reapplied.

Untreated surfaces can result in discolouration of the concrete.

We recommend that formliners are sprayed twice with release agent before first use.

Release agent must be reapplied before every pour.

Contact a NOE advisor before any intended use in hot climate regions with high humidities, otherwise we cannot be liable for any subsequent loss or damage.

Comment on dimensional tolerances:

Smaller tolerances are possible for specially manufactured articles. Any adverse tolerance effects can largely be compensated by stretching and/or compressing the formliners. Formliners placed loosely in forms may expand during long-term use. Subsequent cutting of the formliners to the correct shape is easily done using the trimming knife or a handheld circular saw. Despite the most careful work, tolerances cannot be excluded (see table „Techni-

cal data NOEplast“). They can therefore not be the subject of complaints or claims. All NOEplast structures are castings of existing moulds which serve as templates. For example, NOEplast wood structures are cast from wooden boards which may have knotholes, nicks and structural differences due to sawing. The same applies to other NOEplast surfaces. The resulting tolerances and illustrations in the concrete do not constitute a defect.

NOEplast formliners are manufactured from polyurethane.

NOEplast formliners are manufactured from a plastic material and, like all plastics, will shrink and expand in response to temperature variations. For this reason, it is better in practice for NOEplast formliners to be slightly too large than too small. Thus, they are generally supplied in widths and lengths a few centimetres larger than the ordered dimensions. Therefore, you will have to cut the formliners to the final dimensions on site.

NOEplast TOP technical data

| | |
|--|---------------|
| Reusability | 80 - 100 |
| Shore A hardness in accordance with DIN 53 505 | 65 -70 |
| Tear resistance | Up to 10 N/mm |
| Temperature resistance | + 80 °C |
| Dimensional tolerance A/B | +/- 1.00 % |
| Dimensional tolerance formliner thickness | +/- 2.00 mm |
| Back tissue | yes |

NOEplast PRO technical data

| | |
|--|---------------|
| Reusability | 30 - 50 |
| Shore A hardness in accordance with DIN 53 505 | 50 |
| Tear resistance | Up to 10 N/mm |
| Temperature resistance | + 60° C |
| Dimensional tolerance A/B | +/- 1,00% |
| Dimensional tolerance formliner thickness | +/- 2 mm |
| Back tissue | no |

Important:

When applying the release agent, please ensure that no excess remains on the formliners. Otherwise this can lead to discolouration of the concrete surface.

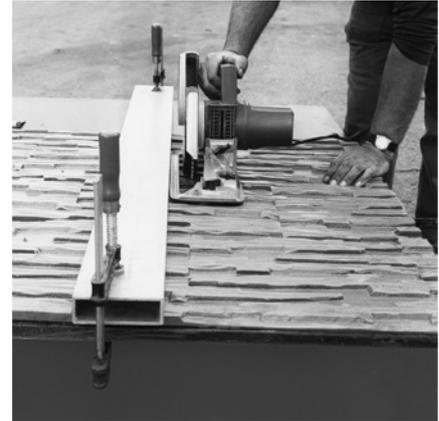
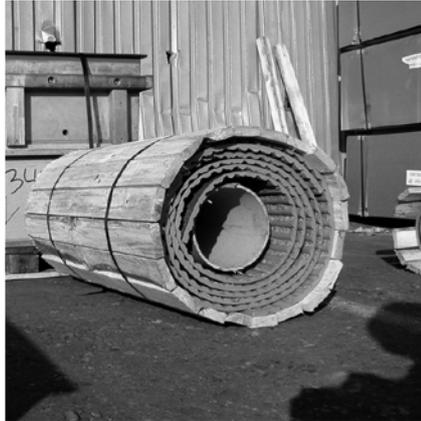
If the concrete mix contains chemical additives, dyes or pigments, then they may, under certain circumstances, react chemically with the NOEplast formliners or release agent. This can also lead to discolouration of the concrete surface.

NOE always recommends that a trial pour be carried out before first use.

