



Material description



NORSelast®

NORSelast® is a polyether based multicomponent thermoset polyurethane elastomer.

Polyurethane elastomers are often referred to as Solid PU. Solid PU is a category of materials and do not indicate specific material properties. There are a lot of different PU variants. It can be polyether based or polyester based, where **polyether based** has better resistance to hydrolysis. PU can be of a multicomponent system or a single component system, where **multicomponent** systems normally gives better mechanical properties. A Solid PU can contain many different additives and harmful chemicals both for the persons in contact with it and the environment in general. There are no harmful additives in NORSelast®.

The variations mentioned above are just about the substances in the material and the different raw materials. A PU can also be either thermoset or thermoplastic (TPU). **Thermoset** materials should in general have better properties than thermoplastic materials, but approximately 70% of the properties of a cured component are defined by the control of the production process of the company casting the component. Based on that, we can claim that there are about as many standards for thermoset PU materials as there are producers.

After many years of development together with global leading experts on raw materials for polyurethanes, NORSelast® was registered as a tradename by Strukturplast AS in 2013 for one specific Solid PU produced with a specific strictly controlled process.

The hardness of the NORSelast® material can be adjusted from approximately 60 Shore A to 70 Shore D to achieve optimized functionality on the component. Different additives can also be added to strengthen other specific properties. There are five different versions of NORSelast® available.

NORSelast® 01	– high tensile strength and a very high abrasion resistance
NORSelast® 02	– improved properties for fiber reinforced hybrid composites
NORSelast® PIR	– even harder and stiffer material for higher temperatures
NORSelast® S4	– is H ₂ S resistant for components directly in contact with acids
NORSelast® spray	– is a coating system for fenders and buoyancy

An NRF (MAROFF) funded development project was started in 2018 to develop a sixth version of NORSelast®, which is **NORSelast® AF**. This is a specific NORSelast® with anti-fouling properties. Please do not hesitate to contact Strukturplast if you have any questions regarding the material or the development going on.

NORSelast® has been used for many different applications throughout these last couple of years. See references on the next page.

References on use

1. **Aquaculture.** Thimbles in NORSElast® tested to 55 metric tons load without damage.
2. **Aquaculture.** Different protective components for lies - laser unit.
3. **Aquaculture.** NORSElast® - Discs for fish farming net cleaner.
4. **Aquaculture, Offshore and Subsea.** NORSElast® spray coating for Buoyancy.
5. **Offshore.** Pin and box protectors for risers.
6. **Offshore.** Discs for cleaning pigs.
7. **Offshore.** Seals for RCD. (NORSElast® S4)
8. **Offshore.** Sledges. NORSElast® - coated foam blocks.
9. **Offshore.** Backlash Indicators for drilling tools.
10. **Subsea.** Pipeline protection, other protectors and guide rings.
11. **Subsea.** Flexible indicators for subsea-valves made in NORSElast® - PIR.
12. **Seismic.** NORSElast® is the preferred material for both shock absorbers and bend stiffeners for acoustic towed arrays.
13. **Seismic.** Bend restrictors and clamps.
14. **Maritime.** Different components for propulsion systems replacing steel.
15. **Maritime.** Different protection components and custom-made fenders.
16. **Marina.** Buffers made of NORSElast® are used as dampening in the connection of floating concrete modules of 700 metric tons each.
17. **Industry.** Sand blasting protection made in NORSElast® last much longer than HARDOX® steel.
18. **And many other tailormade components for many global customers in all markets.**

Please do not hesitate to contact Strukturplast if you want to know more about these references or other product examples.

NORSElast® is the perfect material for dampening destructive energies!

If you have equipment that needs maintenance regularly because it is exposed to dynamic forces, please contact us for a free of charge counselling on how choosing the right material can reduce the maintenance and your cost significantly.

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