




# Vulmsidizol

## CO<sub>2</sub>

-  ENVIRONMENTALLY FRIENDLY PRODUCT
-  WATER-BASED COATING
-  HEALTHY – ELIMINATION OF HARMFUL EFFECTS ON HUMAN HEALTH

### Product description:

**Vulmsidizol CO<sub>2</sub>** is a two-component water-based composition intended for the production of waterproof insulation system, developed on the basis of hydraulic binders, modifying additives and fillers. It fills and seals pores and cracks with thickness of up to 0.3 mm, and creates a perfect protection against moisture, water and carbon dioxide. It is resistant to UV radiation. The product increases the resistance of concrete against the effects of alkali (urea), de-icing and gritter salts, weak acids, atmospheric factors (acid rain, smog) and many organic solvents and diluents. After application, the coating has very low gas permeability (K = 0.38 FPM); it is resistant to heavy mechanical stress and the surface has non-skid properties. Insulating coatings withstand pressure of up to 1.0 MPa.

### Use:

**Vulmsidizol CO<sub>2</sub>** is particularly suitable for sealing of buildings, surface and underground tanks, swimming pools, collectors, tunnels, cooling towers, pipelines, reservoirs, water tanks, water supply networks and the like. It is used for all concrete surfaces and surfaces exposed to severe weather conditions such as cement and lime plasters, concrete, fibre-cement boards and chlorinated rubber coatings, which require solely disinfection by chlorination. Coating's specific feature is its strong resistance to a build-up of CO<sub>2</sub> and other pollutants, and therefore it is particularly useful in tunnels.

### Characteristics / Benefits:

- high stability of the colour and stability to dechalking
- high resistance to water and chemicals
- overcoatability of old chlorinated rubber coatings possible
- easy cleaning and disinfection
- prolonged periods of treatment
- resistant to chlorinated water and the normal cleaners of the swimming pools
- high water vapour permeability
- resistant to permanent exposure to water up to a temperature of 32 °C.
- high dimensional stability

### Test data:

Conformity Certificate	1301-CPD-0199 EN 1504-2:2004
TSÚS 151/2006	STN EN 1062-6 (67 2020)
	STN 67 3012
	STN 67 3016
	STN ISO 1515 (67 3031)
	STN 73 2577
	STN 73 2578
	STN 73 2579
	STN 73 2582
	STN 77 0332
	STN 74 4507:1981

P 50 1709 Determination of anti-slip properties of floor surfaces  
TSUA 153/2006 CO<sub>2</sub> Permeability STN EN 1062-6 (67 2020)

**Product data:**

colour:	RAL according to customer's choice
appearance:	matte, semi-gloss
shelf life:	12 months in original packaging in dry conditions at a temperature 1 – 35 °C, individual components separately Protect from frost
limit VOC:	according to Ministry of Environment Decree no.127/2011 Coll.: 40 g/l Measured value: 3,22 g/l

**Physical data:**

solids content:	52 %
viscosity:	2,5 dPa.s
adhesion to the substrate:	1,62 MPa
after freez. cycles:	1,51 MPa
abrasion resistance:	over 60 md/1000 cycles
handling time:	6 – 8 hours after mixing with component B
component B (dry):	bulk density 1400 kg/m <sup>3</sup>
density:	
component A:	1,35 g/ml
component A + B:	1,50 g/ml

**Theoretical capacity:**

3,3 – 6,7 m<sup>2</sup>/kg one layer, depending on the grading of the substrate

**Processing temperature:**

minimum temperature of the substrate:	5 °C
maximum temperature of the substrate:	30 °C
ideal temperature for processing:	20 °C
maximum relative air humidity:	85 %

**Substrate:**

Surface must be firm, intact and coherent. Before application, it must be degreased and cleaned of dust and dirt by washing, preferably with high pressure fresh water. The area should be dry, or slightly moist (up to 12%). **Vulmsidizol CO<sub>2</sub>** coating cannot seal active cracks and fissures thicker than 0.3 mm.

**Old coatings:**

Old, well-sealed chlorinated rubber coatings cleaned of oil, grease and pollution must be mechanically roughened, for example by steel brushes or abrasive sponges. Particular attention should be paid to verify adhesion of old coatings. Coatings with cracks and peeling surfaces must not be re-coated.