NOEplast Light technical data

| | |
|--|----------------|
| Reusability | Up to 10 times |
| Shore A hardness in accordance with DIN 53 505 | 50 |
| Tear resistance | n. n. |
| Temperature resistance | + 60° C |
| Dimensional tolerance A/B | +/- 1.00% |
| Dimensional tolerance formliner thickness | +/- 2,00 mm |
| Back tissue | yes |

Working with NOEplast formliners



Transport

We select the transport packaging to suit the requirements of the NOEplast formliners. NOEplast formliners are delivered in rolls, on pallets or in special boxes, depending on the design. The transport packaging is there to protect the NOEplast formliners. It is always charged for in accordance with our quotations.

Special packaging materials (rolls, pallets and boxes) are **not** taken back nor are credit notes issued for them. Should you decide to dispense with the use of the special packaging materials selected by us, we shall not be liable for any transport damage.

We can indicate the transport costs in your quotation only if you provide us with accurate information about the amount of goods to be transported and the delivery location.

Preparation

NOEplast formliners are delivered in rolls or flat, depending on the formliner type and thickness of the texture. Rolled-up mats must be unrolled and laid flat immediately after delivery.

If the unrolled NOEplast formliners are stored in the open or exposed to the weather, they must be protected by covering them with a weather and light-proof tarpaulin to prevent weathering effects.

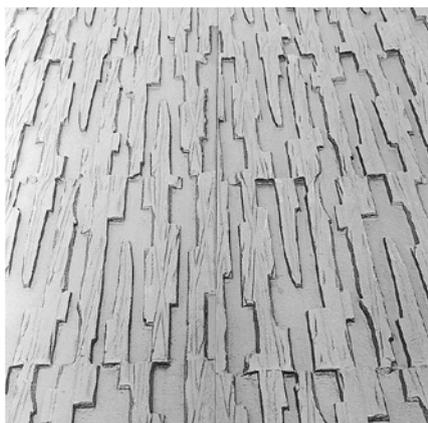
Protect from:

- Mechanical damage
- Dirt
- Large temperature fluctuations
- Direct sunlight
- Frost (snow, ice)
- Aggressive chemicals (solid, liquid, gaseous)
- At very high temperatures, there is the risk that the release agent may evaporate.

Cutting to size

NOEplast can be cut to the required size using the trimming knife or a circular saw with a hard-metal blade, depending on the formliner type and thickness.

Caution: Formliners that have been subject to frequent use may have to be cut to size again in certain circumstances.

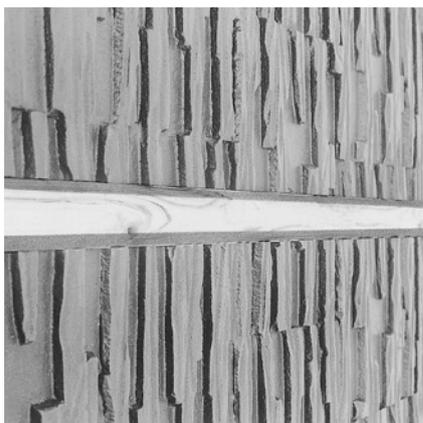


Vertical butt joints

In the case of wide concrete surfaces, it may be necessary to place NOEplast formliners alongside one another. The result will always look even and free of irregularities if adjacent formliners butt together at the texture-end of one and the texture start of the other. With some NOEplast designs, we recommend using a dummy joint to form the butt.

There are some NOEplast formliners that cannot be butted together without a visible joint appearing in the concrete. Please ask your NOEplast advisor, who will be pleased to explain your butt jointing options for specific NOEplast formliners.

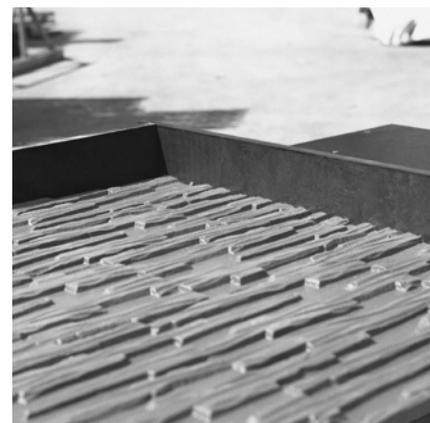
More information about textured formliners and contact names at NOE can be found at: www.noe.eu.



