

1. PRODUCT DESCRIPTION

EKOPRODUR S0541 is a two-component system for the production of closed-cell, self-extinguishing, rigid polyurethane foam. 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 (polyol mixture) | EKOPRODUR S0541 POLY |
| COMPONENT ISO (isocyanate) | ISO KOMPONENT B |

2. APPLICATION

EKOPRODUR S0541 is designed to perform internal and external thermal insulation by spraying. It can be used for thermal insulation of roofs, foundations and floors. The EKOPRODUR S0541 polyurethane system can be applied in residential and commercial construction, in agriculture or industrial areas.

3. COMPONENTS CHARACTERISTIC

COMPONENT POLY – polyol blend formulation in the form of oily liquid without suspension, from light red to dark brown.

COMPONENT ISO – mixture of aromatic polyisocyanates, especially diphenylmethane diisocyanate. Brown liquid without suspension.

| Parameter | POLY | ISO | Unit |
|-------------------|-------------|-------------|-------------------|
| Density at 20°C | 1,17 ± 0,02 | 1,22 ± 0,02 | g/cm ³ |
| Viscosity at 20°C | 450 ± 100 | 350 ± 100 | mPa·s |

4. FOAMING CHARACTERISTIC IN LABORATORY CONDITIONS

Reaction times and the apparent density of the core were measured in laboratory conditions (at 20°C) with manual foaming in a laboratory vessel - stirrer about 7000 rpm.

| Parameter | Value | Unit |
|---|-----------|-------------------|
| The volumetric ratio of components POLY:ISO | 100 : 100 | |
| Cream time | 5 ± 1 | s |
| Gel time | 13 ± 3 | s |
| Tack free time | 16 ± 4 | s |
| Apparent core density | 50 ± 5 | kg/m ³ |

5. RECOMMENDED PROCESSING CONDITIONS

EKOPRODUR S0541 is a system designed for spraying, and should be processed using specialized foaming units equipped with a spray head. Recommendations are based on experience in applying the foam using Graco Reactor H-XP3 machine and FUSION AP spray gun (5252 mixing chamber).

| | | |
|--|-----------------------|--------------|
| The volumetric ratio of components POLY:ISO | 100 : 100 | |
| Recommended machine settings | | |
| Parameter | Value | Unit |
| Heating temperature POLY and ISO | 35 – 45 | °C |
| Heating the hoses | 35 – 45 | °C |
| Component’s pressure | 70-100 (1015-1450) | Bar (psi) |
| Component’s temperature in drums | 15 – 30 | °C |
| Optimal processing conditions | | |
| Ambient temperature | 15 – 35 | °C |
| Recommended surface temperature | 15 – 50 | °C |
| Relative ambient humidity | < 70 | % |
| Humidity of porous base | < 15 | % |
| Humidity of non-porous base | 0 | % |

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

Before spraying, carefully protect the surfaces of adjacent objects such as windows, doors, floors, furniture, etc., to avoid accidental soiling during spraying – keep in mind that the sprayed foam has very good adhesion and may be difficult to remove later from undesirable places.

Pressure settings for the POLY component and the ISO component should be the same.

In order to obtain the best insulation parameters, at least two uniform layers of foam should be sprayed so that the total thickness is greater than 20 mm. Between spraying successive layers of insulation, wait until the foam stabilizes (layer temperature below 30°C). All layers of insulation should be done in one day.

IMPORTANT: Do not exceed the recommended layer thickness - the maximum thickness of each insulation layer is 25 mm.

After application the EKOPRODUR S0541 system, it is recommended to ventilate the room until the odor disappears. If the ventilation is not adequate, 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.

Before starting work with the EKOPRODUR S0541 system, read the Safety Data Sheets of both components.

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

² ODP, Ozone Depletion Potential – potential of depleting ozone layer – indicator used to quantify the impact of substance on the ozone layer.

