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# H-ECOPUR®

*successful applications*

- Food industry
- Steel industry
- Shipbuilding industry
- Water power plants
- Petrochemical industry
- Mobile hydraulics
- Mining industry



*Main use as:*

- rod seals
- piston seals
- wipers
- O-rings for water hydraulic and in biologically degradable oils
- for engineered plastic parts or advanced engineered plastic products

Owner, editor and publisher:  
 Economos Austria Gesellschaft m.b.H.  
 Gabelhoferstrasse 25  
 A-8750 Judenburg  
 Phone: +43 3572 82555-0  
 Fax: +43 3572 82555-58

Email: judenburg@economos.com  
 Internet: www.economos.com



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quality sealing and engineering plastics solutions

# ECONOMOS®

Sealing Material  
H-ECOPUR®

a world leader in the manufacture of high performance materials for sealing solutions presents

## H-ECOPUR®

an outstanding material for solving special sealing problems.

H-ECOPUR®, a world class polyurethane elastomer developed by ECONOMOS® especially for critical sealing purposes, offers a new scope of applications to our customers.

Compared to standard polyurethane elastomers, H-ECOPUR® shows outstanding material characteristics such as:

### Characteristics

- Superior tensile strength and pressure resistance
- Low compression set and high creep resistance
- Outstanding wear resistance and superior friction properties
- High chemical and hydrolysis resistance
- Extraordinary resistance against high-energy radiation
- Low gas permeability

### Chemical resistance

One of the most important benefits H-ECOPUR® is offering to our customers is the superior chemical resistance compared to common polyurethane elastomers. H-ECOPUR® is not only highly resistant against mineral oils but also against a wide range of polar fluids like

- Water and Sea Water
- Many alcohols like ethanol, etc.
- Silicone oils and greases
- Biologically degradable hydraulic fluids

### further benefits

Therefore H-ECOPUR® is not only used in mineral oil based hydraulic fluids like common polyurethanes but also in water-based fluids like

- HFA and HFB (in mining & steel industry, etc.)
- clear water hydraulics (hydro power stations, etc.)
- fire-resistant pressure fluids based on synthetic esters (HFD-U)
- Environmentally friendly hydraulic fluids based on a natural and synthetic esters (HETG and HEES)
- etc.



H-ECOPUR® semifinished products

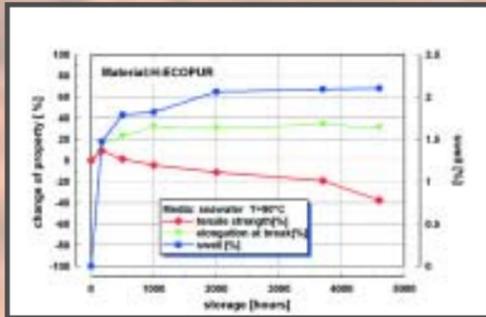


Fig.1: Influence of hot sea water (90°C) on the properties of H-ECOPUR® (tensile properties, volume change)

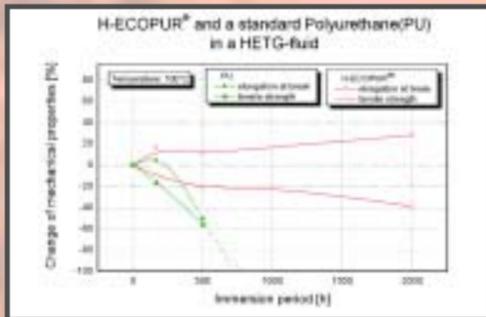


Fig.1: Friction force of various materials after a stillstand-period of 14 hours

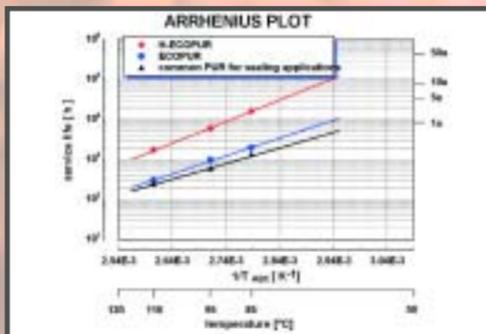


Fig.3: Arrhenius plot for ageing of various polyurethane elastomers in distilled water

