ALVERTEX® FASTONE I

TECHNICAL PROFILE & APPLICATION

For Technical Directors, R&D Departments and Laboratories

1. Technical Summary

ALVERTEX® FASTONE I is a special amorphous calcium aluminate accelerator for fast setting and fast hardening hydraulic binders. According to the PDS, the product provides very fast setting and high early strength in mortars and concrete and is intended for systems requiring accelerated strength development.

Applications include tile adhesive mortar, self-leveling mortar, repairing mortar, concrete for urgent work, precast concrete, non-shrink grout and dry-process shotcrete.

2. Key Advantages of ALVERTEX® FASTONE I

Advantage	PDS-supported statement
Very fast setting	With OPC and without retarder, setting is completed within 1 minute.
High early strength	10–30 MPa can be obtained after 6 hours of agent aging.
Controllable working time	Setting time can be controlled with a retarding agent up to one hour.
Shrinkage compensation	Expansion characteristics can reduce autogenous and drying shrinkage.
Chemical pre-stress	Ettringite formation provides a chemical pre-stress effect.
Increased watertightness	Increased water tightness is stated as an advantage.
Crack resistance	Excellent crack resistance is stated.
Shotcrete	The PDS identifies the product as a must for spray concrete.

3. Main Physical Properties

Parameter	ALVERTEX® FASTONE I
Appearance	Greyish white powder
Specific weight	2.92
Blaine specific surface area	6,000 cm²/g
Addition amount	5–25% by weight of cement
Packing	25 kg bags; 1,000–1,200 kg jumbo bags

The PDS describes FASTONE I as a special amorphous calcium aluminate accelerator. The SDS identifies the product as calcium aluminate cement / hydraulic binder and cement accelerator; it also states that no detectable quantities of chromium or free crystalline silica are present.

4. Mechanism of Action

The PDS describes ettringite formation through hydration of amorphous calcium aluminates. Formation of ettringite before the main cement hydration contributes to early void filling, initial strength development and chemical pre-stress.

5. Applications

- Precast concrete
- Self-leveling mortar
- Non-shrink grout
- Tile adhesive mortar
- Dry-process shotcrete
- Repair and urgent-work concrete

6. Recommended Laboratory Program

Test	Purpose
Setting time	Determine setting profile at 5–25% dosage and different retarder levels.
Strength at 1–2–3–6–24 h	Evaluate early strength development.
Flow / workability	Determine influence on fresh properties.
Water demand	Determine change in water requirement.
Linear deformation	Evaluate shrinkage compensation and expansion.
Crack resistance	Compare susceptibility to early cracking.
Watertightness	Confirm influence on density and water resistance.
Low-temperature testing	Check acceleration stability at low temperature where relevant.
Retarder compatibility	Determine working window and dosage sensitivity.

7. Replacement Evaluation

For a valid evaluation of ALVERTEX®, testing should be performed in an identical base formulation, using the same cement, water, aggregates and curing conditions. Key criteria should be setting time, working window, early strength, shrinkage/expansion, crack resistance and watertightness.

8. ALVENTUS Technical Support

Service	ALVENTUS support
Material	ALVERTEX® FASTONE I with technical documentation.
Samples	Laboratory samples for qualification testing.
Technical documentation	PDS and SDS.
Optimization	Dosage and retarder selection in the target system.
Product transition	Support during laboratory and, if required, industrial validation.

9. Technical Positioning

ALVERTEX® FASTONE I should be positioned as a highly reactive amorphous calcium aluminate accelerator for systems where ultra-fast setting, high early strength and shrinkage control are critical.

A key technical advantage is the combination of very high reactivity with the ability to adjust setting time using a retarder. This allows the working window to be adapted to the formulation and production process.

10. Next Step

ALVENTUS recommends starting with a laboratory comparison of ALVERTEX® FASTONE I against the customer's current accelerator. After establishing optimum dosage and working time, the next stage can be validation of early strength and system stability.

11. Contact

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