

# MasterGlenium SKY 527

## *Total Performance Control™*

**Second generation high range water reducing polycarboxylate ether admixture primarily developed for ready-mix concrete industry where high slump retention and a low W/C are required. It is suitable for hot weather conditions.**

### **DESCRIPTION AND WHERE TO USE**

MasterGlenium SKY 527 is an innovative second generation superplasticizer of polycarboxylic ether (PCE) polymers. It is derived directly from the Total Performance Control™ concept. MasterGlenium SKY 527 is specially engineered for ready-mix Rheoplastic concrete having fluid consistence and self-compacting concrete, having a good workability retention. The fresh concrete shows no segregation and at the same time has a low water cement ratio and, consequently, high early and long term strengths as per EN 206-1 and UNI 11104 standards.

MasterGlenium SKY 527 may be used also to produce Rheodynamic concrete, capable of self compaction, even in the presence of dense reinforcement, without the aid of vibration.

**MasterGlenium SKY 527 is chloride free, meets UNI EN 934-2, UNI EN 480 (1-2), UNI 10765, ASTM C 494 requirements for Type F and it is also compatible with all cements meeting the EN 197 and ASTM C 150 standards.**

### **TOTAL PERFORMANCE CONTROL™**

The Total Performance Control™ concept ensures that ready-mix producers, contractors and engineers get a concrete that is of the same high quality as originally specified; starting from production at the batching plant, to the delivery and placing into the formworks and followed by its hardening process. Utilizing Rheodynamic™ concrete technology it provides a concrete mix with exceptional placing characteristics and accelerated cement hydration for early strength development and high-quality concrete.

### **THE CHEMISTRY OF MASTERGLENIUM SKY**

The Total Performance Control™ concept is the result of years of study of an in-house expertise in nanotechnology. This allows BASF Construction Chemicals to control the chemical and physical behaviour of polymers and their interactions with cement. MasterGlenium SKY 527 is an innovative second generation superplasticizer of polycarboxylic ether (PCE) polymers. The dispersion effect of superplasticizers is based on the adsorption of molecules on cement particles, imparting a negative charge that causes electrostatic repulsion and steric hindrance between them and, therefore, causing dispersion.

The hydration, and particularly the ettringite formation, works against the superplasticiser.

The molecules already adsorbed are covered by the ettringite lawn and thus are ineffective.

The particular configuration of the MasterGlenium SKY molecules allows its delayed adsorption onto the cement particles and disperses them efficiently over a long period of time. The molecular structure is essential for the early development of strength. With superplasticizers based on conventional polycarboxylate ether, the molecules cover the entire surface of the cement grain and build a barrier against contact with water. Therefore, the hydration process takes place slowly. The MasterGlenium SKY molecules on the other hand leave sufficient surface of the cement exposed to allow contact with water for a rapid hydration reaction which results in high early strength development.

### **BENEFITS FOR READY-MIX PRODUCER**

Total Performance Control and the use of MasterGlenium SKY 527 offers the following benefit to the ready-mix concrete producer:

- Reduction the water content with respect to the state of the art polycarboxylate based superplasticisers.
- Production of Rheoplastic and Rheodynamic concrete having a very low W/C.
- Workability retention for a longer period avoiding the problem of re-tempering with water before the pouring operation.
- Improvement of the rheology even in concrete mixes having a low fines content.
- Optimization of the production of durable concrete as per the EN 206-1 and UNI 11104 standards.
- As compared to the traditional superplasticisers, the engineering properties such as early and ultimate compressive and flexural strengths, bond to steel, and modulus of elasticity, shrinkage, creep, and impermeability are improved.

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## Total Performance Control™

### COMPATIBILITY

In order to optimise some special properties of the concrete, use of the following complementary admixtures is suggested:

- air entraining agent **MasterAir** to improve freeze thaw resistance (exposure class XF1 to XF4, EN 206-1);
- silica fume, **MasterRoc MS 610**, for high performance concrete and to improve the durability in chemical aggressive environments (exposure class XA1 to XA3, EN 206-1)
- synthetic micro-fibres **MasterFiber 24** to prevent cracks due to plastic shrinkage;
- curing agent **MasterKure** for sealing the surface of freshly finished concrete against rapid evaporation of water which may cause plastic shrinkage cracking.
- demoulding agent **MasterFinish** for good surface appearance.

**MasterGlenium SKY 527 is not compatible with all admixtures of MasterRheobuild series.**

### DIRECTIONS FOR USE

MasterGlenium SKY 527 is a liquid admixture to be added to the concrete during the mixing process:

- mix cement and secondary binders, sand, coarse aggregates and the mix water until a stiff, yet homogeneous, mixture is obtained;
- optimal mixing water reduction is obtained if MasterGlenium SKY 527 is mixed into the concrete right after the addition of the initial 80-90% of the total water;
- avoid adding the admixture to the dry aggregates;
- add MasterGlenium SKY 527 admixture and mix again for to 60 seconds in order to disperse it homogeneously;
- continue mixing until required workability is obtained, with addition of the remaining water.

Technical Information	
Form	Liquid
Relative density (g/ml at 20°C)	1.027 – 1.067

### DOSAGE

MasterGlenium SKY 527 The normal recommended dosage rate range from 0.8 to 1.4 litres per 100 kg of binder.

For Rheodynamic concrete the recommended dosage of MasterGlenium SKY 527 ranges from 0.7 to 1.0 litre per 100 kg of fines passing 0.125 mm sieve.

Other dosages may be recommended in special cases according to specific job site conditions.

In such cases please consult our Technical Service Department for advice.

### PACKAGING AND STORAGE

MasterGlenium SKY 527 is available in 10L cans, 1.000L tanks or in bulk.

MasterGlenium SKY 527 must be stored in a place where the temperature does not drop below 5°C. In case of freezing, warm up and homogenise the admixture solution before using.

From 16/12/1992 BASF Construction Chemicals Italia Spa operates under the Quality System in compliance with European Standard UNI-EN ISO 9001. The environmental management system of BASF Construction Chemicals Italia Spa is certified accordingly to UNI EN ISO 14001 and the System of Safety Management is certified accordingly to OHSAS 18001. Environment sustainability: Partner Green Building Council since 2009.

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For further information, please consult your local BASF Construction Chemicals Italia Spa representative.

The technical advice on how to use our products, either written or verbally given, are based on the present state of our best scientific and practical knowledge, and no guarantee and/or implicit or explicit responsibility are assumed on final results of works executed by the use of our products.

The owner, his representative, or the contractor is responsible for checking the suitability of our products as to the intended use and aims.

Supersedes all prior issues on this product.

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