Application:

The **Pur'fect Plus** system has been developed to produce a very low density open-celled semi-rigid polyurethane foam.
The main application is as pour-in-place system to be injected in cavity walls in construction for thermal insulation.
Due to its cell structure, the foam is also suitable as acoustic absorber.
Intended use: Thermal insulation of buildings.
Prior to use the product suitability should be examed by the user.

Chemical Characteristics:

Component A:	**Pur'fect Plus**	Mixture of polyols and additives (Catalysts, Surfactants and blowing agent (water). Product does not contain HFC.
Component B:	**Pur'fect 100**	MDI (diphenylmethane diisocyanate)

Supply:

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

Storage, Preparation:

Polyurethane components are moisture sensitive. Therefore they must be stored at all times in sealed, closed contianers. 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.

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 Safaty 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."

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 Technisol 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.

Component data:

The following properties were obtained at a temperature of 20ºC and correspond to the typical values.

Property	Unit	Comp. A	Comp. B	Method
Viscosity at 20ºC	mPa.s	1000	300	G133-07*
Density at 20ºC	g/cm^3	1,07	1,24	G133-08*
Shelf Life	Months	6	6	

*Technisol methodes

Reaction Profile and Free Rise Density: (components at 20ºC and the indicated mixing ratio)

Property	Unit	Value	Method
Mixing ratio (weight)		100:115	G132-01*
Cream time (CT)	s	22	G132-01*
Gel time (GT)	s	85	G132-01*
Tack Free Time (TFT)	s	155	G132-01*
Beaker Free Rise Density (FRB)	kg/m^3	20.0	G132-01*

***Technisol method in accordance with the method described in standard EN 14318-1

Process:

The **Pur'fect Plus** is generally applied using a high pressure machine.

The following parameters should be observed when processing the material with a machine:

- component temperature 25 to 40ºC
- Pressure: 65 – 90 Bar

On the mixing gun, it is recommended to inject air into the mixing head/tube, in order to improve the mixing quality.

The following procedure is used to fill hollow spaces:

Firstly, the volume of the space to be filled has to be calculated. The volume multiplied by the desired density, results in the weight of product that has to be injected.

WEIGHT = VOLUME DENSITY

Secondly, in order to avoid any irregular development in the reaction, the material must be injected before the material starts to expand (before the cream time) When processing the components with a machine, the output rate must be considered:

Injection Time < Cream Time
Injection Time = Weight / Output rate

Also, the pressure exerted by the expanding foam has to be considered. Care should be taken when the completion of injections is approaching soffit level or below any cavity closers such as window cills.

FINAL DENSITY / FREE RISE DENSITY = DENSIFICATION FACTOR

Normally, a densification factor between 1.3 and 1.5 (final foam density of 20 – 24 kg/m^3) is used with this system. In this range, pressure exerted varies between 1 and 1.5 kg/cm^2. So it is important. Do not overdensify the foam.

In case of cavity fill, the liquid mixture has to be injected through holes, well-practiced in the inner or outher wall with a height separation between them of maximum 0,6m. In width next to another maximum 0,8m.

We begin by injection into the holes in the bottom up so that the liquid mixture fall to the bottom of the cavity and then grow until the foam reaches the hole. When the foam from the bottom has completed its growth (rise time) will proceed to the injection of the holes in the top of the cavity untill this is completely filled.

Suitable substrates:	

Under favorable weather conditins, the rigid pour-in-place polyurethane foam Pur;fect 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 construccion, it is not possible to guarantee perfect adhesion of this system to all surfaces. It is therefore recommended tot test adhesion in each case.

See our "guide for the application of Pur'fect systems for the in-situ cavity fill" for more detailed information about the general installation process and the suitable substrates.

CE Marking:

CE

0957
1136

Technisol Supplies B.V.
Bijsterhuizen 10-11, 6604 LA WIJCHEN, The Netherlands
14
DoP-No: **NL17-0001-01-CPR-14**

EN-14318-1:2013

In-situ formed dispensed rigid **polyurethane (PU) foam system**

ThIB – Thermal Insulation **for Builings**

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

Thermal conductivity: **see performance chart**

Water permeability (expressed as short term water absorption by partial immersion): **2,5kg/m2**

Water vapour transmission **(expressed as water vapour resistance factor μ**): **10**

Compressive strenght: 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.**

PU EN 14318-1 CCC1-CT22(20)-GT85(20)-TFT155(20)-FRB20(20)MU10-W2,5

Performance Chart:

(in accordance with EN 14318-1):

Type of facing: None or diffusion open		
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	1.30
55 mm	0,039	1.40
60 mm	0,039	1.55
65 mm	0,039	1.70
70 mm	0,039	1.80
75 mm	0,039	1.95
80 mm	0,039	2.05
85 mm	0,039	2.20
90 mm	0,039	2.35
95 mm	0,039	2.45
100 mm	0,039	2.60
105 mm	0,039	2.75
110 mm	0,039	2.85
115 mm	0,039	3.00

Type of facing: None or diffusion open		
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	3.25
130 mm	0,039	3.40
135 mm	0,039	3.50
140 mm	0,039	3.65
145 mm	0,039	3.80
150 mm	0,039	3.90
155 mm	0,039	4.05
160 mm	0,039	4.15
165 mm	0,039	4.30
170 mm	0,039	4.45
175 mm	0,039	4.55
180 mm	0,039	4.70
185 mm	0,039	4.85
190 mm	0,039	4.95
195 mm	0,039	5.10
200 mm	0,039	5.20

Declared aged thermal conductivity value (λ_D) at 10ºC 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 10ºC and rounded downwards to the nearest 0,05m^2 K/W.

Foam Physical Properties declared in the CE Marking:

The foam expansion is made by the action of CO2 (coming from the chemical reaction between water and isocyanate), in such a way that the HFC gases proportion inside the closed cells of the unaged foam is greater than 30%.

Property	**Pur'fect Plus**	**Unit**	**Standard**
Thermal conductivity at 10ºC Aged value	See Performance Chart	W/(m·K)	EN 14318-1

Reaction to fire (naked foam)	Class F (valid for all thicknesses)	-	EN 13501-1
Short term water absorption	2,5	Kg/m2	EN 1609
Water vapour resistance factor	10	µ	EN 12086
Closed cells content	<20	%	ISO 4590

Complementary Information:

- **Guide for the application of Pur'fect systems for the in-situ cavity fill**.