6. PERFORMANCE PROPERTIES

Usable properties of spray foam, applied using a specialized machine:

| Parameter | Value | Unit | Standard |
|--|-------------------------------------|-------------------|--|
| Apparent core density | ≥ 49 | kg/m ³ | EN 1602 |
| Flammability class | Class E | - | EN 13501-1 |
| Resistance to external fire | B _{ROOF} (t ₁) | - | EN 13501-5 |
| Thermal conductivity $\lambda_{mean,i}$ | 0,020 | W/(m·K) | EN 12667 |
| Thermal conductivity, $\lambda_{90,90}$ | 0,021 | W/(m·K) | EN 12667 |
| Aging value, λ_0 for the thickness: | | | EN 12667 + NB- CPR/SG19- 17/167r2 |
| d _N < 80mm | 0,026 | W/(m·K) | |
| 80 mm ≤ d _N < 120 mm | 0,024 | W/(m·K) | |
| d _N ≥ 120 mm | 0,023 | W/(m·K) | |
| Compressive stress at 10% relative deformation, σ_{10} | ≥ 300 | kPa | EN 826 |
| Deformation under compressive load (1st stage 40kPa/48h RT, 2nd stage 40kPa/168h 70°C) | <5 | % | EN 1605 |
| Adhesion of the foam perpendicularly to the surface | ≥ 100 | kPa | EN 1607 |
| Tensile strength perpendicular to faces | ≥ 200 | kPa | EN 1607 |
| Resistance coefficient of water vapour diffusion, μ | ≥ 70 | - | EN 12086 |
| Short-term water absorption by partial immersion, W_p | ≤ 0,12 | kg/m ² | EN ISO 29767 |
| Dimensional stability at defined temperature: 70°C, 90% rH, after 48 h | DS(70,90)3 | - | EN 1604 |
| Dimensional stability: -20°C, after 48 h | DS(-20,-)3 | - | EN 1604 |
| Insulation application temperature range | -80 to +120 | °C | - |
| Closed-cell content | ≥ 90 | % | EN ISO 4590 |

Full mechanical properties of the foam obtained after 48 hours of seasoning.

7. PACKAGING

Metal barrels with a capacity of 216 dm³, IBC with a capacity of 1000 dm³.

8. RECOMMENDED STORAGE CONDITIONS

Both components should be stored in tightly closed containers in dry place at a temperature of 10 - 25°C. Protect against moisture and direct sunlight. Shelf life of component POLY stored in original sealed manufacturer's packaging, under recommended conditions, is **3 MONTHS**.

9. LEGAL REGULATIONS

- EKOPRODUR S0541 does not contain any foaming agents that deplete the ozone layer. This is in accordance with the provisions of the European Union (EU) Regulation on Ozone Depleting Substances (ODS Regulation) - Regulation (EU) No. 2024/590 of 7 February 2024
- Polyurethane system EKOPRODUR S0541 has been introduced to the market in accordance with the EU Regulation No. 305/2011, together with an assessment of the performance made in accordance with the European harmonized standard EN 14315-1:2013
- This product has CE marking and Declaration of Performance No. 27DOP-2022-EN.
- The product has a hygienic certificate of PZH (Państwowy Zakład Higieny).
- Transport regulations apply in accordance with section 14 of the Product Safety Data Sheet

10. ADDITIONAL INFORMATION

Data included in this technical information are based on the results of our laboratory tests and practical experience as well. This data does not guarantee the properties of the final product. The results obtained may differ from those listed above especially when the use of the product is under the conditions other than originally intended. Hence, we recommend testing performance of the product for specific application at own degree. Foam application and conditions of use are beyond manufacturer control and contractor is responsible for correct selection. Guidelines for use are included in technical Information sheets (TDS) and safety data sheets (SDS). Failing to meet the recommended conditions can have negative impact on the foam application process and its parameters.

IMPORTANT: We are happy to provide technical and substantive assistance in implementing and applying polyurethane system EKOPRODUR S0541. At the same time when it is necessary and possible, we help in adjusting relevant parameters. In all matters related to the purchase and usage of polyurethane system EKOPRODUR S0541 we encourage you to use a direct contact to our technical and commercial representative or by writing to prodex@pcc.eu.