Horizontal butt joints

As a rule, the dimensions of NOEplast formliners are generally adequate for normal construction heights.

If horizontal butt joints are necessary, we recommend the use of dummy joints to make them into an aesthetic feature. Dummy joints are easily created using profiled mouldings.



Securing formliners in place

NOEplast formliners should be glued over their full surface area to a secondary facing material or liner that is completely independent of the main formwork (frame or beam formwork).

NOE offers customers NOEplast adhesive, which has been specially designed for use with NOEplast formliners. Like all adhesives, this should be applied to a dry, dust-free and non-greasy substrate.

The underside of the NOEplast formliner must also be dry and free of dust and grease before gluing.

The textured formliner backing must NOT be sanded.

We would like to point out that NOEplast formliners that have been glued into place can be removed only mechanically. The formwork and the NOEplast formliners may be damaged during this operation.

Further important information is given on page 8 in the section on „Gluing NOEplast textured formliners“.

As a special service: on request, NOE can deliver your NOEplast formliners already glued onto 3-ply panels and ready for use. In this way, you can avoid adverse site conditions such as dirt, wet and extreme temperatures, while relieving the demand on site crane capacity and not having to set aside space for gluing on site.

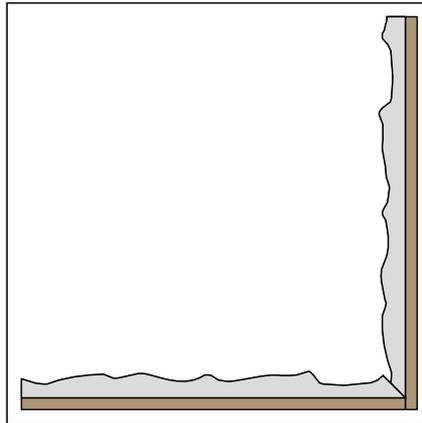
Working with NOEplast formliners



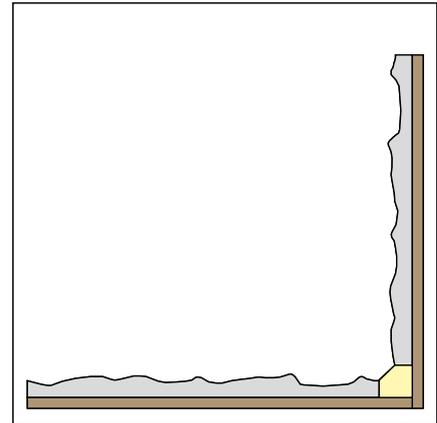
Formliner butt joints

It is difficult to obtain a visually elegant solution when butting together formliners with large-scale, irregular textures if the joint between the formliners has to be properly sealed. Corners like these can appear untidy. Even if the formliners are mitred rather than butted together, the corner can still look untidy. The mitre cuts in the back of the formliners achieve a good seal, but the front edge can look untidy, depending on the texture. Therefore a smooth surface (moulding) or chamfers should be introduced (see figures 1 to 4).

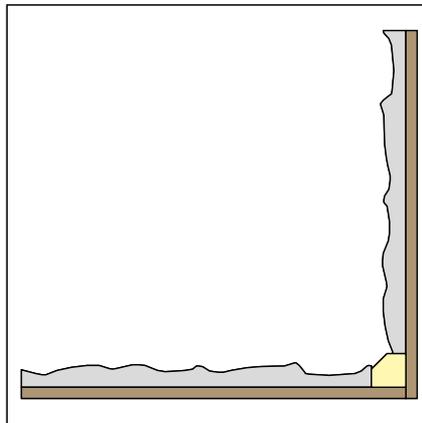
In the case of textures with straight line features, we recommend using mitres.



