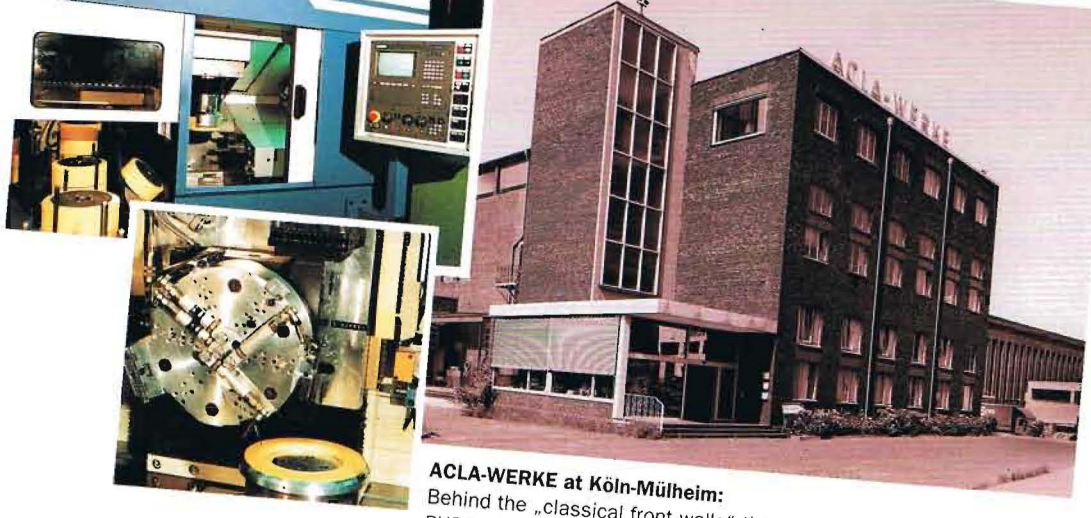
PUR-Elastomers for the Industry

Highly wear and tear resistant and dynamically used semifinished material of ACLATHAN®, ACLACELL®, AUTAN®, EUTHAN®

A large variety of materials thanks to experience and development of polyurethane for more than 40 years



ACLA-WERKE at Köln-Mülheim:
Behind the „classical front walls" the most modern PUR-technologies are developped

For each requirement the right PUR-elastomer

Extreme wear and tear requirements nowadays demand efficient and reliable materials. High-grade polyurethane elastomers with their unique possibilities of variation stand up to these requirements in an ideal way. A precondition for this are however a comprehensive knowledge in compounds and processing methods in order to use the full potential of the various polyurethane grades for each application.

The fine recipes and processing technologies of ACLA make all the difference

Polyurethane and polyurethane is not the same. Even if the basic compounds (among others Desmodur 15 or Vulkollan) are identical the properties of a polyurethane elastomer are mainly influenced by special additives, for example for elasticity, thermal stability, resistance against hydrolysis and processing know-how.

ACLA-WERKE has this decisive know-how contributing to the leadership in Europe also in the manufacture of PUR-semi-finished products:

- long experience in developping new recipes
- more than 60 standard PUR-compounds adapted to specific requirements

The most important standard materials for the manufacture of semifinished products are described hereafter.

Homogeneous polyurethane-elastomers

ACLATHAN

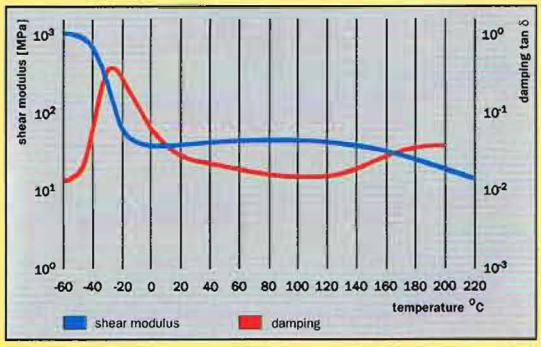
PUR-material with outstanding wear and tear as well as abrasion resistance and excellent thermal stability

Popular material hardnesses:
80 to 96 Shore A/55 Shore D

ACLATHAN - N

A modification of the basic recipe with softer standardization; especially recommended for abrasive applications

Popular material hardnesses:
60 to 90 Shore A.



Torsional oscillatio test as per DIN 5 with ACLATHAN/ 92 Shore A mater illustrates the viscoelastic behav within the temper range from -60° C to +200° C (-76° F to +392° F)

Cellular polyurethane elastomers

ACLACELL

The classical ACLA product among the cellular polyurethanes. The high dynamic loading capacity up to 50% with small transverse expansion and the compressibility up to 80% of the elastic height with temporary static load are the outstanding properties.

