

PRODUCT DATA SHEET

SikaPlast® PH 9021

(formerly MasterPolyheed® 9021)

Water-reducing, high range, and retarding admixture based on modified poly-carboxylic ether

DESCRIPTION

SikaPlast® PH 9021 is an admixture of a new generation based on modified poly-carboxylic ether. The product has been primarily developed for applications in Ready-mix & Site-batched concrete where the highest performance is required.

USES

- Ready mixed & Site mix Concrete
- Long-distance transporting
- Pumped concrete
- High workability without segregation or bleeding
- High performance concrete for durability
- Mixes requiring >20% water reduction
- Concrete containing pozzolans such as microsilica, GGBFS, PFA including high volume fly ash concrete

CHARACTERISTICS / ADVANTAGES

- Good dispersion even in mixes with high cementitious fines
- Retains workability for long periods
- Lower pumping pressure
- Resistance to segregation even at high workability
- Reduced water content for a given workability
- Higher ultimate strengths
- Increased ease in finishing concrete

Chemistry and mechanism of action

What differentiates SikaPlast® PH 9021 from the traditional superplasticisers is a new, unique mechanism of action that greatly improves the effectiveness of cement dispersion. Traditional superplasticisers based on melamine and naphthalene sulphonates are polymers which are absorbed by the cement granules. They wrap around the granules surface areas at the very early stage of the concrete mixing process. The sulphonic groups of the polymer chains increase the

negative charge of the cement particle surface and disperse these particles by electrical repulsion. This electrostatic mechanism causes the cement paste to disperse and has the positive consequence of requiring less mixing water to obtain a given concrete workability.

SikaPlast® PH 9021 has a different chemical structure from the traditional superplasticisers. It consists of poly-carboxylic ether with long side chains. At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the traditional superplasticisers, but the side chains linked to the polymer backbone generates a steric hindrance which greatly stabilises the cement particles ability to separate and disperse. Steric hindrance provides a physical barrier (alongside the electrostatic barrier) between the cement grains. With this process, flowable concrete with greatly reduced water content is obtained.

APPROVALS / STANDARDS

IS 9103, ASTM C494 Type B,D,G

PRODUCT INFORMATION

Packaging	245kg
Shelf life	12 months from date of production if stored properly in undamaged unopened, original sealed packaging.
Storage conditions	SikaPlast® PH 9021 must be stored where temperatures do not drop below +5°C. If product has frozen, thaw at +5°C or above and completely reconstitute using mild mechanical agitation. Store under cover, out of direct sunlight and protect from extremes of temperature. Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice, consult your local Sika representative.
Appearance / Colour	Light to dark reddish brown liquid
Density	1.08 ± 0.02 at 25°C
pH-value	≥ 6

APPLICATION INFORMATION

Recommended Dosage	<p>Optimum dosage of SikaPlast® PH 9021 should be determined with trial mixes. As a guide, a dosage range of 500ml to 1500ml per 100kg of cementitious material is normally recommended. Because of variations in concrete materials, job site conditions, and/or applications, dosages outside of the recommended range may be required. In such cases, contact your local Sika representative.</p> <p>For addition information on SikaPlast® PH 9021 admixture or on its use in developing concrete mixes with special performance characteristics, contact your local Sika representative.</p> <p>Effects of over dosage</p> <p>A severe over-dosage of SikaPlast® PH 9021 can result in the following:</p> <ul style="list-style-type: none">▪ Extension of initial and final set▪ Bleed/segregation of mix <p>A slight overdosing may not adversely affect the ultimate strength of the concrete and can achieve higher strengths than normal concrete, provided it is properly compacted and cured. Due allowance should be made for the effect of fluid concrete pressure on form work, and stripping times should be monitored.</p> <p>In the event of over dosage, consult your local Sika representative immediately.</p>
Dispensing	<p>SikaPlast® PH 9021 is a ready-to-use liquid which is dispensed into the concrete together with the mixing water. The plasticising effect and water reduction are higher if the admixture is added to the damp concrete after 50 to 70% of the mixing water has been added. The addition of SikaPlast® PH 9021 to dry aggregate or cement is not recommended.</p> <p>Thorough mixing is essential and a minimum mixing cycle, after the addition of the SikaPlast® PH 9021, of 60 seconds for forced action mixers is recommended.</p>
Compatibility	<p>SikaPlast® PH 9021 is compatible with most of the Sika products. Use Sika Stabilizer as viscosity modifying agent in self compacting concrete.</p> <p>SikaPlast® PH 9021 is not compatible with Melamine or Naphthalene based admixtures and should not be used in conjunction in the same mix.</p> <p>SikaPlast® PH 9021 is compatible with lingosulphonates and carboxylic acid-based plasticizer and retarders and also with most type of air entrainers, accelerators, retarders, extended set control admixtures, corrosion inhibitors, and shrinkage reducers. SikaPlast® PH 9021 is also compatible with slag and pozzolans such as fly ash, metakaolin and silica fume</p>

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

FURTHER DOCUMENTS

CORROSIVITY – NON CORROSIVE

SikaPlast® PH 9021 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any calcium chloride-based ingredients are used in the manufacture of SikaPlast® PH 9021 admixture. In all concrete application, SikaPlast® PH 9021 admixture will conform to the most stringent or minimum chloride ion limits currently suggested by construction industry standards and practices

WORKABILITY

SikaPlast® PH 9021 ensures that rheoplastic concrete remains workable for 90 minutes. Workability loss is dependent on temperature, and on the type of cement, the nature of aggregates, the method of transport and initial workability. It is strongly recommended that concrete should be properly cured particularly in hot, windy and dry climates

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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