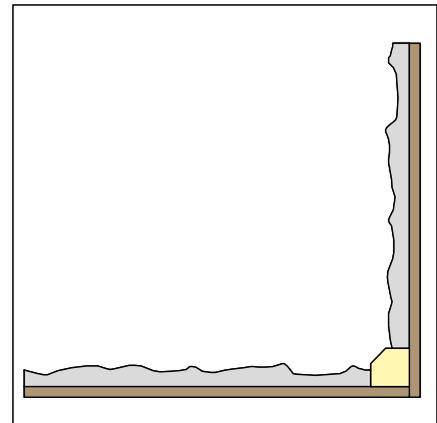
1 Forming a corner with mitre-cut formliners



2 Corner profile with chamfer at the highest part of the texture in the concrete



3 Corner profile with chamfer at the mid-height of the texture in the concrete



4 Corner moulding with chamfer at the deepest part of the texture in the concrete

Levelling the formliner backs

For technical reasons related to the method of production, it can not be guaranteed that formliners are all of equal thickness. It may therefore be necessary to equalize the thicknesses by sanding off excess or applying extra NOEplast material. This is done by laying the formliners down on the textured side and butting them together. The thicker formliner of a butted pair is then sanded down until it is the same thickness as the thinner formliner. The best way to do this has been using a drum or belt sander.

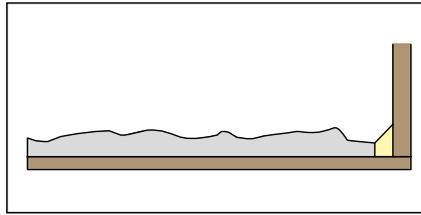
If the difference in thickness is too great, it is often less work to apply NOEplast filler to thicken the edge of the thinner formliner, rather than to sand down the thicker formliner. First the area that is to be increased in thickness is roughened using sandpaper. Then NOEplast filler is applied, levelled and smoothed. A piece of squared timber of the required thickness is placed along the edge of the formliner to act as a guide. The squared timber is coated with wax beforehand to prevent the filler from sticking to it. After the filler has hardened, the two formliner edges are the same thickness and the formliner is ready for use.

Working with NOEplast formliners

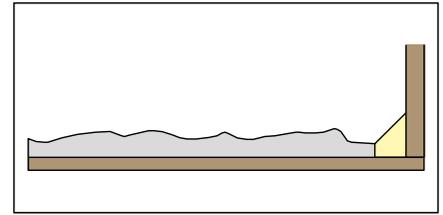


Use of profiled mouldings

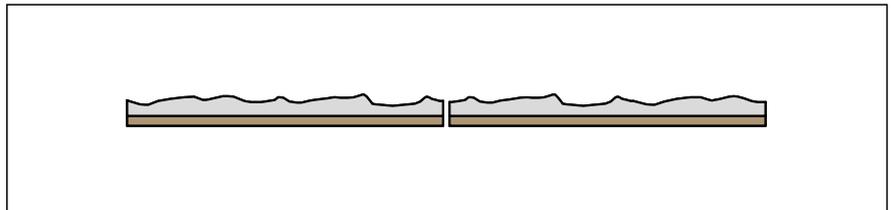
As is done with smooth-finished, fair-faced concrete, suitable profiled mouldings are used to form joints, corners and edges. All that needs to be determined is whether the dimensions of the moulding should relate to the highest, middle or lowest point of the texture. The actual thicknesses of the formliners must be taken into account in determining the dimensions of the moulding (see figures 1–5).



