

Baydur® – Versatile PUR Integral Foam



Discover Baydur® – Versatile polyurethane integral foam for a wide range of applications

Baydur® is a high-performance polyurethane integral foam with a density range of 150 to 1200 kg/m³, offering exceptional material design flexibility. Its outstanding flow properties and excellent mechanical strength make it the go-to choice for lightweight construction solutions where strength and durability are critical. Thanks to its low weight combined with high load-bearing capacity, Baydur® stands out as an efficient, eco-friendly alternative to traditional materials.

Utilizing the RIM (Reaction Injection Molding) process, Baydur® enables the production of complex molded plastic parts with high dimensional accuracy and smooth surface finishes. Its versatility extends to various sectors, including automotive, consumer goods and industrial manufacturing, where it is used for impact-resistant housings, among other things.. Additionally, Baydur® can be easily modified with additives to achieve specific fire-resistant properties, making it a highly adaptable material for custom applications.

Baydur® offers a wide range of advantages:

COST EFFICIENCY:	Cost-optimized production of large, molded parts
PRECISION:	Outstanding flow properties for complex geometries
DESIGN FREEDOM:	Flexible wall thicknesses for maximum design freedom
ADHESIVE STRENGTH:	Coatable with outstanding adhesion
COMPATIBILITY:	Simple combination with other materials
SAFETY:	Compliance with different fire resistance requirements possible with additives

Baydur® – Customized solutions for diverse applications

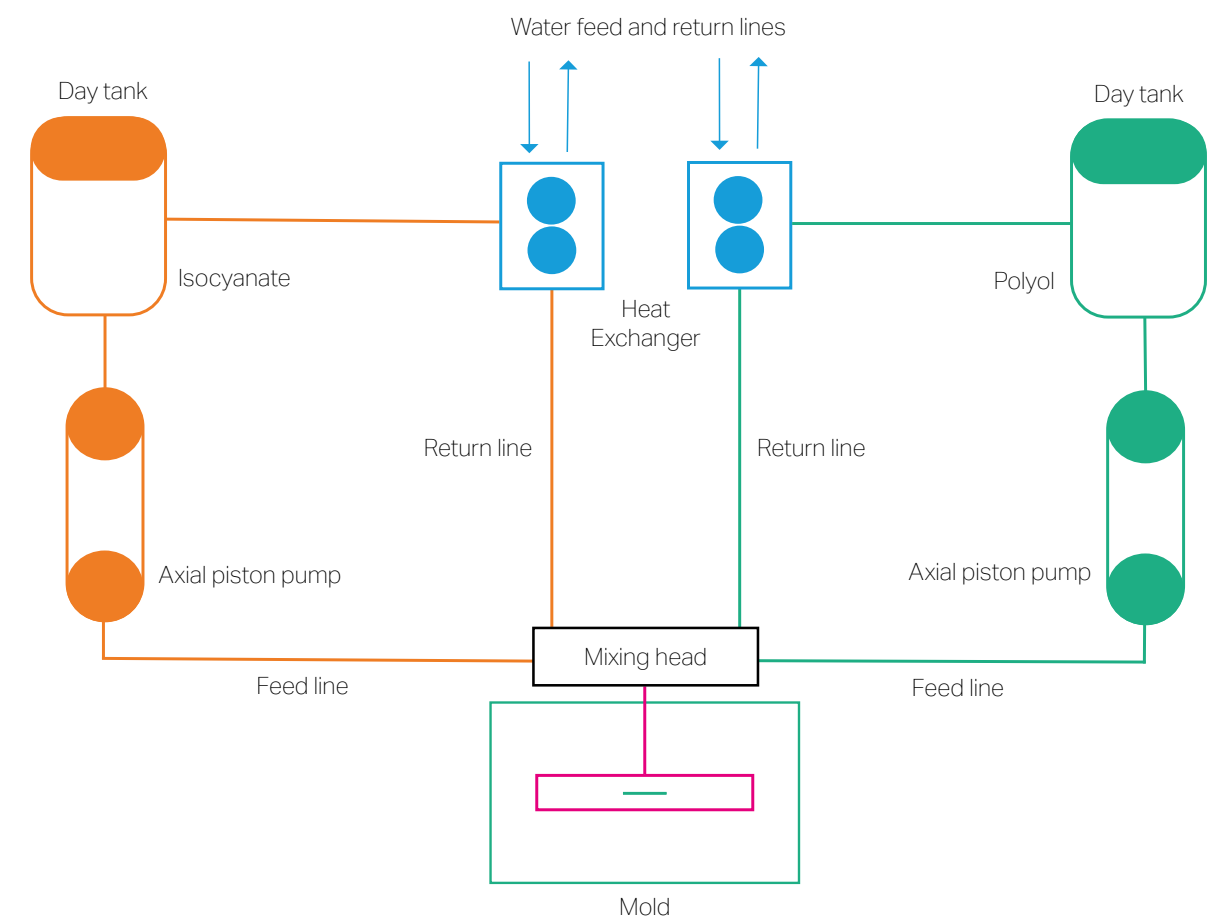
Baydur® is a versatile construction material made of polyurethane, which is processed in the RIM process. It offers a wide range of mechanical properties and can be adapted with filler materials or different densities. The outstanding material properties of Baydur®

make it a convincing lightweight construction material and wood substitute. The product groups Baydur® 20, 40, 60, 110, GS and CSP cover a wide range of applications, from insulation materials to highly durable construction parts.

