MAPEI

Twin Jet System

Two-component system for cementitious based injections with variable consistency

TWIN JET 1
Superplasticizer with a high water reducing effect, able to guarantee a high mix workability thanks to the retarding effect on the cement hydration rate.

TWIN JET 2
Consistency modifying admixture for cementitious mixes, able to reduce the mixture plasticity, but without changing the initial and final cement setting time.

WHERE TO USE
Twin Jet System consists of a high performance superplasticizer, **Twin Jet 1**, and of a consistency modifying admixture, **Twin Jet 2** to be used for:
- backfill grouting in mechanised tunnelling;
- contact injections;
- repairing of concrete lining, by infilling injections.

Twin Jet A is a high performance superplasticizer for cementitious mixes, whilst **Twin Jet B** is a liquid admixture to be added just before the injection phase. The **Twin Jet B** component effect is immediate and effects a rapid viscosity change in the mix. The viscosity change rapidity varies according to the dosage.

TECHNICAL CHARACTERISTICS
Twin Jet 1 has a high plasticizing effect and guarantees a high mix workability.
Due to its plasticizing effect, **Twin Jet 1**, is able to improve the mix waterproof quality reducing the porosity present in the cementitious matrix. As a consequence there is also an increase in the durability of the structure.

Twin Jet 1 performance gives the mix rheological characteristics able to prevent the segregation phenomenon. Therefore there is no decrease in mechanical resistance.
Twin Jet 2 is a liquid admixture able to modify the mixture consistency, without changing the initial and final cement setting time, allowing the mix to be injected easily and, at the same time, preventing the dispersion and leaching phenomena in presence of water leakages or if the mixture is superfluid.
The viscosity reduction obtained by adding **Twin Jet 2** allows a higher filling of the injecting space (annular space behind the concrete segments, etc.) without affecting the rheological characteristics and therefore the mixtures pumpability.

IMPORTANT ADVICES
It is possible to increase the system efficacy by using a stabilizing admixture, nanosilica-based as **Stabilgrout** which, when used in combination with cements, especially microfine ones, gives a high volumetric stability to the cementitious mix, as well as a higher impermeability and durability to the injection action.

APPLICATION PROCEDURE
In order to obtain the maximum efficiency, **Twin Jet 1**, has to be added whilst batching the mixture, with cement, water and eventually aggregates. Bentonite is also commonly used as an addition to the mix.
Twin Jet 1 action is maximised if it is added after dosing at least half of the water quantity necessary for the mixture.
Twin Jet 2 has to be added, throughout a dedicated bypass pipe, on the pipe conveying the mix, just before the injection phase.

Twin Jet System

TECHNICAL DATA (typical values)

PRODUCT IDENTITY		
	Twin Jet 1	**Twin Jet 2**
Consistency:	liquid	liquid
Colore:	brown	brown
Density (ISO 758) (g/cm³):	1.2 ± 0.03	1.0 ± 0.02
Chloride content (EN 480/10) (%):	< 0.1	< 0.1
Alkali content (EN 480/12) (%):	< 6	1
Hazard classification according to EC 1999/45:	none.	none. Before using refer to the "Safety instructions for preparation and application" paragraph and the information on the packing and Safety Data Sheet
Customs class:	3824 40 00	

DOSAGE
Dosage by volume:
Twin Jet 1: from 0,5 to 2% for each 100 kg cement
Twin Jet 2: from 3 to 7 kg for each m³ of mixture to be injected, according to the requested viscosity.
Our "**Underground Technology Team**" technical service is at your complete disposal for verifying, at our technical labs the optimal dosing for meeting the requested performances.

PACKAGING
Twin Jet 1 and **Twin Jet 2** are available in 25 kg drum, 200 l drum, 1000 l mega drum.

STORAGE
Store **Twin Jet 1** and **Twin Jet 2** in sealed containers, protect from frost.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Twin Jet 1 and **Twin Jet 2** are not hazardous according to the ruling norms on the classification of mixtures. It is recommended to take the usual precautions for handling chemical products.

The Safety Data Sheet is available upon request for the professional users.

FOR PROFESSIONALS.

WARNING
Although the technical details and recommendations contained in this product report correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical applications: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.

All relevant references for the product are available upon request and from www.mapei.com

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