

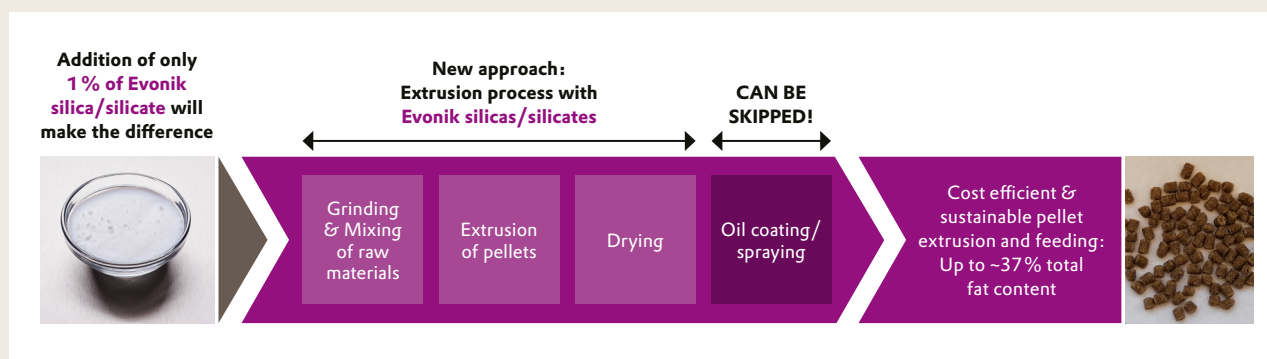
With Evonik silica: 3 production steps to stable high-fat aquatic feed pellets



How can you save one production step when adding only 1 % of our various Evonik silica or silicate grades?

This is possible as you can add the total amount of oil (from ~10 % up to ~37 %) during extrusion when using Evonik silica/silicates in your production. The oil coating

step is not required anymore. You will receive well cooked and mechanically stable pellets with a reduced fat leakage during storage. Consequently, you will profit from huge energy and cost savings as well as from a high pellet quality, leading to less waste and water pollution.



Silica as a process and pellet stabilizing aid

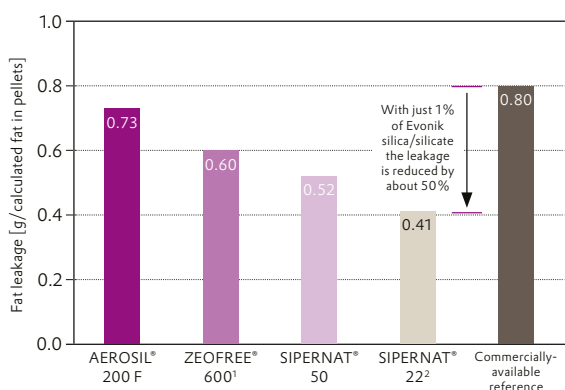
Evonik silicas and silicates are highly absorptive. Oil absorption during extrusion leads to an increased thermal-mechanical energy input and a well degree of cook, even at high fat levels. Moreover, especially our **AEROSIL®** fumed silica is expected to directly stabilize the starch structure due to its network-forming abilities.

The positive impact of our precipitated specialty silicas and silicates **SIPERNAT®** and **ZEOFREE®** and our fumed silica **AEROSIL®** on various pellet quality parameters is varying due to their different structures.

The porous structure of our precipitated **SIPERNAT®** and **ZEOFREE® grades** is significantly reducing the pellet fat leakage during storage compared to a commercially-available vacuum coated reference

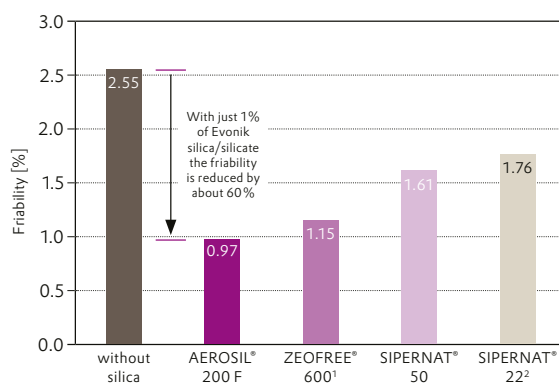
The chain-like aggregate structure of our fumed silica **AEROSIL®** and its related network-forming abilities significantly increased the mechanical pellet stability of fish feed pellets with ~10 up to ~37% total fat.

**Pellet fat leakage after storage for 24 h at 40°C,
1% Silica/Silicate, ~32% total fat**



¹ZEOFREE® 600 LA for EMEA & Asia w/o China
²SIPERNAT® 380 as a potential alternative for the AMERICAS

**Pellet friability (measured amount of fines),
1% Silica/Silicate, ~37% total fat**



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BENEFITS FOR AQUACULTURE

- + Increased sustainability of pellet production
- + Extrusion of high-quality pellets saving one production step
- + Eco-friendly feeding

Contact Evonik and we'll find the right product for your formulation out of our broad silica portfolio.

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