Efficient precision – RIM process for cost-effective, high-quality production

The RIM process enables precise production with low cavity pressure, ensuring consistent quality and high-detail surface reproduction. Baydur® systems such as GS and CSP can also be processed in pour risers using low-pressure machines, which allows for cost-effective epoxy tools in small-scale production and prototyping. The production of our polyols and isocyanates is subject to strict quality controls, ensuring optimal performance.

Additionally, these systems offer excellent adhesion to a wide range of substrates, making them ideal for multi-material assemblies. With sustainable production practices and rigorous testing, Baydur® delivers reliable solutions tailored to meet diverse industry needs.



Layout of a typical RIM machine.

Baydur® 20 – Extra light and dimensionally stable

Baydur® 20 impresses with its exceptionally low raw density of 150–250 kg/m³ and a robust, durable outer skin. With wall thicknesses of over 40 mm, this material provides an impressive combination of low weight and high impact resistance. Baydur® 20 is not only light, but it can also be processed in many ways – it can be

cut, nailed and glued with no problem. These features make Baydur® 20 the ideal choice for decorative applications such as imitation stucco, decorative trim and foam filling of window frames. Rely on Baydur® 20 for durable, stable and aesthetically pleasing solutions.

PROPERTY	Unit	Standard	Value ¹⁾
Preferred wall thickness	mm		10–50
Density	kg/m³	DIN EN ISO 845	150–250
Flexural E-modulus	N/mm²	DIN EN ISO 178	100–250
Flexural strength	N/mm²	DIN EN ISO 178	5–8
Tensile E-modulus	N/mm²	DIN EN ISO 527-2	130–200
Tensile strength	N/mm²	DIN EN ISO 527-2	3–5
Compression strength (10%)	N/mm²	DIN EN 826	2–4
Surface hardness (Shore D)		DIN ISO 48-4	15–30
Shrinkage (molded part)	%		> 0.3

¹⁾ Average property level of different Baydur 20 systems; measured in 10 mm samples



High-performance window profile made with Baydur® 20:
Enhanced durability, thermal insulation and lightweight design.

Baydur® 40 – Wood in perfect form

The outstanding flowability of Baydur® 40 provides ideal conditions for producing large, complex components. With a raw density of 250–500 kg/m³ and a hard, durable surface, this integral foam combines the benefits of wood with the flexibility of modern materials.

Baydur® 40 enables a wide variety of shapes with little effort and easy processing in cost-effective tools. Ideal for applications that require dimensional stability and a robust surface. Give your projects the perfect shape – durable and precise.

PROPERTY	Unit	Standard	Value ¹⁾
Preferred wall thickness	mm		8–30
Density	kg/m³	DIN EN ISO 845	250–500
Flexural E-modulus	N/mm²	DIN EN ISO 178	200–680
Flexural strength	N/mm²	DIN EN ISO 178	7–25
Tensile E-modulus	N/mm²	DIN EN ISO 527-2	250–650
Tensile strength	N/mm²	DIN EN ISO 527-2	4–13
Compression strength (10%)	N/mm²	DIN EN 826	4–15
Impact stength	kJ/m²	DIN EN ISO 179	5–10
Surface hardness (Shore D)		DIN ISO 48-4	37–60
Shrinkage (molded part)	%		> 0.4

¹⁾ Average property level of different Baydur 40 systems; measured in 10 mm samples



Baydur® 40: Ideal for applications that require dimensional stability and a robust surface.

Baydur® 60 – The versatile construction material

Baydur® 60 opens almost unlimited structural design possibilities and is ideal for complex, large-format mold geometries. It is especially beneficial for large components with variable wall thicknesses, since this material combines high stiffness with low weight. Baydur® 60 also provides good self-release properties and is

available with flame protection according to UL94 V0. These features make Baydur® 60 the ideal choice for technical housing, windows and interior applications in mobile homes. Rely on Baydur® 60 when you need a versatile, stable and lightweight construction material that meets the highest standards.