**Instructions for use:**

The impregnation agent (**Vulmpropen**) is applied on the clean substrate.  
After 2 – 4 hours apply **Vulmsidizol CO<sub>2</sub>** diluted with water. The procedure is as follows: Mix **Vulmsidizol CO<sub>2</sub>** – component B with water in a ratio of 0.3 l of water : 0,0268 kg of component B and then add it to 1 kg of **Vulmsidizol CO<sub>2</sub>** – component A.  
After 4 – 6 hours it is possible to apply **Vulmsidizol CO<sub>2</sub>** – component A (no more dry component) in a ratio of 1 kg : 0,2 l of water. The optimal method is to use the cross-layering. The surface is walkable after 6 hours after application and can withstand the full load after 24 hours. It is not recommended to form an overall thickness of more than 1 mm of the wet film.

**Limitations:**

At a higher concentration of chlorine and ozone in water (see DIN 19643-2) there is a risk of dechalking, blanching. If necessary, you can apply a refresh coating for optical reasons.

#### Time data for application:

processability of the mixed material:	approx. 6 – 8 hours
dry to touch and re-coating interval:	approx. 4 hours
walkable:	6 hours
fully loadable:	24 hours
at a relative air humidity of 50% and temperature of 23 °C	

#### Cleaning of tools:

Immediately after use, with water.

#### Resistance:

- withstands high mechanical loads
- resistant to chemicals, solvents, detergents and cleaners
- resistant to UV radiation, penetration of liquids and gases

#### Safety:

**Vulmsidizol CO<sub>2</sub>** – when handling, proceed in accordance with the general safety measures, follow the safety instructions on the packaging labels and on safety data sheets. Data, specifications, directions and recommendations given in this technical data sheet are based on experience gained in modeling of supposed ways of applications, or under specially defined conditions. Their accuracy, completeness or appropriateness under the actual conditions of any intended use is not guaranteed and must be determined by the user. The manufacturer and distributor are not responsible for the results achieved, loss, direct or consequential damages arising from failure to comply with the recommended use of the product, which go beyond the conditions herein.

#### Category and sub-category of a regulated product:

A/c/VR: Exterior paints for the surface treatment of inorganic materials. The limit value for the highest content of volatile organic compounds: 40 g/l.

The highest content of volatile organic compounds in the state in which the regulated product is ready for use: 3.22 g/l

**Deviations from the standardized test procedure and all circumstances that might affect the test result:**
**The composition of the coating system: (coatings by a brush)**

- substrate used: samples in circular form with a diameter of 90 mm cut from unglazed ceramic tiles thick 6 mm
- 1x coating primer **Vulmpropen**
- 2x coating Vulmsidizol, diluted with water in a ratio of 1 kg : 0.3 litres of water, drying recoat interval 4 h conditioning of samples prior to testing: 24 days at laboratory temperature
- after conditioning tested samples were subjected to three ageing cycles: one cycle consists of the following phases:
  - 24 h stored in water at 23 °C ± 2 °C
  - 24 h drying in an oven at 50 °C ± 2 °C
- conditioning of samples after ageing cycles: 24 h at laboratory temperature

**Information on measurement uncertainty:**

They are specified in tables of measured values in the form of the extended measurement uncertainty. (Measurement uncertainties are based on the internal procedures from 1996).

**Results of measurement:**
**CO<sub>2</sub> permeability**

Surface of the tested specimen A [m <sup>2</sup> ]	0,005
Tested samples weighing interval [h]	24
Test temperature [°C]	23
Median ambient barometric pressure during test p <sub>amb</sub> [kPa]	100,5
CO <sub>2</sub> concentration of the test gas in [%] (V/V)	10
Diffusion coefficient of CO <sub>2</sub> in air at 23 °C D <sub>co<sub>2</sub></sub> [m <sup>2</sup> /day]	1,38
Difference Δc in concentration of air without CO <sub>2</sub> and 10% concentration (V/V) at 23 °C [g/m <sup>3</sup> ]	180
Equivalent diffusion thickness of substrate s <sub>p,co<sub>2</sub></sub> [m]	0,1

**Result:**

Sample no.	Coat thickness d [m]	The change in mass of the sample in three consecutive measurements at const. change in weight [g]	Permeability CO <sub>2</sub> i [g/m <sup>2</sup> .d]	Equivalent diffusion thickness CO <sub>2</sub> sd [m]	Diffusion resistance factor CO <sub>2</sub> μ [-]
1	0,000096	0,022	4,3694	56,66	0,59.10 <sup>6</sup>
2	0,000128	0,015	2,9791	83,15	0,65.10 <sup>6</sup>
3	0,000116	0,015	2,9791	83,15	0,72.10 <sup>6</sup>
Arithmetic mean	0,000113	0,017	3,4426	74,32	0,65.10 <sup>6</sup>
Measurement uncertainty	18,7.10 <sup>-6</sup>	0,007	0,927	8,83	0,075.10 <sup>6</sup>