Popular densities:
300 to 650 kg/m³

AUTAN

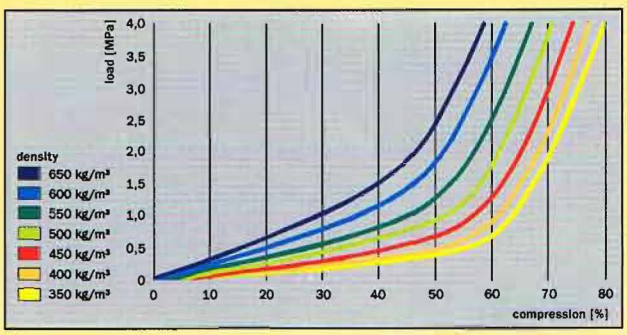
Polyether-elastomer with enormous damping properties. Therefore this material is especially suitable for shock absorption and safety buffers. The excellent resistance against hydrolysis allows the use in wet environment.

Popular densities:
400 bis 600 kg/m³

EUTHAN

Polyester-elastomer for special applications with microcellular structure and high elasticity. The uniform structure is especially suitable for small parts mechanically made.

Popular densities:
250 bis 650 kg/m³



Load/compression curve with 23° C (73,4° F) for ACLACELL-qualities with different densities

Delivery Program:
Variations in shape and execution

Multiplicity of dimensions

Semifinished material of ACLA-WERKE is available in many standard dimensions and shapes depending on the quality.

On account of new processing technologies sheets up to a length of 5.500 mm can be offered. Smaller dimensions than the max. size are deliverable on customer's request.

The size range concerning material and shapes is shown in the table.

Chemical properties

Besides the outstanding mechanical properties the homogeneous and cellular polyurethane elastomers convince by their chemical and physical properties:

- good resistance against mineral oil, grease and petrol
- constant temperature range from -40° C to +80° C (-40° F to +176° F)
- resistant against UV-radiation, ozone and many solvents [1]

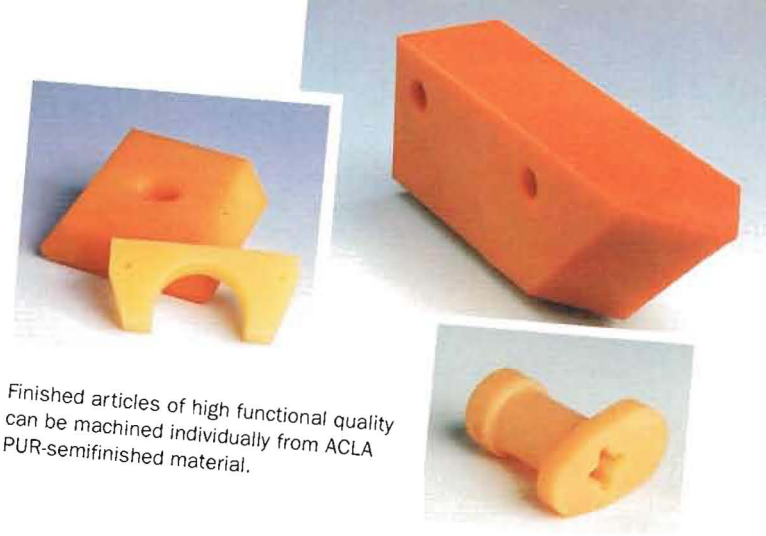
[1] Technical Sheets concerning resistance against the various mediums available on request

Manufacturing Program of PUR-Semifinished Material [2]

	Material	Type	Geometry of semi-finished products	Dimensions [mm]	
Homogeneous structure	ACLATHAN	1800/ca. 80 Shore A 2700/ca. 92 Shore A 4000/ca. 95 Shore A 5000/ca. 96 Shore A	Sheets/blocks Round bars Tubes/bushings	Length: up to 2.000 Width: up to 1.000 Length: up to 1.000 Ø: 3 - 1.000 Length: up to 1.000 I.D. - O.D.: 3 - 1.000	Profile thickness 1 - 50 Wall thickness at least 5
	ACLATHAN - N	45/ca. 45 Shore A 50/ca. 50 Shore A 60/ca. 60 Shore A 70/ca. 70 Shore A 80/ca. 80 Shore A 90/ca. 90 Shore A 94/ca. 94 Shore A	Sheets/blocks Round bars Tubes/bushings	Length: up to 2.000 Width: up to 1.000 Length: up to 1.000 Ø: 3 - 1.000 Length: up to 1.000 I.D. - O.D.: 3 - 1.000	Profile thickness 1 - 50 Wall thickness at least 5
	ACLATHAN - S	75 Shore A 80 Shore A	Sheets with or without textile backing	Length: up to 5.500 Width: up to 1.000	Profile thickness 5 - 25
Cellular structure	ACLACELL	2430/dens. ~ 300 kg/m³ 2435/dens. ~ 350 kg/m³ 2440/dens. ~ 400 kg/m³ 2445/dens. ~ 450 kg/m³ 2450/dens. ~ 500 kg/m³ 2455/dens. ~ 550 kg/m³ 2460/dens. ~ 600 kg/m³ 2465/dens. ~ 650 kg/m³	Sheets/blocks Round bars Tubes/bushings	Length: up to 500/700 Width: up to 210/250 Length: up to 300 Ø: 25 - 200 Length: up to 300 I.D. - O.D.: 4 - 1.140	Profile thickness 1 - 50 Wall thickness at least 8
	AUTAN	4 /dens. ~ 400 kg/m³ 45 /dens. ~ 450 kg/m³ 5 /dens. ~ 500 kg/m³ 55 /dens. ~ 550 kg/m³ 6 /dens. ~ 600 kg/m³ (tolerance: ± 50)	Sheets/blocks Round bars Tubes/bushings	Length: up to 500 Width: up to 250 Length: up to 300 Ø: 25 - 315 Length: up to 300 I.D. - O.D.: 4 - 800	Profile thickness 1 - 50 Wall thickness at least 10
	EUTHAN	3 /dens. ~ 300 kg/m³ 4 /dens. ~ 400 kg/m³ 5 /dens. ~ 500 kg/m³ 6 /dens. ~ 600 kg/m³ (tolerance: ± 50)	Sheets/blocks Round bars Tubes/bushings	Length: up to 500 Width: up to 250 Length: up to 500 Ø: 15 - 80 Length: up to 500 I.D. - O.D.: 4 - 80	Profile thickness 1 - 50 Wall thickness at least 10
	General information	Individual variations are possible	Cylindrical and flat parts without tooling charges	Special sizes on request	Tolerance as per DIN 7715

