

ENERTITE® HY 1602/12 High Yield

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Date 27.09.2023

Application:

The ENERTITE system was developed as a sprayed (in-situ) open-cells polyurethane foam thermal insulation. This system is particularly formulated to obtain a foam with an applied density between 7 and 10 kg/m³ and is suitable to be used in interior walls and ceilings, when a reaction to fire Euro class E is required.

The system has a low GWP (1) and zero ODP.

The spray process is especially suitable for insulating large areas, where greater thickness of insulation needs to be built up quickly.

Intended use: Thermal insulation of buildings

Chemical Characteristics:

A Component: ENERTITE HY 1602/12

Mixtures of polyols and additives. Product does not contain halogenated blowing agents (100% water blown).

B Component: IsoPMDI 92140

MDI (diphenylmethane diisocyanate).

Supply:

The type of supply for the components will be decided after consultation with our Sales Office.

Storage, Preparation:

Polyurethane components are moisture sensitive. Therefore, they must always be stored in sealed, closed containers. More detailed information should be obtained from the separate data sheet entitled "Information for incoming material control, storage, material preparation and waste disposal" and from the component data.

The A component (Polyol) must be homogenised by basic (mechanical) stirring before processing.

Possible Hazards:

The B-component (Isocyanate) irritates the eyes, respiratory organs and the skin. Sensitization is possible through inhalation and skin contact. MDI is harmful by inhalation. On processing these, take note of the necessary precautionary measures described in the Material Safety Data Sheets (MSDS). This applies also for the possible dangers in using the A-component (Polyol) as well as any other components.

See also our separate information sheet "Safety- and Precautionary Measures for the Processing of Polyurethane Systems. Use our Training Program "Safe Handling of Isocyanate."

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Waste Disposal:

More detailed information is provided in our country specific pamphlet.

Consumer articles, medical products:

There are national and international laws and regulations to consider if it is intended to produce consumer articles (eg. articles that necessitate food or skin contact, toys etc.) or medical objects out of BASF products. Where these do not exist, the current legal requirements of the European Union for consumer articles as well as medical products should be sufficient. Consultation with our Sales Office and our Ecology and Product Safety Department is strongly recommended.

Handling and installation instruction:

See our "Guide for the Application of Elastospray LWP, SKYTITE LWP and ENERTITE systems".

Component data:

The following data have been obtained at a temperature of 20 °C and they are typical values:

Property	Unit	A Component (Polyol)	B Component (Isocyanate)	Method
Viscosity at 25°C	mPa.s	140	210	G133-07*
Density at 25°C	g/cm ³	1,16	1,23	G133-08*
NCO content	%, weight	-	31,5	G133-06*
Shelf Life	days	120	180	

* BASF Methods

Reaction profile: (components at 20 ± 2 °C)

Property	Unit	ENERTITE HY 1602/12	Method
Mixing ratio (weight)		100:118	G132-01*
Cream Time (CT)	s	5	G132-01*
Gel Time (GT)	s	9	G132-01*
Tack Free Time (TFT)	s	10	G132-01*

* BASF method accordance with the described method in standard EN 14315-1

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Process:

The spraying process consists of projecting an impinged mixture of the two components onto surface which is meant to be insulated. The mixture reacts on the surface, adhering to it instantaneously, and expands into rigid foam. The following conditions should be observed for the correct application of the system:

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Machine Conditions	
Mixing Ratio of Components:	1:1 (volume)
Component Temperatures:	50 - 60 °C (recommended 55 °C)
Component Pressure:	50 – 70 bar (recommended 60 bar)
Environmental Conditions	
Ambient Temperature:	Between +5 and +40 °C
Relative Humidity:	< 85 %
Wind speed:	≤ 30 km/h
Substrate Conditions	
Substrate Temperature:	Between +5 and +40 °C
Substrate Humidity:	Porous substrates ≤ 20 % Nonporous substrates Without condensations on substrate

The thickness of each applied layer should be between 3 and 30 cm. Nevertheless, it is recommended to spray a minimum thickness layer of 10 cm to obtain the maximum yield.

The distance from the spray gun to the substrate is recommended to be approx. 80 cm.

