# TamShot 90AF

Alkali-Free Set Accelerator for Sprayed Concrete Applications

CONSTRUCTION CHEMICALS

TECHNICAL DATA SHEET

## DESCRIPTION

TamShot 90AF is commonly used for the wet mix sprayed concrete processes in the tunnelling and mining industry. The product is applied where initial ground support is needed or where a permanent lining has been designed (such as for single shell tunnel lining).

TamShot 90AF is a high performance quick setting liquid set accelerator for sprayed concrete applications.

TamShot 90AF may also be used to accelerate cementitious based grouts for TBM tunnel lining backfilling and ground stabilization works.

By adjusting the dosage, setting times and rebound can be reduced providing a safe and efficient work environment.

## KEY BENEFITS

- Fast setting times and continued high early age strength gain allows for spraying in thicker layers
- High final compressive strength development after 28 days and excellent long-term durability
- Assured performance also at low temperatures and onto wet substrate conditions
- Very low dust production during application ensures a safer working environment

## TYPICAL APPLICATIONS

TamShot 90AF reacts with all commonly used ordinary Portland cements and blended cements, and therefore can be used to accelerate all cement based grouts and concrete types where fast setting is required.

Typically, TamShot 90AF is used in the civil and underground construction industry for applications such as:

- Sprayed concrete ground support in tunnels and mines
- Slope stabilisation
- Accelerated cementitious injection grout
- Segmental lining backfill grout

## TECHNICAL DATA

TamShot 90AF meets the requirements of EN 934-5 "Admixtures for sprayed concrete", ASTM C1141/ C1141M "Standard Specification for Admixtures for Shotcrete", and EFNARC "European Specification for Sprayed Concrete".

| TamShot 90AF | | | |
|---|---|---|---|
| **Physical property** | **Unit** | **Value** | **Test method** |
| Form | -- | Suspension | Intrinsic |
| Colour | -- | Beige | Visual |
| Relative density (specific gravity) at 20-25°C | kg/m$^3$ | 1420 ± 25 | ISO 758 ASTM C494 |
| pH at 20°C | -- | 2.5 ± 0.5 | ISO 4316 |
| Viscosity at 20°C | mPa·s | < 100 | Brookfield LV4, 100 rpm |
| Alkali content ($Na_2O$-equivalent) | % by mass | ≤ 1.0 | EN 480-12 |
| Chloride content | % by mass | < 0.10 | EN 480-10 ASTM D512 |

Setting performance guide when testing TamShot 90AF in cement paste with low water-cement ratio at 20°C:

| | Initial Set Time | Final Set Time |
|---|---|---|
| Very good performance | < 2 min | < 6 min |
| Acceptable performance | 2 - 4 min | 6 - 10 min |
| Poor performance | > 4 min | > 10 min |

All technical data stated herein is based on tests carried out under laboratory conditions.

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## APPLICATION GUIDELINES

Refer to your local Normet Tunneling & Mining team for detailed information on the application of TamShot 90 AF.

Note: For use in sprayed concrete, TamShot 90AF is to be added at the nozzle of the spraying equipment at a suggested dosage of 3% to 10% of the cement weight in the concrete mix.

For optimum performance, the w/c ratio should be targeted at below 0.45. This ensures rapid setting and lower set accelerator dosages. Typically a 6% set accelerator dosage is suitable for spraying overhead sprayed concrete layers of large thickness.

The TamCem series of superplasticisers and hydration control admixtures are designed to be fully compatible with TamShot 90AF and to optimise the sprayed concrete performance on site.

All testing should be aligned to EN, ASTM, DIN or EFNARC standards and guidelines to evaluate the best performing mix-design against economic considerations. Please always involve your local Normet Tunnelling & Mining team for support.

## PACKAGING

TamShot 90AF is supplied in IBCs, drums and bulk. Packaging size may vary subject to local regulations and requirements, please contact your local Normet representative for more details.

## STORAGE

TamShot 90AF should be stored at room temperature (min 5°C and max 38°C), kept dry and out of direct sunlight. If these conditions are maintained and the product packaging is unopened, then a shelf life of up to 6 months can be expected.

TamShot 90AF must be stored in stainless steel or plastic containers. Storage tanks made of mild (carbon) steel **must not** be used.

After prolonged storage it is recommended to gently agitate TamShot 90AF prior to use. This can be done either by stirring or by pumping (recirculation).

## HEALTH & SAFETY

TamShot 90AF should only be used as directed. We always recommend that the Safety data sheet is carefully read prior to application of the material. Our recommendations for protective equipment should be strictly adhered to for your personal protection. The Safety data sheet is available upon request from your local Normet representative.