Powdered additives for high performance UV-curable wood coatings

UV coatings are the ideal solution for a fast and efficient application process. These solvent-free and 100 % solid coatings are environmentally friendly and nearly universally applicable. With future challenges including easy matting ability, achieving perfect surface appearances as well as the fulfilment of regulations, health aspects and energy savings, the application field for UV coatings will further grow. To respond to these multiple challenges, Evonik offers a wide range of innovative powdered additives to support UV wood coatings formulators.

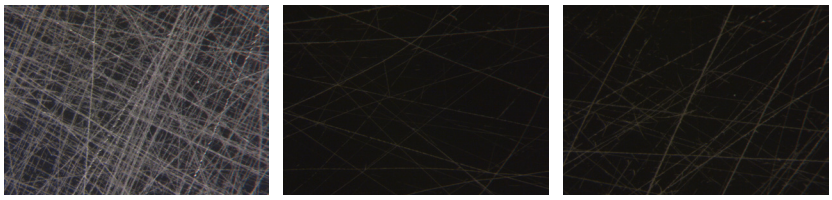
IMPROVING SCRATCH RESISTANCE

Our easy-to-disperse **AEROSIL® E 9200** is specially designed to increase scratch resistance of the UV cured film. The pictures below show an example of a UV cured coating based on aliphatic urethane acrylate where **AEROSIL® E 9200** allows to significantly reduce the scratches on the surface compared to the blank or even to the standard grade **AEROSIL® R 9200**. The scratch test is performed with a Mini-Martindale equipment.

AEROSIL® E 9200 – BENEFITS

- Scratch and abrasion resistance enhancement
- Easy incorporation
- Reduced dispersing time
- Energy savings
- Maintain low viscosity level
- High silica loading possible

UV COATING BASED ON ALIPHATIC URETHANE ACRYLATE



Blank | 7.5 % AEROSIL® E 9200 | 7.5 % AEROSIL® R 9200

Blank | 15 % AEROSIL® E 9200 | 15 % AEROSIL® R 9200

Click or scan the QR-code for more information!

EVONIK
Leading Beyond Chemistry

2025-11

Matting agents for UV wood coatings

ACEMATT® 3600

- For 100 % solids UV
- Very efficient matting
- Lowest impact on viscosity
- High loading achievable
- Excellent clarity
- No impact on recoatability
- Particle size, d_{50}: 5.0 µm

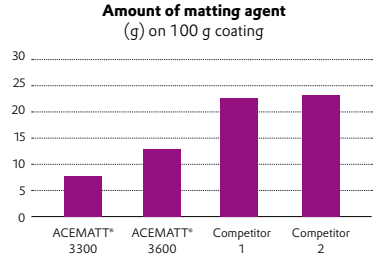
ACEMATT® 3300

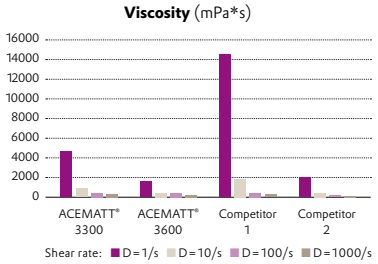
- For solventborne and waterborne UV
- Very good matting efficiency
- Suitable for high clarity
- Less impact on viscosity
- Excellent in-can stability
- Particle size, d_{50}: 10.0 µm

ACEMATT® TS 100

- For waterborne UV
- Good chemical resistance
- Very high transparency
- High matting efficiency
- Particle size, d_{50}: 9.5 µm

ACEMATT® 3300 and ACEMATT® 3600 provide higher matting efficiency and maintain very low viscosity in a 100 % UV clear coat compared to benchmarks. In addition, ACEMATT® 3600 provides low viscosity especially at low shear forces. The adjustment of the amount of matting agent was made to achieve a gloss level of 15 at 60°.



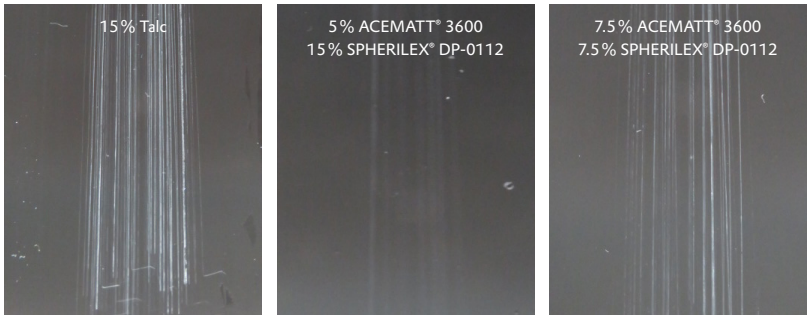


Specialty filler's synergy with matting agents boost durability in matte UV coatings

Combining ACEMATT® 3600 with SPHERILEX® DP-0112 allows to reach low gloss while maintaining very low viscosity. Burnish resistance test also shows very low increase of the 60° gloss after testing the coating. A higher dosage of SPHERILEX® spheroidal silica particle in the formulation can even boost the scratch resistance performance in the UV matte coating based on an epoxy acrylate binder shown below:

TEST SET-UP

- Drawdowns of 24 µm were done on PMMA panels.
- The coating was cured for 10 sec with IR and 3x UV Hg 120 W/cm at a speed of 5 m/min.
- The scratch resistance test was performed via Crockmeter (10 hubs/abrasive pad Scotch Brite CP-DC 07440 grey).



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