PROPERTY	Unit	Standard	Value ²⁾
Preferred wall thickness	mm		4–15
Density	kg/m³	DIN EN ISO 845	600
Bending E-modulus	N/mm²		600–950
Bending strength	N/mm²	DIN EN ISO 178	20 –40
Flexural E-modulus	N/mm²	DIN EN ISO 178	600–800
Flexural strength	N/mm²	DIN EN ISO 527-2	15–20
Tensile strain at break	%	DIN EN ISO 527-2	6–10
Impact strength	kJ/m²	DIN EN ISO 527-2	10–40
Heat deflection temperature (flatwise) Method B	°C	DIN EN ISO 75-2	70–100
Surface hardness (Shore D)		DIN ISO 48-4	60–70
Shrinkage (molded part)	%	DIN ISO 7619-1	0.3–1.0
Fire performance (small burner test)		DIN 4102-1	B2
Fire performance (UL) ¹⁾		UL94	V0 ³⁾

¹⁾ With flame retardants;
²⁾ Average property level of different Baydur 60 systems; measured in 10 mm samples;
³⁾ For a specific wall thickness (depending on system)



Baydur® 60 opens almost unlimited structural design possibilities and is ideal for complex, large-format mold geometries.

Baydur® 110 – The specialist for thin-walled, large-size molded parts

Baydur® 110 is a microcellular RIM material with short de-molding cycles of approximately 90 seconds, making it ideal for cost-efficient processing. It allows for thin-walled molded parts with high inherent rigidity, strength and an excellent surface finish. Baydur® 110 is available

with flame protection according to UL94 V0 and suitable for technical housing parts, optical equipment, medical housings and refrigerators. Rely on Baydur® 110 for demanding, thin-walled and large-size applications.

PROPERTY	Unit	Standard	Value ²⁾
Preferred wall thickness	mm		4–15
Density	kg/m³	DIN EN ISO 845	1050
Flexural strength	N/mm²	DIN EN ISO 178	1600–2200
Flexural strength	N/mm²	DIN EN ISO 178	50–100
Tensile E-modulus	N/mm²	DIN EN ISO 527-2	1600–2100
Tensile strength	N/mm²	DIN EN ISO 527-2	40–55
Tensile strain at break	%	DIN EN ISO 527-2	5–25
Impact strength	kJ/m²	DIN EN ISO 179	55–75
Heat deflection temperature (flatwise) Method B	°C	DIN EN ISO 75 B	75–110
Surface hardness (Shore D)		DIN EN ISO 75-2	70–80
Shrinkage (molded part)	%		0.6–1.0
Fire performance (small burner test)		DIN 4102-1	B2
Fire performance (UL) ¹⁾			V0 ³⁾

¹⁾ With flame retardants;
²⁾ Average property level of different Baydur 110 systems; measured in 4 mm samples;
³⁾ For a specific wall thickness (depending on system)



Baydur® 110 is available with flame protection according to UL94 V0 and suitable for technical housing parts, optical equipment and medical housings.

Baydur® CSP – Compact with simplified processing

Baydur® CSP is a compact material, which stands out due to its cost-efficient processing. It requires only minimal investment in machines and tools and can also be processed in epoxy resin tools. Ideal for producing large, thin-

walled components, Baydur® CSP provides an outstanding surface finish. These features make it the perfect choice for technical housing and chairs. For reliable efficiency and quality, choose Baydur® CSP.

PROPERTY	Unit	Standard	Value ¹⁾
Preferred wall thickness	mm		4–10
Density	kg/m³	DIN EN ISO 845	1050–1180
Flexural E-modulus	N/mm²	DIN EN ISO 178	1400–2000
Impact stength	kJ/m²	DIN EN ISO 179	15–50
Heat deflection temperature (flatwise) Method B	°C	DIN EN ISO 75-2	100–110
Surface hardness (Shore D)		DIN ISO 48-4	approx. 75
Shrinkage (molded part)	%		approx. 0.9

¹⁾ Average property level of different Baydur CSP systems; measured in 10 mm samples



Ideal for producing large, thin-walled components, Baydur® CSP provides an outstanding surface finish.

Baydur® GS – Solid and robust

Baydur® GS is a solid pouring system that allows simple, pressure-free processing. This material features high wear and rotting resistance as well as outstanding chemical resistance and is suitable for wall thicknesses of up to 60 mm. Baydur® GS is frequently used as a durable

replacement for cast iron and is the ideal choice for demanding applications such as wastewater pumps and manhole covers. Choose Baydur® GS when you want to rely on robustness and durability.

PROPERTY	Unit	Standard	Value ¹⁾
Preferred wall thickness	mm		6–60
Density	kg/m³	DIN EN ISO 845	> 1150
Flexural E-modulus	N/mm²	DIN EN ISO 178	1300–1740
Tensile E-modulus	N/mm²	DIN EN ISO 527-2	130–1400
Tensile strength	N/mm²	DIN EN ISO 527-2	35–45
Tensile strain at break	%	DIN EN ISO 527-2	34–68
Impact stength	kJ/m²	DIN EN ISO 179	71
Heat deflection temperature (flatwise) Method B	°C	DIN EN ISO 75-2	75–100
Surface hardness (Shore D)		DIN ISO 48-4	80
Shrinkage (molded part)	%		0.9–1.1

¹⁾ Average property level of different Baydur GS systems; measured in 10 mm samples



Baydur® GS features high wear and rotting resistance.



Covestro Deutschland AG
Kaiser-Wilhelm-Allee 60
51373 Leverkusen
Germany

solutions.covestro.com
info@covestro.com

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