

1. PRODUCT DESCRIPTION

CROSSIN HARD 40 is a two-component polyurethane spray system used for the production of **closed-cell** rigid foam with self-extinguishing properties. Excellent insulating properties of the foam were obtained thanks to the use of HFO - a fourth generation foaming agent from the group of hydrofluoroolefins with a low global warming potential $GWP^1 = 1$ and a zero ozone depletion potential indicator $ODP^2 = 0$.

 COMPONENT POLY:	CROSSIN HARD 40 POLY
 COMPONENT ISO:	ISO KOMPONENT B

The system was developed based on **AxionPure** technology.

AxionPure technology is a comprehensive approach to the design and manufacturing polyurethane systems, resulting in a significant reduction in volatile organic compound (VOC) emissions.



2. APPLICATION

CROSSIN HARD 40 is designed to perform internal and external thermal insulation by spraying. This product has been specially developed for thermal insulation of floors. It can also be used for insulation of: walls, ceilings, attics, cellars, foundations, tanks, pipelines and other elements of unusual geometry. The CROSSIN HARD 40 polyurethane system can be applied in residential and commercial construction, in agriculture or industrial areas.

Furthermore, CROSSIN HARD 40 functions as a barrier against radon penetration from the environment.

3. COMPONENT CHARACTERISTICS

COMPONENT POLY	
Formulated polyol mixture in the form of an oily liquid without suspensions, with a color from light red to dark brown depending on the production batch	
Density at 20°C	1,17 ± 0,02 g/cm ³
Viscosity at 20°C	400 ± 100 mPa·s

COMPONENT ISO	
Mixture of aromatic polyisocyanates, principally diphenylmethane diisocyanate; brown color liquid, without suspensions.	
Density at 20°C	1,22 ± 0,02 g/cm ³
Viscosity at 20°C	350 ± 100 mPa·s

4. FOAMING CHARACTERISTICS IN LABORATORY CONDITIONS

Reaction times and apparent density obtained in laboratory conditions (at 20°C) with manual foaming in a laboratory vessel, at a stirrer speed of approx. 7000 rpm.

 Cream time:	3 ± 1 seconds
 Gel time:	10 ± 3 seconds
 Tack free time:	13 ± 4 seconds
 Core density:	40 ± 2 kg/m ³

5. RECOMMENDED PROCESSING CONDITIONS

CROSSIN HARD 40 is a system that should be processed using specialized foaming units equipped with a spray head. Recommendations are based on spray foam experience using a Graco Reactor H-XP3 machine with a FUSION AP gun (mix chamber 5252).

 Volumetric components ratio	POLY : ISO - 100 : 100
 Temperature settings of the machine:	
Heating of the components	POLY and ISO: 35 - 45°C
Heating of the hoses	35 - 45°C
Component's pressure	70-100 Bar (1015-1450 psi)
Component's temperature in drums	15 - 30°C

Pressure settings for the POLY component and the ISO component should be the same. The recommended ambient temperature is between 15°C and 35°C. However, the suggested temperature of the substrate is from 15°C to 50°C with relative humidity of the environment up to 70% and humidity of the porous substrate up to 15%. Non-porous substrate should be dry.

Insulated surfaces should be prepared in advance. They should not contain dust, oil, loose fragments and other substances that may reduce the adhesion of the foam.

Before spraying, carefully protect the surfaces of adjacent objects, floors, furniture, etc., to avoid accidental soiling during spraying - remember that the sprayed foam has very good adhesion, so it can be difficult to remove.

In order to obtain a proper insulation layer, at least two even layers of foam should be sprayed, so that the total insulation thickness is not less than 30 mm. We recommend to wait until the foam stabilizes between spraying successive layers of insulation (layer temperature below 30°C). All layers of insulation should be done in one working day.

After applying the CROSSIN HARD 40 system, it is recommended to ventilate the room until the smell disappears. In the absence of adequate ventilation, forced air movement should be ensured using dedicated devices. If the foam is exposed to direct UV radiation (e.g., sunlight), it should be protected.

When processing the CROSSIN HARD 40 system, the recommendations of the machine manufacturer as well as the instructions and information contained in the Safety Data Sheets of both components should be taken into account.

Warning: Do not exceed the recommended layer thickness (maximum layer thickness is 35 mm)!

