

Product specifications

according to DIN EN 13055-1

Designation	Poraver® basic granular sizes						Special granular sizes			
	0.1-0.3	0.25-0.5	0.5-1	1-2	2-4	4-8	0.04-0.125	high-strength 0.2-0.7	0.5-1.25	8-16
Granular size mm										
Bulk density lb/ft ³ Nominal	25	21.2	16.9	14.4	11.9	11.2	33.1	33.1	16.2	8.7
Apparent granular density lb/ft ³ Nominal	56.2	36.8	29.3	24.3	20	18.8	*	59.3	28.7	16.9
Compressive strength PSI	406	377	290	232	203	174	-	942.5	246.5	116
Oversize grains	≅ 10 M. %									
Undersize grains	≅ 15 M. %									

* on request

The following data are valid for all grain sizes:

pH value	9 - 12									
Moisture content on delivery	< 0.5 %									
Softening point	approx. 700° C									
Colour	creamy white									
Thermal conductivity W/mK	-	-	-	-	0.07**	0.07**	-	-	-	-

** Calculated values DIBT according to Approval Z-23.11-114

The Poraver® strengths may vary within the tolerance range of the bulk density.

The availability and delivery conditions for special grain sizes will be agreed on an individual basis.





Apparent bulk density

How to determine apparent bulk density

in accordance with DIN EN 1097-3

Pour loose Poraver[®] into a 1 litre measuring vessel and carefully level off any test material left on top.
Then weigh the test material in the vessel. The bulk density is the quotient of the weight and the volumes in lb/ft³.

Standard granular size mm	0.1 - 0.3	0.25 - 0.5	0.5 - 1	1 - 2	2 - 4	4 - 8
Apparent bulk density in lb/ft ³	25	21.2	16.9	14.4	11.9	11.2

Special granular size in mm	0.04 - 0.125	high-strength 0.2 - 0.7	0.5 - 1.25	8 - 16
Apparent bulk density in lb/ft ³	33.1	33.1	16.2	8.7

The following deviations from the given DIN apply:

- ▶ There is no drying, because Poraver[®] is generally supplied dry.
- ▶ The equilibrium moisture does not require conditioning.
- ▶ The measuring vessel indicates a volume of 1 litre even with granular sizes greater than 4 mm.
- ▶ One measuring value is given for each test.



Apparent granular density

How to determine apparent granular density

in accordance with DIN 4226

What is required to determine apparent granular density (ρ) is approx. 400ml of material that is weighed (m). Place the granular material into a cylinder with 1 litre nominal capacity and add 0.5 litre of water. Tap the measuring vessel to remove any air bubbles. Push a plunger with known volumes (V_s) into the measuring cylinder to prevent granular material from floating to the surface. After reading off the total volume (V) in cm^3 , you can calculate the granular density in lb/ft^3 by using the following formula:

Calculation formula:

$$\rho = \frac{m}{V - (V_s + 500)}$$

Standard granular size in mm	0.1 - 0.3	0.25 - 0.5	0.5 - 1	1 - 2	2 - 4	4 - 8
Apparent granular density in lb/ft^3	56.2	36.8	29.3	24.3	20	18.8

Special granular size in mm	0.04 - 0.125	high-strength 0.2 - 0.7	0.5 - 1.25	8 - 16
Apparent granular density in lb/ft^3	*	59.3	28.7	16.9

* on request

The following deviations from the given DIN apply:

- ▶ There is no drying, because Poraver® is generally supplied dry.
- ▶ This testing method is used for Poraver® granular sizes from 0.1 – 16 mm.
- ▶ One measuring value is given for each test.



Compressive strength

How to determine granular compressive strength

in accordance with DIN EN 13055-1

To determine the compressive strength, pour 1 litre of Poraver[®] into a defined steel cylinder and compress. To do this, use an attached plunger to press down the granular material in this cylinder by 20 mm with a compressor. The force required for this is indicated as the granular strength.

Standard granular size in mm	0.1 - 0.3	0.25 - 0.5	0.5 - 1	1 - 2	2 - 4	4 - 8
Compressive strength PSI	406	377	290	232	203	174

Special granular size in mm	0.04 - 0.125	high-strength 0.2 - 0.7	0.5 - 1.25	8 - 16
Compressive strength PSI	–	942.5	246.5	116

The following deviations from the given DIN apply:

- ▶ Undersize and oversize grains are not removed within individual granular groups.
- ▶ Force is applied at a constant speed of 0.15 kN/s for all granular sizes.
- ▶ One measuring value is given for each test.



Water absorption

How to determine water absorption

in accordance with DIN V 18004

To determine water absorption, weigh approx. 0.4 litre of Poraver[®] to an accuracy of 0.1 g.

Procedure 1:

For granular sizes below 2 mm, store the water in a suction filter, and extract the water by means of a water-operated vacuum pump to dry the surface.

Procedure 2:

For granular sizes in excess of 2 mm, store the water in a density bottle. Here, dab the sample to dry the surface.

The difference between the mass of the surface-damp condition and the dry sample in relation to the dry sample is water absorption W in M.-%.

Calculation formula

$$WA [M. \%] = (M_f - M_{tr}) / M_{tr}$$

$$WA [V. \%] = WA [Vol. \%] \times KRD$$

M_w - Mass of water absorbed [g]
M_{tr} - Mass of sample dry [g]
KRD - Apparent granular density [kg/m³]

Standard granular size in mm	0.1 - 0.3	0.25 - 0.5	0.5 - 1	1 - 2	2 - 4	4 - 8
Water absorption in WA	35 M. %	30 M. %	25 M. %	20 M. %	15 M. %	10 M. %

Special granular size in mm	0.04 - 0.125	high-strength 0.2 - 0.7	0.5 - 1.25	8 - 16
Water absorption in WA	-	20 M. %	22 M. %	15 M. %

The following deviations from the given DIN apply:

- ▶ There is no drying, because Poraver[®] is generally supplied dry.
- ▶ Procedure 1 is used for granular sizes up to 2 mm, Procedure 2 only being used for granular sizes greater than 2 mm.
- ▶ Water storage of approx. 5 min. is used as standard in both procedures.



Chemical analysis

in accordance with test report 043077.1 of the MPA Hanover

Serial No.	Constituent	Applied to the sample dried at 105°C	Heat-loss-free (%)	Analysis method
1	Heat loss	0.3	–	DIN EN 1744-1
2	Insoluble residue	91.5	–	EN 196-2
3	CaO	8.9	9.0	spectrally photometric atomic emission
4	SiO ₂	71.7	71.9	
5	Al ₂ O ₃	2.5	2.5	
6	TiO ₂	0.1	0.1	
7	Fe ₂ O ₃	0.4	0.4	
8	Mn ₂ O ₃	0	0	
9	MgO	2.1	2.1	
10	K ₂ O	0.8	0.8	
11	Na ₂ O	13.2	13.2	
12	SO ₃	0.1	0.1	
13	Cl	–	–	argentometric
14	Remaining	– 0.1	– 0.1	–
15	Total 1, 3–14	100.0	100.0	–
16	Na ₂ O equivalent	13.7	–	calculated from 10+11

The analysis was conducted on a sample ground and dried to a granular size of < 0.125 mm.