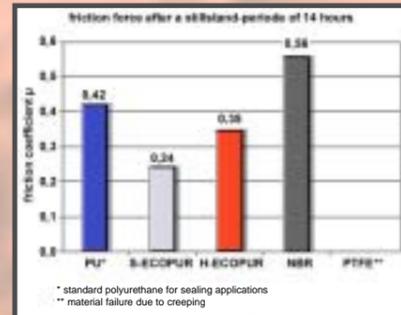


Fig.4: Friction coefficient  $\mu$  of various materials after a stillstand-period of 14 hours

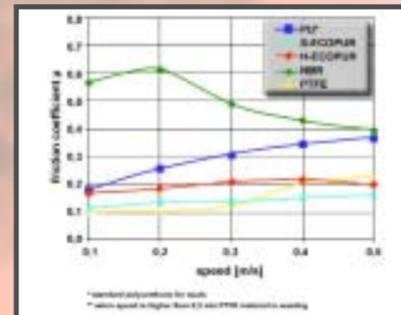


Fig.5: Friction coefficient  $\mu$  of various materials as a function of rotational speed

### Certificates and regulations

In addition to H-ECOPUR® is in conformance with various food regulations and therefore can be used for many food-, beverage- and healthcare applications.

H-ECOPUR® is available in a wide range of tube dimensions as well as selected plates for the machining of seals and engineered plastic parts and can also be directly injection-moulded in the shape of the finished part for high quantity demand.

The standard grade is in red colour, special grades in different colours and hardnesses are available.

- H-ECOPUR®-95A-NC (natural-coloured white-opaque)
- ECOPUR®-95A-BI (blue-coloured)
- XH-ECOPUR®-60D (dark-red with a hardness of 60 Shore D)
- H-ECOPUR®-85A (red, softer grade for special purposes)

H - ECOPUR (red)			
Thermoplastic polyurethane-elastomer (TPU) on the basis of polyester (hydrolysis resistant)			
		DIN YAU	ASTM YAU
Property	Unit	Value	Standard
Durometer hardness	SHORE A	95 ± 2	DIN 53505
Durometer hardness	SHORE D	48 ± 3	DIN 53505
Density	g/cm³	1,20 ± 0,01	DIN 53479
Tensile strength	N/mm²	≥ 50	DIN 53504
Elongation at break	%	≥ 330	DIN 53504
100 % modulus	N/mm²	≥ 13	DIN 53504
Compression set: 70°C / 24h, 20 % compression	%	≤ 27	----
Compression set: 100°C / 24h, 20 % compression	%	≤ 33	----
Compression set: 70°C/70h, 10 % compression	%	20	DIN 53517
Tear strength	N/mm	≥ 100	DIN 53513
Rebound resilience	%	29	DIN 53512
Abrasion	mm³	17	DIN 53516
Minimum service temperature	°C	-20	----
Maximum service temperature	°C	+110	----

### Main use as:

- Rod seals
- Piston seals
- Wipers
- O-rings for water hydraulic and in biologically degradable oils

H-ECOPUR® can also be machined into engineered plastic parts for applications requiring toughness, flexibility, wear resistance and resistance to common media.

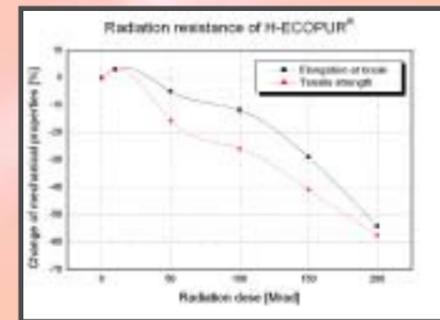


Fig.6: Change of mechanical properties as a function of different radiation doses

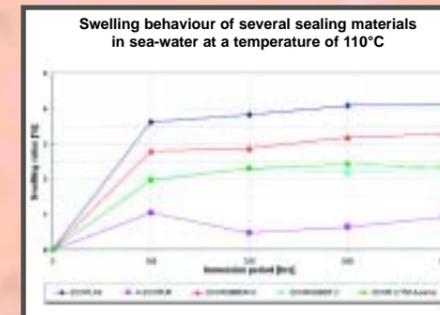


Fig.1: Swelling behaviour of several sealing materials in comparison with H-ECOPUR®