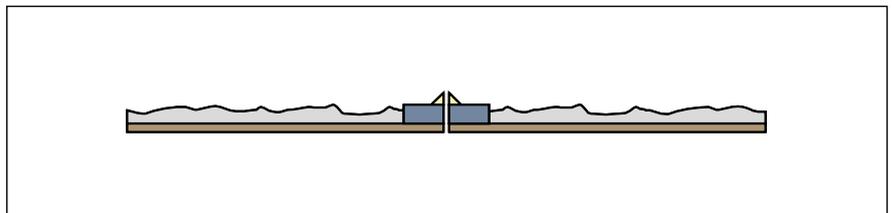
1 Corner chamfer matching the highest point of the texture in the concrete



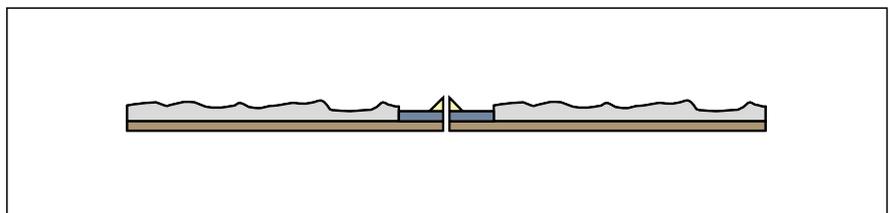
2 Corner chamfer matching the lowest point of the texture in the concrete



3 Butt joint



4 Smooth moulding with chamfer matching the lowest point of the texture in the concrete



5 Smooth moulding with chamfer matching the highest point of the texture in the concrete

Gluing NOEplast formliners



NOEplast adhesive is used for attaching NOEplast formliners to wooden formwork, synthetic resin-coated formfacings and steel formwork.

The formwork surface and the back of the formliner must be dry and free of grease.

Do not apply when humidity is high. The adhesive is delivered in a drum with two components (base and hardener).

Working temperature range min. +10 °C to max. +30 °C. NOEplast adhesive should be processed in accordance with the instructions for handling and use. Hazard information can be found in the safety data sheets.

Formliners that have been glued in place can be removed only mechanically from the substrate. Formwork panel linings can be irreparably damaged during this process. For this reason, we recommend that wooden boards or secondary formwork linings be used as the substrate.



Application

Substrate: dry, clean, free of oil and grease. Steel formwork should first be grit blasted. Wooden formwork should have sufficient loadbearing capacity. Synthetic resin-coated formwork and multi-layer boards must be pretreated with primer or sanded down to the wooden substrate. Untreated timber should be used. Avoid any contact with moisture.

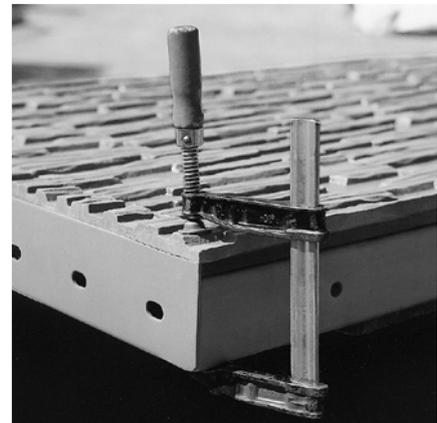
Stir component A thoroughly. Add component B and mix until homogeneous. Pour the mixture into a second container and stir again thoroughly. Allow at least 24 hours after the formliners have been glued in place before they are subjected to load. Clean tools with thinners.



After applying the adhesive to the whole of the back of the NOEplast textured formliner, place the formliner down on its long edge and unroll it onto the formwork substrate. Press the formliner into place without trapping any air. If necessary, weigh down the corners and edges.



Nail or screw down the formliner at the corners. Screw clamps can be used to hold down the formliner in the case of steel formwork (see photos). Ensure that the whole area has been pressed down.



If the formliners are later removed from formwork or tilting tables and adhesive residue remains on the substrate, this can be removed only mechanically. This can also damage the textured formliners.

