

# Pur'fect RWF/HFO

Edition: 01

Date: 07-11-2022

## Application:

The **Pur'fect RWF/HFO** system is a 4th generation sprayed (in-situ) thermal insulation. This system is particularly formulated to obtain a foam with an applied density between 35 and 42 kg/m<sup>3</sup> and is suitable to be used in walls, ceilings and floors. Emphasizes the application on façades where, besides the thermal insulation, it performs the function of waterproofing.

### Intended use: Thermal insulation of buildings

The **Pur'fect RWF/HFO** product line is free of ingredients that contribute to global warming due to the greenhouse effect or that deplete the ozone layer.

The **Pur'fect RWF/HFO** system uses as blowing agent a Hydrofluoro-olefine (HFO) with ultra-low global warming potential by greenhouse effect (GWP<sub>100</sub> = 1) and low thermal conductivity value. The permanent nature of this blowing agent confers the product high thermal insulating properties. Aside from its excellent properties as an insulation material, this system has following advantages:

- Insulation and waterproofing in one step.
- Excellent water tightness throughout his life.
- High resistance to cracking.
- Excellent adhesion to the substrate. The spray foam bonds to most surfaces without the need for glues or mechanical fasteners.
- Air tightness.

## Chemical Characteristics:

**Component A: Pur'fect RWF/HFO** Mixture of polyols and additives (Catalysts, Surfactants and blowing agents\*\*). Product does not contains HFCs.

\*\* The product is free of ingredients with high global warming potential by greenhouse effect (GWP) affected by the regulation (EU) No 517/2014.

**Component B: Pur'fect 100** 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 be stored at all times 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.

# Pur'fect RWF/HFO

**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."

**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 Supplies 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 (25 °C):**

Property	Unit	Comp. A	Comp. B	Method
Viscosity at 25°C	mPa.s	280	220	G133-07*
Density at 25°C	g/cm <sup>3</sup>	1,18	1,23	G133-08*
OH Value	mgKOH/g	260	-	G133-01*
NCO Content	%, weight	-	31,5	G133-06*
Shelf Life	days	90	180	

\*Technisol methodes

**Reaction Profile and Free Rise Density:** (components at 20 ± 2°C and the indicated mixing ratio)

Property	Unit	Pur'fect RWF/HFO	Method
Mixing ratio (weight)		100:104	G132-01*
Cream time (CT)	s	4	G132-01*
Gel time (GT)	s	7	G132-01*
Tack Free Time (TFT)	s	9	G132-01*
Beaker Free Rise Density (FRB)	kg/m <sup>3</sup>	33,5	G132-01*

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

# Pur'fect RWF/HFO

**Process:**

The spraying process consists of projecting a pulverized 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:

<b>Pur'fect RWF/HFO</b>	
<b>Machine Conditions</b>	
Mixing Ratio of Components:	1:1 (volume)
Component Temperatures:	30 – 50 °C
Component Pressure:	60 – 110 Bar
<b>Environmental Conditions</b>	
Ambient Temperature:	Between +5 and +40 °C
Relative Humidity:	< 85 %
Wind speed:	≤ 30 km/h
<b>Substrate Conditions</b>	
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 1,5 and 4 cm. To maintain an adequate dimensional stability, it is not recommended to apply thicker layers.

**IMPORTANT:** When applying thick layers (3 – 4 cm), it is very important to wait a minimum of 10 minutes between passes in order to give the foam enough time to release the heat coming from the exothermic reaction, otherwise it can occur delamination.

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

# Pur'fect RWF/HFO

**Performance Chart:**

(in accordance with EN 14315-1):

Type of facing: None or diffusion open		
Thickness	Declared aged thermal conductivity ( $\lambda_D$ ) W/m·K	Thermal Resistance level ( $R_D$ ) m <sup>2</sup> ·K/W
30 mm	<b>0,027</b>	<b>1,10</b>
35 mm	<b>0,027</b>	<b>1,30</b>
40 mm	<b>0,027</b>	<b>1,45</b>
45 mm	<b>0,027</b>	<b>1,65</b>
50 mm	<b>0,027</b>	<b>1,85</b>
55 mm	<b>0,027</b>	<b>2,05</b>
60 mm	<b>0,027</b>	<b>2,20</b>
65 mm	<b>0,027</b>	<b>2,40</b>
70 mm	<b>0,027</b>	<b>2,60</b>
75 mm	<b>0,027</b>	<b>2,80</b>
80 mm	<b>0,026</b>	<b>3,10</b>
85 mm	<b>0,026</b>	<b>3,30</b>
90 mm	<b>0,026</b>	<b>3,50</b>
95 mm	<b>0,026</b>	<b>3,70</b>
100 mm	<b>0,026</b>	<b>3,90</b>
105 mm	<b>0,026</b>	<b>4,10</b>
110 mm	<b>0,026</b>	<b>4,30</b>
115 mm	<b>0,026</b>	<b>4,45</b>

Type of facing: None or diffusion open		
Thickness	Declared aged thermal conductivity ( $\lambda_D$ ) W/m·K	Thermal resistance level ( $R_D$ ) M <sup>2</sup> ·K/W
120 mm	<b>0,025</b>	<b>4,85</b>
125 mm	<b>0,025</b>	<b>5,05</b>
130 mm	<b>0,025</b>	<b>5,25</b>
135 mm	<b>0,025</b>	<b>5,45</b>
140 mm	<b>0,025</b>	<b>5,65</b>
145 mm	<b>0,025</b>	<b>5,85</b>
150 mm	<b>0,025</b>	<b>6,10</b>
155 mm	<b>0,025</b>	<b>6,30</b>
160 mm	<b>0,025</b>	<b>6,50</b>
165 mm	<b>0,025</b>	<b>6,70</b>
170 mm	<b>0,025</b>	<b>6,90</b>
175 mm	<b>0,025</b>	<b>7,10</b>
180 mm	<b>0,025</b>	<b>7,30</b>
185 mm	<b>0,025</b>	<b>7,50</b>
190 mm	<b>0,025</b>	<b>7,70</b>
195 mm	<b>0,025</b>	<b>7,90</b>
200 mm	<b>0,025</b>	<b>8,10</b>

Declared aged thermal conductivity value ( $\lambda_D$ ) 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 0,05m<sup>2</sup> K/W.

# Pur'fect RWF/HFO

Foam Physical Properties			
Property	Pur'fect RWF/HFO	Unit	Standard
Short term water absorption by partial immersion	≤ 0,20	kg/m <sup>2</sup>	EN 1609
Water vapour resistance factor (μ)	≥ 70	-	EN 12086
Closed cells content	≥ 90	%	ISO 4590
Substrate adhesion strength perpendicular to faces	>100	kPa	EN 14315-1
Compression strength (10% deformation)	≥ 200	kPa	EN 826
Deformation under load and temperature			
Load	40	kPa	EN 1605
Temperature	70 ± 1	°C	
Total thickness reduction	≤ 5,0	%	
Test duration	168 ± 1	h	
Thermal conductivity at 10°C			
Aged value	See Performance Chart	W/(m·K)	EN 14315-1
Reaction to Fire (naked foam)	Class E (valid for all thicknesses)	-	EN 13501-1

**Suitable substrates:**

Under favorable weather conditions, the rigid spray polyurethane foam Pur'fect RWF/HFO 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.