Suitable substrates:

Under favorable weather conditions, the rigid spray polyurethane foam ENERTITE has a good adhesion to most construction materials (concrete, brick, wood, steel). They must be clean (without dust or grease), dry and, in case of metallic substrates, free of rust. If the adhesion is not acceptable under these conditions, a previous treatment like a primer may be necessary.

Nevertheless, due to the wide range of substrates and primers used in construction, it is not possible to guarantee perfect adhesion of this system to all surfaces. It is therefore recommended to test adhesion in each case.

See our "Guide for the Application of Elastospray LWP, SKYTITE LWP and ENERTITE systems" for more detailed information about the general installation process and the suitable substrates.

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CE Marking:



0370
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23

DoP-No.: **ES19-0042-01-CPR-23**

www.elastospray.eu/dop

EN 14315-1:2013

In-situ formed sprayed rigid polyurethane (PU) foam system

ThIB – Thermal Insulation for Buildings

Reaction to fire – **E (valid for all thicknesses)**

Thermal conductivity: **see performance chart**

Water permeability (expressed as short-term water absorption by partial immersion): **NPD**

Water vapour transmission (expressed as water vapour resistance factor μ): **NPD**

Compressive strength: **NPD**

Continuous glowing combustion: **no harmonized test method available**

Durability of reaction to fire against ageing/degradation: **reaction to fire does not decrease with time**

Durability of thermal resistance against ageing/degradation: **see performance chart**

Durability of compressive strength against ageing/degradation: **compressive strength does not decrease with time**

Designation code:

PU EN 14315-1- CCC1-CT5(20)-GT9(20)-TFT10(20)-FRB15,5(20)

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Performance Chart:
(in accordance with EN 14315-1):

Type of facing: None or open diffusion		
Thickness	Declared aged thermal conductivity (λ_D) W/m·K	Thermal resistance level (R_D) m ² ·K/W
30 mm	0,039	0,75
35 mm	0,039	0,90
40 mm	0,039	1,00
45 mm	0,039	1,15
50 mm	0,039	1,25
55 mm	0,039	1,40
60 mm	0,039	1,55
65 mm	0,039	1,65
70 mm	0,039	1,80
75 mm	0,039	1,90
80 mm	0,039	2,05
85 mm	0,039	2,15
90 mm	0,039	2,30
95 mm	0,039	2,45
100 mm	0,039	2,55
105 mm	0,039	2,70
110 mm	0,039	2,80
115 mm	0,039	2,95

Type of facing: None or open diffusion		
Thickness	Declared aged thermal conductivity (λ_D) W/m·K	Thermal resistance level (R_D) m ² ·K/W
120 mm	0,039	3,10
125 mm	0,039	3,20
130 mm	0,039	3,35
135 mm	0,039	3,45
140 mm	0,039	3,60
145 mm	0,039	3,75
150 mm	0,039	3,85
155 mm	0,039	4,00
160 mm	0,039	4,10
165 mm	0,039	4,25
170 mm	0,039	4,35
175 mm	0,039	4,50
180 mm	0,039	4,65
185 mm	0,039	4,75
190 mm	0,039	4,90
195 mm	0,039	5,00
200 mm	0,039	5,15

Declared aged thermal conductivity value (λ_D) at 10 °C calculated with statistical procedure 90/90 and rounded upwards to the nearest 0,001 W/m·K.

Thermal resistance value (R_D) calculated with aged thermal conductivity at 10 °C and rounded downwards to the nearest 0,05 m² K / W.

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Foam Physical Properties declared in the CE Marking:

The expansion of the foam is made by means of CO₂ action (coming from the chemical reaction of the water with the isocyanate).

Property	ENERTITE HY 1601/23	Unit	Standard
Closed cells content	< 20 (CCC1)	%	ISO 4590
Thermal conductivity at 10°C Aged value	See Performance Chart	W/(m·K)	EN 14315-1
Reaction to Fire (naked foam)	Class E	-	EN 13501-1

Complementary Information:

- **Guide for the Application of Elastospray LWP, SKYTITE LWP and ENERTITE systems.**

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