NOEplast adhesive technical data

| | |
|--|---|
| | NOEplast adhesive Part No. 569513 |
| Mixing ratio A : B (by weight) | 5: 1 |
| Pot life (processing time) Adhesive application time | + 10 °C to +30 °C approx. 20 min. at + 18 °C ambient temperature |
| Coverage per m² On a smooth surface, when used properly | Approx. 800 g/m ² (approx. 6m ² /4.8 kg container) |
| Curing time | 24 hours |
| Humidity | Sensitive to humidity during processing Not sensitive to humidity in the cured state |
| Adhesion (depending on surface roughness) On steel On wood | Approx. 0.044 kN/cm ² Approx. 0.054– 0.087 kN/cm ² |
| Sensitivity to frost | Do not store below 0 °C Use only above +10 °C |
| Shelf life (for unopened drum, stored in dry rooms) | 9 months (at +18 °C) |
| Temperature resistance | +100 °C |
| Contents per drum (two components) | 4,80 kg (component A 4.0 kg, component B 0.80 kg) |



Use

Select a release agent suitable for the local conditions before offering the formwork and the NOEplast formliners up to the reinforcement.

We recommend our NOE special release agent. Furthermore, we recommend casting a trial panel in advance using the same materials and equipment as the construction site (concrete, formliner, release agent, formwork etc.).

The formliner must be dust-free and dry before the first NOEplast release agent is sprayed, in criss-cross passes and at least in 2 coats to ensure complete impregnation of the entire mould relief. In the case of moulds with deep structures, ensure that all mould surfaces are treated. Reapply the release agent before each concreting operation. In principle, a single spray is sufficient, but it may be necessary to apply a second coat, particularly in the case of pronounced reliefs and/or depending on the type of concrete used. When using our formliner with mass-coloured concrete, preliminary tests should be carried out to ensure compatibility between the concrete and our formliner. During the concreting cycle, the moulds can be cleaned with a hot water blower, maintaining a minimum distance of 60 cm between the blower nozzle and the moulds, in order to remove any pigment residues that may accumulate on the surface of the moulds. Once the moulds are completely dry, repeat the operation described above in this chapter.

Concreting

If cement slurry flows onto stripped wall surfaces, rinse off with water immediately. Cement slurry usually causes dark stains on light-coloured, fair-faced concrete.

Heating

If tilting tables or moulds are heated, the temperature should not exceed +80 °C. We then recommend our NOEplast TOP formliner.

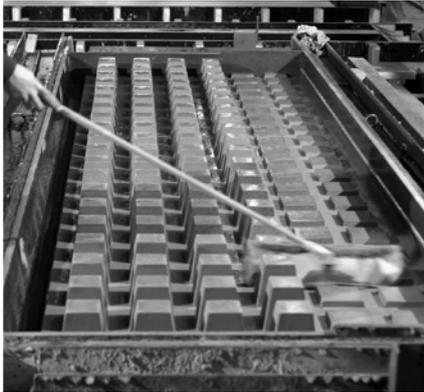
NOE special release agent* technical data

| | |
|------------------------------|---|
| Container sizes | Part No. 569710 200 l drum Part No. 569720 30 l canister Part No. 569730 5 l canister |
| Coverage | 30 – 40 g/m ² depending on the texture depth |
| Density (+15 °C) | 0.84 g/cm ³ EN ISO 12185 |
| Kinematic viscosity (+20 °C) | 8 mm ² /s ASTM D 7042 |
| Flashpoint | 120 °C EN ISO 2592 |
| Water solubility | Insoluble |
| Storage | -10 °C to +30 °C |
| Shelf life | 36 months in a closed container |

* Readily biodegradable
(in accordance with OECD criteria)

NOEplast formliners must be protected from the weather if they are stored or not used for long periods. Please refer to the notes on page 4 of the NOEplast AuV (these technical Instructions).

Removing the Formwork with formliner, Storage, Cleaning, Tools and Accessories



Stripping formwork

Stripping formwork presents no problems providing that NOEplast special release agent has been properly used. It is important that the stresses in the formwork are relieved on the day after concreting if possible and the formwork (if it cannot be completely removed on the day) is at least detached from the concreted wall by releasing the spindles. If this is not done, the formliners, or the formliners and the secondary formwork liners, may become so firmly held in place (by suction) that they are destroyed by the amount of force needed to strip them.

With corner panels and curves, you should take note that simple and easy stripping can only be assured if the NOEplast formliner's texture does not create a physical „keying“ effect with the concrete, e.g. an undercut.