[2] Technical Sheets with detailed dimensions available on request

From semifinished
to the finished product



Finished articles of high functional quality can be machined individually from ACLA PUR-semifinished material.

Multiple possibilities for profiling and machining

PUR-semifinished material of ACLA-WERKE offers an economical advantage for the manufacture of finished parts by a multiplicity of machining possibilities.

By means of turning, drilling, sawing, knife and waterjet cutting, and milling shaped parts in various geometries can be produced. [1)]

Material combinations

Further interesting fields of application are opened by material combinations: Either the combination of different PUR-elastomers or the combination with other materials like metal or leather can be realized without problems.

Cementing, fixing elements, stabilizing cores or snap connections can be used as combination techniques.

Fields of Application for PUR-semifinished Material

	Branch	Application	Requirements	Material	Article
general	engineering and automotive industry, agricultural machines	hydraulics, pneumatics, pumps, fittings. trucks, trailers, tube, metal sheet and wire processing	abrasion resistance, elasticity, thermal stability, resistance against various mediums	ACLATHAN ACLACELL EUTHAN	seals, wipers, guide elements, balls, stators, shock-absorbers,
general	material handling, conveying plants	lifts, escalators, cranes ramps, forklift trucks, overhead conveyors, rails, pullies, elevators	sliding ability, oil resistance, natural stability, material conservation	ACLATHAN, ACLACELL, ACLAN, EUTHAN ACLATHAN - S	guide elements, rollers, linings, tyres, wheels, buffers, inserts for coupling, suckers, grippers
general	mining, contrete and stone construction, road construction, airport plants	underground and aboveground plants, road construction, cleaning equipment, bridge construction, wagon park area	wear and tear resistance, elasticity, UV- and ozone resistance, longevity	ACLATHAN - N AUTAN	buffers, wheels, scrapers, linings, snowplow scrapers, vibration dampers
processing ind.	ceramics, glass, wood, textile, paper, printing, packing and beverage industry	plate, hollow and optical glass processing chip-boards, wood treatment, cardboards, paper transport, offset and screen printing, weaving and texturizing plants	natural stability, no chalking, no silicones, wear and tear resistance, temperature resistant, no plasticizer	ACLACELL. EUTHAN, ACLATHAN - P ACLATHAN - S	polishing pads, cushions, cutting bars, suckers, grippers, friction bushes and rollers
public sector	authorities, municipal environmental protection	winter service, sewage-treatment plants, pumps, noise protection and oscillation damping, active and passive isolation	resistance against low temperatures, variable sizes and elasticity, environmental compatibility, abrasion resistance	ACLATHAN, ACLATHAN - N ACLACELL EUTHAN	buffers, resilient supports, rollers, scrapers
public sector	off-shore, leisure	shoe repair, bowling alley, orthopedics, winter and summer sport, port and ship equipment	resistant against seawater, low specific weight, oscillation damping, high compressive strength, good machinability	ACLATHAN - N ACLATHAN - S AUTAN	fender, cushions, wire rope protection sleeves, running boards, top lifts, rollers, springs

TÜV CERT
DIN ISO 9002 / EN 29002
Zertifikat: 09 100 3040

Since October 1993 ACLA-WERKE GMBH are certified by TÜV for scope „Manufacturing and Processing of technical articles of polyurethane elastomers"

[1)] Technical Sheets with machining specifications are available on request

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