

Product Declaration - DGNB New Construction Office and Administration Buildings (NBV12)

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| MANUFACTURER | H-Bau Technik GmbH |
| PRODUCT NAME | PENTAFLEX® Sealing technology |

Product Characteristics

PENTAFLEX® is a joint sealing system for producing watertight concrete structures (white tank). The PENTAFLEX® elements are completely provided with a special coating and have been designed for structures with premium utilisation. They reliably seal joints in the wall/foot or wall/ceiling area, joints in the wall/wall or floor/floor area and joints in cast-in-situ concrete and component wall constructions reliably.

Product Rating

- The product meets the requirements of quality level 1 to 4 and contributes to achieve 100 (of max. 100 achievable) checklist points according to criterion 'ENV1.2 Local Environmental Impact'.
- The product does not lead to toxic or corrosive fumes in case of fire. Hence this product contributes to achieve 20 (of max. 20 achievable) checklist points according to criterion 'SOC 1.7 Safety and Security'.

| The product contains the following components: | Mass per unit [%] |
|---|--------------------------|
| K1 Steel plate | 90% |
| K2 Waterreactive coating | 10% |

About DGNB Products - www.dgnb.de

This declaration helps to assess products easily according to the certification system DGNB. Products are not reviewed or certified by DGNB. DGNB credit requirements cover the performance of materials in aggregate, not the performance of individual products or brands. Therefore the project team or the manufacturer is responsible to declare the compliance with the project requirements to achieve DGNB points. Detailed information are on the next pages.

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Product assessment of complete system

| Topic | Number | Criteria | Relevance | Evaluation |
|--|----------|--|-----------|---|
| Environmental Quality (ENV) | ENV1.1 | Life cycle Assessment - Emissions | | |
| | ENV1.2 | Local environmental impact | ✓ | Quality Level 4 is fulfilled |
| | ENV1.3.1 | Responsible procurement (Wood) | | |
| | ENV1.3.2 | Responsible procurement (Formwork) | | |
| | ENV1.3.3 | Responsible procurement (Natural Stone) | | |
| | ENV2.1 | Life cycle Assessment - Primary Energy | | |
| | ENV2.2 | Potable water demand and wastewater volume | | |
| | ENV2.3 | Land Use | | |
| Economic Quality (ECO) | ECO1.1 | Building-related life-cycle costs | | |
| | ECO2.1 | Suitability for conversion | | |
| | ECO2.2 | Marketability | | |
| Sociocultural and Functional Quality (SOC) | SOC1.1 | Thermal Comfort | | |
| | SOC1.2 | Indoor Air Quality | | |
| | SOC1.3 | Acoustic Comfort | | |
| | SOC1.4 | Visual Comfort | | |
| | SOC1.5 | Occupant control | | |
| | SOC1.6 | Quality of outdoor spaces | | |
| | SOC1.7 | Safety and security | ✓ | The product does not lead to toxic or corrosive fumes in case of fire |
| | SOC2.1 | Access for all | | |
| | SOC2.2 | Public access | | |
| | SOC2.3 | Cyclist facilities | | |
| | SOC3.1 | Design and urban quality | | |
| | SOC3.2 | Integration of public art | | |
| | SOC3.3 | Floor Plan Qualities | | |
| Technical Quality (TEC) | TEC1.1 | Fire prevention | | |
| | TEC1.2 | Noise protection | | |
| | TEC1.3 | Building envelope quality | | |
| | TEC1.4 | Adaptability of Technical Systems | | |
| | TEC1.5 | Ease of cleaning and maintenance | | |
| | TEC1.6 | Ease of dismantling and recycling | | |
| | TEC1.7 | Sound immission control | | |
| Process Quality (PRO) | PRO1.1 | Comprehensive project brief | | |
| | PRO1.2 | Integral design | | |
| | PRO1.3 | Design concept | | |
| | PRO1.4 | Sustainability aspects in tender phase | | |
| | PRO1.5 | Documentation for Facility Management | | |
| | PRO2.1 | Environmental impact of construction | | |
| | PRO2.2 | Construction quality assurance | | |
| | PRO2.3 | Systematic commissioning | | |
| Site Quality (SITE) | SITE1.1 | Site location risks | | |
| | SITE1.2 | Public image and social conditions | | |
| | SITE1.3 | Access to transportation | | |
| | SITE1.4 | Access to specific-use facilities | | |

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Product assessment for criteria ENV1.2 - Local environmental impact

The product fulfills the requirements for Quality Level 1-4

Assessment: **Quality Level 4**

Goals and Relevance

Certain materials, construction products and preparations are a risk for soil, air, groundwater and surface water as well as for human's health, flora and fauna. In order to minimize risks for humans and the local environment, materials, (construction) products and preparations need to be reduced, avoided or substituted, which due to their material properties or ingredients are a risk for surface and ground water, soil or air. Especially those materials, (construction) products and preparations must be reduced, avoided or replaced, which affect human health, flora and fauna or harm within a short-, medium / or long-term period. This affects the entire life cycle - from production, processing at site, use of (building) inventory and disposal (dismantling, recycling, landfilling). These local risks are assessed material and product related. Hence eco-and human toxicological impact categories of LCA can not be applied due to lack of evaluation and measurement procedures.

Product Assessment

| | Relevant Products | Requirements of Quality Levels | Assesment of Product | Evaluation |
|----|--|--|----------------------|------------------------|
| 27 | Factory coated metal components: cladding, doors, radiators, heating and cooling ceilings. Hot-dipped galvanizing are not considered as coatings for the purposes of this criterion. Subject: Primer and finish coat (for example, paints, varnishes, powder coatings) | Quality Level 1 No use of lead, cadmium and chromium VI compounds Quality Level 2 No use of lead, cadmium and chromium VI compounds Quality Level 3 No use of lead, cadmium and chromium VI compounds Quality Level 4 No use of lead, cadmium and chromium VI compounds | | Quality Level 4 |

Other remarks on classification

The VOC content in operation (without water) is 0g / l.

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Product assessment for criteria SOC1.7 - Safety and Security

The product fulfills the requirements for prevention of fumes.

Assessment: **20 of 20**
Checklist Points

Goals and Relevance

A high sense of security contributes fundamentally to the comfort of human being. The goal is to avoid dangerous situations as much as possible and to reduce the impact of a non-preventable damage, as far as possible. The criterion safety and security assesses also the performance of products in case of fire.

Product Assessment

| | Relevant Requirements | Requirements of Quality Levels | Assesment of Product | Evaluation |
|-----|--------------------------------|---|--|----------------------------|
| 2.3 | Prevention from risks of fumes | 20 Checklist Points The product does not lead to toxic or corrosive fumes in case of fire | The product does not lead to toxic or corrosive fumes in case of fire. | 20 Checklist Points |

Other remarks on classification