Hydrolysis-Resistant Polyurethanes
TPU Solutions for Drinking Water Applications
The Innovation from Simrit®
Hydrolysis-Resistant Polyurethanes for the Drinking Water Sector

Polyurethane materials from Simrit
Whenever there is a requirement for seals which combine high loading capacity and wear resistance with resistance to mineral oils, thermoplastic polyurethanes (TPU) are used. With its varied range of polyurethane seals and moulded parts that have been tried and tested millions of times, Simrit offers successful solutions for a whole number of applications – the result of many years of experience in materials development and processing.

PU materials from Simrit are particularly characterised here by their high levels of functional stability and reliability:
- Excellent wear resistance
- Highly adjustable hardness range
- Remarkable tensile strength and breaking elongation
- Resistance to mineral oils in wide temperature ranges
- High ozone and oxidation resistance
- Excellent damping behaviour
- Enormous resistance to crack formation and crack growth

New: TPU for drinking water applications
Drinking water is our most important foodstuff and as such is subject to stringent regulations and statutory provisions in terms of quality and purity. The requirements on materials which come into contact with drinking water in the form of seals or moulded parts are equally strict.

Traditionally only a limited number of materials are used here, generally involving special formulations of acrylonitrile-butadiene rubber (NBR) or ethylene-propylene-diene rubber (EPDM). These materials have proved their worth over many years. In terms of stability characteristics, in particular wear resistance, polyurethane has considerably better properties.

With innovative hydrolysis-resistant polyurethanes which have been specially developed with drinking water applications in mind, Simrit is now offering an interesting alternative to conventional materials which features many benefits.

By the way: for over 25 years polyurethanes from Simrit have proved their worth in hydrants!
A Superior Alternative
Hydrolysis-Resistant Polyurethanes from Simrit®

With the new family of hydrolysis-resistant polyurethane materials Simrit offers you a modern solution to many sealing problems in the drinking water sector.

Robust and resistant
Thanks to their outstanding properties hydrolysis-resistant polyurethanes from Simrit offer numerous advantages over conventional materials suitable for drinking water such as EPDM or NBR. The hydrolysis-resistant TPU from Simrit is characterised by a much higher resistance to abrasion than conventional materials, thus ensuring considerably lower wear of sealing elements and moulded parts. Thanks to its good slide properties the material is also predestined for dynamic sealing problems. In addition, the extreme levels of tensile strength, breaking elongation and resistance to tear propagation result in easy fitting. Compared with EPDM and NBR, the material provides for greater creativity in terms of product solutions – for example, the high structural stability frequently makes it possible to abandon the use of reinforcing elements such as plates or fabric inserts. The integration of several functions in one component is possible, e.g. sealing, damping and snap-in fitting. The customer benefit through cost savings is obvious. The outstanding ageing stability – even after being stored for lengthy periods no brittleness or crack formation is to be expected – is just one more benefit ensuring a long service life.

Profile shaft seal for complex contours with a compact seat area and flexible sealing lips.

Free of plasticisers
Another key reason for the use of hydrolysis-resistant polyurethanes from Simrit in drinking water applications is the complete absence of plasticisers. Given that connecting elements made of plastic are being increasingly used in the domestic drinking water supply, there is always the risk of stress cracks with sealing materials containing plasticisers. Hydrolysis-resistant polyurethanes from Simrit on the other hand are entirely free of plasticisers, thus preventing any reactions in contact with plastic components and reliably safeguarding the sealing function. In addition, the contamination of drinking water by plasticisers is ruled out.
The many outstanding properties of hydrolysis-resistant polyurethanes from Simrit open up a wide range of possible applications.

Hydrolysis-resistant polyurethanes from Simrit in the drinking water sector
Whether for use in valves, fittings, slide valves, meters, spray systems, taps, mixer taps or pipe systems – a range of standard compounds specially designed for use in the drinking water sector combined with specialised product development know-how leaves nothing to be desired. In addition, Simrit also offers you the option of jointly developing customised solutions for your individual requirements – even including your colour preferences.

Certificates included
The use of seals and moulded parts which come into contact with drinking water is strictly regulated by the law. The approvals issued by the Deutscher Verein des Gas- und Wasserfaches (DVGW – German Technical and Scientific Association for Gas and Water) in Bonn is of special importance here. KTW approval specifies which plastics are basically authorised for use with drinking water according to the guidelines of the BgVV – German Federal Institute for Health Protection of Consumers and Veterinary Medicine – (Plastics in the foodstuffs sector) on the basis of extraction, odour and taste testing as well as the list of permitted recipe ingredients. In addition, the technical regulations W270 govern the multiplication of microorganisms on materials for the drinking water sector. As the only supplier of hydrolysis-resistant TPU materials, Simrit presently holds the KTW approvals in combination with W270 approvals: in addition to current KTW approvals for the Shore A hardnesses 85, 90 and 94°, W270 approvals have also been awarded for numerous variants in the 85 Shore A hardness range.

Beside use in the drinking water sector there are many other possible applications in the field of general sealing technology.

Hydrolysis-resistant O-Rings
■ Ideal when resistance to oil and water are simultaneously required
■ Fitting possible via threads and cross holes
■ High extrusion resistance, providing for larger gaps and greater pressures
■ Omission of back-up rings and support rings possible to a certain extent

Special seals and moulded parts in agricultural and forestry machinery
■ Used effectively for many years as a buffer component in combination with radial shaft seals
■ Optimum results in tough environments (e.g. mud, bio-media etc.)
■ Tried and tested as a seal for jointed shafts with complicated contours

Moulded parts in textile machinery
■ Used effectively for many years as rollers etc.
■ Blend variants available with outstanding resistance to various reviving finishes*

Special elements for machine tools
■ Used effectively for many years with various cooling lubricants
■ Guide elements
■ Special profiles

* Textile agent used to improve flow and slide properties for further processing of fibres
Simrit®, Your Global Technology Specialist for Seals and Vibration Control offers you a complete service package. A unique range of products and services guarantees you numerous advantages over the competition.

Simrit acts as a partner to general industry. Its position as a market leader is achieved through continuous research, development and manufacture. We have the world’s widest range of seals and vibration control products, and can offer you solutions based on the demands of state-of-the-art technology, solutions which set standards.

This way we secure competitive advantages for you based on experience all around the world: Simrit has a presence throughout Europe, America and Asia, either directly or through its affiliated companies NOK (Japan) or Freudenberg-NOK (USA). The transfer of knowledge between these markets is incorporated directly into the Simrit service package.

With our many Simrit Service Centres and Simrit distribution Partners, we serve and supply more than 100,000 customers worldwide. Our Simrit Partners ensure rapid availability from stock. This means spare parts quickly arrive when and where they are needed. There is a Simrit Partner near you as well.

Make the most of Simrit’s service package and give yourself a real competitive edge:

- Constant innovations
- Uniquely wide range of products
- Strong product brands
- Unique materials expertise
- A wide range of value added services

Simrit offers a complete package of products and services, including leading brands such as Simmerring®, Merkel, Integral Accumulator, Lederer and ISC O-Ring.
Simrit®, Your Global Technology Specialist for Seals and Vibration Control

Simrit Services

- Constant innovations
- Uniquely wide range of products
- Strong product brands
- Unique materials expertise
- A wide range of value added services

Your Benefits

- Technological edge
- All from one source
- Specialised technological expertise
- Longer unit service life
- Competitive advantages, efficiency and lower costs

Hydrolysis-Resistant Polyurethanes – TPU Solutions for Drinking Water Applications

- Excellent resistance against abrasion
- High structural stability
- Approvals for use with drinking water

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