

BAYDUR[®] VP.PU 1498

General Properties and Applications

Baydur VP.PU 1498 is a polyol formulation which is reacted with Desmodur[®] 44P01 or Desmodur VP.PU 26IK01 or Desmodur VP.PU 26BD14 by the RIM method to produce moldings in the density range of 1,050 to 1,150 kg/m³.

The mold-foamed, microcellular products of this reaction are Baydur 110 and with suitable flame retardants Baydur 110 FR-N, Baydur 110 FR-2N, Baydur FR-3 and Baydur 110 FR-6.

The ready-to-use polyol formulation contains no fillers and exhibits phase stability at temperatures above 18 °C.

Sampling

Moisture access must be prevented.

The product should be homogenized before processing.

Specification Property	Value	Unit of measurement	Method
Hydroxyl number	465 ± 20	mg KOH/g	2201-0211801-90D
Water content	0.3 ± 0.1	%	2201-0212401-90D
Viscosity 25°C	1,500 ± 200	mPa·s	2201-0212202-90D

Other Data* Property	Value	Unit of measurement	Method
Density 25°C	approx. 1.06	g/ml	DIN 51757
pH value	approx. 9.5		2201-0240101-92D

* These values provide general information and are not part of the product specification

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Packaging

Steel drums¹⁾, road tankers, tank containers, or IBCs on request.

¹⁾ Drums must not be emptied under pressure, but either by means of a pump or siphon or by pouring.

This rules out processing direct from the drum under pressure.

Storage

Drums should be protected against strong sunlight and always kept sealed to protect the contents from moisture or damp air.

Storage temperature: 20 - 35 °C

Material stored below 18 °C must be warmed to at least 20 °C and thoroughly homogenized by stirring before it is processed.

Shelf life (from date of delivery): 6 months

Labeling and REACH applications

This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet. Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently valid Safety Data Sheet.

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Directions for Processing

Recommended processing temperature: 28 - 35°C

Processing formulation for Baydur 110

Baydur VP.PU 1498	100 pbw
Desmodur VP.PU 26IK01	128 pbw
or	
Desmodur 44P01	128 pbw

Processing formulation for Baydur 110 FR-N (black pigmented)

Baydur VP.PU 1498	100 pbw
Exolit [®] AP 422, Suppliers Clariant AG ²⁾	17 pbw
Isopur-Schwarzpaste DN, Suppliers ISL Chemie GmbH	4,5 - 8 pbw
Desmodur VP.PU 26IK01	128 pbw

Processing formulation for Baydur 110 FR-2N

Baydur VP.PU 1498	100 pbw
Exolit [®] AP422, Suppliers Clariant AG ²⁾	17 pbw
Desmodur 44P01	128 pbw

Processing formulation for Baydur 110 FR-2N (BK)

Baydur VP.PU 1498	100 pbw
Exolit [®] AP422, Suppliers Clariant AG ²⁾	17 pbw
Isopur-Schwarzpaste DN, Suppliers ISL Chemie GmbH	4,5 pbw
Desmodur 44P01	128 pbw

Processing formulation for Baydur 110 FR-3

Baydur VP.PU 1498	100 pbw
Exolit [®] AP422, Suppliers Clariant AG ²⁾	17 pbw
Desmodur VP.PU 26BD14	133 pbw

Processing formulation for Baydur 110 FR-6

Baydur VP.PU 1498	100 pbw
Exolit [®] AP422, Suppliers Clariant AG ²⁾	17 pbw
Desmodur VP.PU 26IK01	128 pbw

If flame retardants with the same chemical description but different trade names are used, it is the responsibility of the producer of the finished parts to ensure that the resultant polyurethane has the necessary fire safety classification in accordance with the relevant fire test standard.

²⁾ Ammonium polyphosphate

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Machine processing data

Temperature of raw materials: 28 °C

When processing the polyol component we recommend 20 - 30 % by volume aeration (at normal atmospheric pressure)

Curing time approx. 9 s

Maximum mold filling time approx. 7 s

Mold temperature 60-65 °C

Samples produced by free-rise foaming for the purpose of checking the processing characteristics of the product must be removed from the production area immediately after evaluation due to the risk of spontaneous combustion. They should be stored in a specially designated fire-protected area until they have cooled down completely.

Mechanical properties

Mechanical, thermal and other properties were measured on specimens cut from a 1,000 x 500 x 4 mm sheet.

The values are those obtained from processing Baydur VP.PU 1498 with Desmodur VP.PU 26IK01.

