

Steelant® is made from natural components

Wood oil tar has been used since the ancient times and forms the basis of Steelant®. In fact, tar was even mentioned in the Old Testament as the sealant used to make Noah's ark. Wood oil tar is a natural substance obtained from renewable raw materials.

Steelant® is sustainable and does not harm the environment. It contains natural polymers and combines the benefits of various natural materials. As such, its excellent properties in terms of elasticity, viscosity and temperature resistance mean that it is well-suited for use as an interlock sealant.

The properties of Steelant® can only achieve their full potential when the product is used properly. It is imperative that overheating is avoided, as this can destroy the natural materials. Steelant® maintains its viscoelasticity at grouting temperatures, however, flowing easily and taking on a new shape when cooling: the interior of the Larssen interlock, for example. After a short cooling period, Steelant® has elastic properties and this new form can be reversed.

These natural properties can be perfectly replicated: For example, the surface of Steelant® in the Larssen interlock can be heated through generating friction, like with a vibratory pile driver, and this softens the product. A film of lubricant will form across the surface, making it much easier to insert the new sheet pile. After Steelant® has been applied and has cooled, it becomes elastic once again.



Steelant® does not harm the environment

Steelant® used to be available under the Wadit® brand name and has been subjected to extensive testing. The Landesgewerbeamt Bayern (LGA, Bavarian State Trade Institute), Institute for Environmental Geology and Contaminated Areas, Tyllstrasse 2, 90431, Nuremberg, has confirmed that the product is environmentally-friendly in their report:

"The reports issued by the LGA conclude that the sealant can be used in sheet pile interlocks in ground and surface areas without restriction. As such, when used properly, there is no danger of any adverse effects arising when used in the vicinity of drinking water production facilities."

Steelant® can withstand 5-bar water pressure

During laboratory testing, Steelant® kept its sealing properties on every sheet pile interlock tested (Larssen, Hoesch, Ball & Socket) when subjected to water pressure of up to 5 bars. There were no leakages. Nevertheless, in practice, we recommend planning for lower permeability as, according to experience, it is not possible to anticipate all factors involved in the building process. When making calculations according to Annex E of EN 12063, we recommend setting the inverse value for the interlock seepage resistance at $p = 2.0 \times 10^{-9}$ m/s. Steelant® is comparable to plastic sealants when it comes to the impermeability it can attain, yet it is both sustainable and environmentally-friendly. Steelant® is not an expanding sealant and keeps its shape even if the water level changes.

Steelant® maintains a stable temperature and retains its elastic properties in the long term

Steelant® can be worked to 0 °C. Therefore, it is also sufficiently elastic even at lower depths. Ground water temperatures lie at between 5 - 7 °C throughout the whole year. The rubber in Steelant® prevents the product from becoming brittle like glass and ensures reversibility if any deformations or sheet pile rotations take place due to the rubber-like properties and extreme adhesive effects. Steelant® also remains stable and keeps its shape within the interlock in high outdoor temperatures of up to 50 °C and does not run out (flash point > 200 °C in accordance with DIN 53213, boiling point > 350 °C).

Steelant® is universal

Steelant® is compatible with all well-known piling tools and processes. There are no known limitations with impact pile drivers, vibration or press-in procedures.

Tip:

- If impermeability is not required and only a film of lubricant should be generated in the sheet pile interlock, a small amount of Steelant® in the interlock chamber will suffice. In this way, Steelant® will also prevent the covered surface from corroding any further. This is particularly suited to sheet pile multi-use. Steelant® simply remains in the interlock.

Steelant® is easy to use

Preparation:

The interlock strip should be clean, dry and free from grease so that the Steelant® can stick to the steel. Mill scale or other mill residue (shavings, loose rust, other dirt) should also be removed from the sheet pile interlock.

Tips:

- The most effective way of cleaning the interlocks of new sheet piles is to use a blowtorch under high flame pressure. Ideally the flame should be angled at approx. 30° to the interlock.
- Alternatively, rotating brushes can also be used.
- If the outdoor temperature lies below 0 °C, steel components must be pre-heated.
- The polyethylene bags (used to package Steelant®) can also be melted.



Steelant® should be heated to a maximum of 170 °C in a boiler controlled via thermostat and subject to indirect heat. It should be constantly stirred in the process. This will prevent the product from intermittently overheating and the natural materials from being destroyed. Steelant® that has been overheated should not be used.

Personal protective equipment should be used as a matter of course (protective clothing, safety goggles with side guards, gloves).

Tip:

- Sheet piles with an interlock pre-filled with Steelant® are installed first. If the interlock opening at the base of the sheet pile is closed off with a screw or small plate, this will largely avoid any small pieces of ground from getting in. The next sheet pile interlock to be installed is best enclosed with Steelant® if the tips of the interlock have been slightly chamfered around 10 cm and saw burrs have been removed. The middle interlock of double piles should be set in the interlock gap from the outside, on the side subject to stress.

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Filling and dosing:

The filling process for heated sealing material often takes place with an open pouring can. We recommend a safe, protected machine filling process using a heated hose. In this way, the casting temperature is kept between 130 °C and 160 °C all the way to the outlet nozzle, occupational safety levels are significantly improved and the product flows easily during the filling process. Material losses are also minimised thanks to the controlled process (start/stop). Sheet pile interlocks are usually filled to 50 %. Approximately 250 g of product is used per metre of sheet pile interlock.

Waiting time:

Steelant® cools down quickly and the sheet pile is usually ready to install 15 - 30 minutes after filling.

Scope of delivery and storage:

Pallets are delivered with 36 x 25 kg = 900 kg in polyethylene bags reinforced with cardboard. There are no restrictions on the storing time for Steelant® when kept in an enclosed space.



Steelant® is harmless and is not classified as a hazardous material by transport regulations

In accordance with Regulation (EC) No. 1272/2008, Steelant® is not classified as a hazardous material or dangerous compound. It is not soluble in water, self-igniting, explosive, toxic or aquatic, nor does it pose acute or long-term risks. Steelant® may release unpleasant odours and gases only if used improperly and overheated.