

# DATA SHEET

## Skysil Mn 0,6 -1,2 Chalcedonite – Filtration Medium

**SkySil Mn** is an advanced filtration medium for manganese removal that combines the natural porosity and grain shape of chalcedonite with manganese oxide in the form of Birnessite. The structure and composition of Birnessite facilitate easy redox reactions and exhibit a high adsorption capacity for manganese, providing suitable conditions for further autocatalytic oxidation.

### Technological Properties of the Chalcedonite Filtration Medium:

The chalcedonite filtration material has the following properties that distinguish it from other filter media available on the market:

- High mass capacity for contaminants, allowing for extended filtration cycles;
- **Low bulk density**, which reduces the load on the filter bottom, a factor of particular importance especially in **pressure filters**.
- **A synthetic manganese oxide coating on the surface of the filter media grains enables effective manganese removal from the very beginning of filter operation. The target activation process occurs without requiring extensive operator intervention or a long waiting period for manganese precipitation to begin.**
- Favorable hydraulic characteristics (low bed resistance even after suspended solids filtration, allowing for reduced system operating pressure);

Table 1. Physical Properties of the Chalcedonite Filtration Medium

Parameter	Value
Grain size	0,6 – 1,2 mm
Bulk density	1,0 – 1,1 kg/dm <sup>3</sup>
Specific density	2,7 – 2,8 kg/dm <sup>3</sup>
Grain porosity	≤ 15 %
BET specific Surface area	3,0 – 3,5 m <sup>2</sup> /g
Uniformity coefficient	≤ 1,6

Table 2. Chemical Composition of Chalcedonite Filtration Medium

Component	Content [%]
SiO <sub>2</sub>	91,4 – 97,7
Al <sub>2</sub> O <sub>3</sub> , MgO, CaO, Fe <sub>2</sub> O <sub>3</sub> , K <sub>2</sub> O	< 6,0
Organic components	< 0,05

Table 3. Basic Operating Parameters of the Chalcedonite Filtration Medium

Parameter	Value
Filtration rate	≤ 15 m/h
Iron removal capacity	≤ 15 mg Fe/dm <sup>3</sup>
Manganese removal capacity	≤ 5,0 mg Mn/dm <sup>3</sup>
<b>Ammonium ion removal capacity</b>	<b>≤ 2,0* mg NH<sub>4</sub><sup>+</sup>/dm<sup>3</sup></b>
Water pH range	6,5 – 9,5
Freeboard	40 %
Air backwash rate	8,5 – 13 L/s·m <sup>2</sup>
Water backwash rate	7,5 – 12 L/s·m <sup>2</sup>
Filtration Medium expansion	25 %

\* after prior natural activation

The Skysil Fe Ammonio chalcedonite Filtration Medium is packed in 25kg bags. Delivery or personal pickup conditions are individually arranged according to the order.