¹GWP, from Global Warming Potential - the potential to create the greenhouse effect - an indicator used to quantify the impact of a substance on the greenhouse effect.

²ODP, from Ozone Depletion Potential - ozone depletion potential - an indicator used to quantify the impact of a substance on the ozone layer.

6. PHYSICAL AND MECHANICAL PROPERTIES OF SPRAYED FOAM

The measurements were carried out on a foam cut from a sample made using a specialized spray machine:

Parameter	Result	Standard
Core density	$\geq 38 \text{ kg/m}^3$	EN 1602:2013
Reaction to fire classification	E	EN 13501-1:2019
Short-term water absorption with partial immersion	$W_p \leq 0,10 \text{ kg/m}^2$	EN ISO 29767:2019
Coefficient of thermal conductivity	$\lambda_{\text{mean},i} = 0,020 \text{ W/(m}\cdot\text{K)}$	EN 12667:2002
	$\lambda_{90,90} = 0,021 \text{ W/(m}\cdot\text{K)}$	EN 12667:2002
Aging value λ_D for thickness:		
 $d_N < 80 \text{ mm}$	0,026 W/(m·K)	EN 12667:2002 NB-CPR/SG19-17/167r2
 $80 \text{ mm} \leq d_N < 120 \text{ mm}$	0,025 W/(m·K)	
 $d_N \geq 120 \text{ mm}$	0,024 W/(m·K)	
Compressive stress at 10% relative strain	$\sigma_{10} \geq 250 \text{ kPa}$	EN 826:2013
Deformation under compressive load (1st stage 40kPa/48h RT, 2nd stage 40kPa/168h 70°C)	< 5%	EN 1605:2013
Water vapor diffusion resistance coefficient	$\mu \geq 60$	EN 12086:2013
Dimensional stability:		
 70°C, 90% rH, after 48h	DS(70,90)3	EN 1604:2013
 -20°C, after 48h	DS(-20,-)3	EN 1604:2013
Insulation application temperature range	-80°C to +120°C	-
Foam adhesion perpendicular to the substrate/tensile strength	$\geq 100 \text{ kPa}$	EN 1607:2013
Closed cell content	$\geq 90 \%$	EN ISO 4590:2016
Emission of volatile organic compounds - French VOC Regulation	Class A+	EN 16516+A1:2020
Radon diffusion coefficient	$R > 3$, „radon tight“	ISO/TS 11665-13

Full mechanical properties of the foam are achieved after 48 hours of seasoning.

7. PACKAGING INFORMATION

CROSSIN HARD 40 system is packed in metal drums with a capacity of 216 dm³ or IBC containers with a capacity of 1000 dm³.

the assessment of performance made in accordance with the European harmonized standard EN 14315-1:2013.

- CE marking and a Declaration of Performance: 30DOP-2022-EN.
- Product has a hygienic certificate PZH (Państwowy Zakład Higieny) B.BK.60111.0804.2022

8. TRANSPORT AND RECOMMENDED STORAGE CONDITIONS

The CROSSIN HARD 40 system should be stored in a dry room at a temperature of 10 to 25°C. Unconditionally protect against moisture and direct sunlight. The components of the system should be stored in tightly closed packages.

The shelf life of the compound POLY in the manufacturer's original sealed packaging, under the recommended storage conditions, is: **3 MONTHS** from the date of manufacture.

Transport regulations apply in accordance with section 14 of the Product Safety Data Sheet

10. ADDITIONAL INFORMATION

The data contained in this Technical Information is based on the results of tests performed in our laboratory and on practical experience. These data do not guarantee the final properties of the finished product. The results obtained may differ from those given in the case of using the product in conditions other than those assumed.

At the same time, we would like to inform you that we provide assistance in the implementation and use of our CROSSIN HARD 40 system and, if necessary, we help in the selection of system parameters. In all matters related to the purchase and use of CROSSIN HARD 40, please contact our technical and sales representatives.

9. LEGAL REGULATIONS AND CERTIFICATES

- CROSSIN HARD 40 does not contain foaming agents that deplete the ozone layer, in accordance with European Union regulations on the marketing and use of controlled substances - Regulation (EU) No. 2024/590 of February 7, 2024.
- Polyurethane system placed on the market in accordance with the European Union Regulation No. 305/2011, along with