Properties	Unit	Standard	Baydur 110	Baydur 110 FR-N
Density	kg/m ³	DIN EN ISO 845	1050	1050
Tensile strenght	MPa	DIN EN ISO 527	50	50
Elongation at break	%	DIN EN ISO 527	14	12
Flexural strength at 3.5 % strain in outer fibers	N/mm ²	DIN EN ISO 178	58	58
Flexural modulus of elasticity	N/mm ²	DIN EN ISO 178	2000	2000
Impact strength at 22 °C	KJ/m ²	DIN EN ISO 179	57	50
Surface hardness Shore D			75-77	75-77
Heat deflection temperature Method B (0.45 MPa)	°C	DIN EN ISO 75-2	105	105
Coefficient of linear thermal expansion [#]	1/K	ASTM E 831	100*10 ⁻⁶	100*10 ⁻⁶
Water absorption (50*40*10 mm) [#]	%	DIN 53495	< 0,6	< 0,6
Electrical properties				#2
Surface resistivity	Ω	ASTM D257	3,5 ¹⁶	9,7 ¹⁵
Volume resistivity	Ω*m	ASTM D257	2,8 ¹³	5,4 ¹³
Dielectric strength penetration resistance	kV/mm	ASTM D149	-	21

[#]Other properties (individual measurements, mold dwell time: 90 s, mold temperature: 60 °C)

^{#2}Other properties (individual measurements, mold dwell time: 90 s, mold temperature: 60 °C; 3mm; Baydur 110 FR-2N)

These values are given only as a guide and must be verified in each individual case on finished parts manufactured under the processor's production conditions.

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Shrinkage

The longitudinal shrinkage was measured on 1,000 mm x 500 mm test sheets at a density of 1,050 kg/m³.

The mold temperature 60 °C, demolding time 120 seconds.

After storage for 24 hours in a standard atmosphere, the shrinkage was determined as followed:

(test method: DA-IT-41-03)

Sheet thickness	Shrinkage
4 mm	0.73%
6 mm	0.87%
8 mm	0.99%

Adding ammonium polyphosphate during the production of Baydur 110 FR reduces shrinkage by approx. 0.05 – 0.10 %.

Mold shrinkage will vary with different processing conditions and, in particular, when changing to moldings of different geometries.

Lengthy storage at either high or very low humidity can result in greater or lesser degrees of shrinkage.

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Fire performance

UL 94V:

Baydur 110 FR-N, Baydur 110 FR-2N, Baydur 110 FR-3 and Baydur 110 FR-6 Baydur 110 FR are the flame retardant versions of Baydur 110 and contain ammonium polyphosphate.

Name	Density range [kg/m³]	Wallthickness [mm]	Fire rating
Baydur 110 FR-N (BK)	1,000 - 1,100	≥ 3.5	UL-94 V0
Baydur 110 FR-2N (NC)	1,000 - 1,100	≥ 3	UL-94 V0
Baydur 110 FR-2N (BK)	1,000 - 1,100	≥ 3.5	UL-94 V0
Baydur 110 FR-3	1,000 - 1,100	≥ 4	UL-94 V0 and 5VA
Baydur 110 FR-6	1,000 - 1,100	≥ 3.1	UL-94 V0

The products are listed by Underwriters Laboratories Inc. under File no.: E83364.

DIN-4102:

Without the addition of flame retardants, at a density of approx. 1050 kg/m³ and with wall thicknesses of 4 mm the system achieve the flammability rating B2 (DIN 4102).

The methods described in this publication for testing the fire performance of polyurethane and the results quoted do not permit direct conclusions to be drawn regarding every possible fire risk there may be under service conditions.

Furthermore, this does not release the producer of the finished parts from the obligation to carry out suitable tests on his end product with respect to fire performance and/or fire risk in order to guarantee conformity with the required fire safety standard.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

This product is not designated as „Medical Grade“ (1) and therefore shall not be considered a candidate for the manufacture of a medical device or of intermediate products for medical devices, which are intended under normal use to be brought into direct contact with the patient's body (e.g., skin, body fluids or tissues, including indirect contact to blood)*. [This product is also not designated for Food Contact (2), including drinking water, or cosmetic applications. If the intended use of the product is for the manufacture of a medical device or of intermediate products for medical devices, for Food Contact products or cosmetic applications Covestro must be contacted in advance to provide its agreement to sell such product for such purpose.] Nonetheless, any determination as to whether a product is appropriate for use in a medical device or intermediate products for medical devices, for Food Contact products or cosmetic applications must be made solely by the purchaser of the product without relying upon any representations by Covestro.

1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.
2) As defined in Commission Regulation (EU) 1935/2004.

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