In the case of glued formliners, the completed component must be lifted off from one edge.



**Observe the advice in the safety data sheets.
No warranty of performance can be given if a release agent supplied by a third-party is used.**



Storage

NOEplast formliners should be stored flat. Despite their flexibility, NOEplast textured formliners are not insensitive to excessive mechanical loads.

Do not place any objects down on NOEplast formliners.

Do not fold or bend NOEplast formliners. NOEplast formliners must be stored flat in a dry environment. They must be protected from cold, frost and snow. UV radiation should be avoided.

Note for NOEplast Light:

Maximum storage and usability for NOEplast Light formliners from the day of delivery: max. 6 months

Our advice on use and other recommendations are based on extensive research and many years of experience. However, this information is non-binding and does not release our customers from their duty to test the suitability of our products and processes for the customer's intended purpose. We assume that NOEplast formliners will be used in what are for us normal temperature and weathering conditions, and that they will be used properly and professionally. NOE's Terms and Conditions shall apply in all circumstances. We reserve the right to make technical changes.

Cleaning

We offer a NOEplast formliner cleaner for cleaning NOEplast formliners that have been contaminated with concrete or cement slurry. This cleaner can be used to clean the formliner surfaces and for degreasing the formliner backs. Our NOEplast cleaning agent part no. 569512 is available in 10-litre drums.

Use of NOEplast cleaner:

Please pour the NOEplast cleaner into a bucket and dilute with tap water to suit the degree of contamination of the formliners. The cleaner must be mixed with water in a ratio of between 2:1 and 20:1. Apply the cleaner using a soft, lint-free cloth evenly over the surface of the dirty NOEplast formliner. At places where the dirt is thick, rub the saturated cloth with a circular motion and allow the cleaner to work for a maximum of two hours. After a maximum of two hours, rinse the NOEplast formliner with copious amounts of water. For even dirtier areas, the formliner surface can be rinsed using a steam lance. So as not to damage the NOEplast formliner, the steam jet must be applied at a distance of at least 60 cm from the formliner surface.

Note for NOEplast Light:

NOEplast Formliner Cleaner is not suitable for NOEplast Light formliners.

Caution:

The cleaner removes grease. Before the NOEplast formliner is used again, our NOEplast special release agent must be reapplied. Our NOEplast cleaner is suitable only for NOEplast formliners and not for the removal of adhesive residues.

Tools and accessories

| Description | Part No. |
|----------------------------------|---------------|
| NOEplast formliner Toolkit* | 396802 |
| Spare blade | 396450 |
| Serrated spreader (spring steel) | 396701 |
| Stirring rod | 394903 |
| NOEplast filling compound grey | 842310 |
| Trimming knife | 396400 |

*Includes 394903 stirring rod, 396400 laying knife 396700 notched trowel, 842310 Filling compound, nitrile glove, 990746 Transparent safety goggles



NOE Betongestaltung GmbH

Kuntzestr. 72
73079 Süssen
Tel. +49 7162 13-1
info@noe.de
www.noe.eu

Belgien

NOE-Bekistingtechniek N.V.
Leuvensesteenweg 613
1930 Zaventem
info@noe.be
www.noe.eu

Frankeich

NOE-France
Depot Central
7 rue Maurice Bellonte
02100 Saint Quentin
info@noefrance.fr
www.noe.eu

Niederlande

NOE-Bekistingtechniek b.v
Postbus 25
4240 CA ARKEL
info@noe.nl
www.noe.eu

Österreich

NOE-Schaltechnik GmbH & Co KG
Trientlgasse 25
6020 Innsbruck
noe@noe-schaltechnik.at
www.noe.eu

Polen

NOE-PL Sp. z.o.o.
ul. Jeziorki 84
02-863 Warszawa
noe@noe.pl
www.noe.pl

Schweiz

NOE-Schaltechnik GmbH
Nordringstrasse 28
4702 Oensingen
info@noe.ch
www.noe.eu