MAPEI

Mapefluid N200

CE
EN 934-2
T 3.1-3.2

Superplasticizing admixture for concrete

DESCRIPTION
Mapefluid N200 is a liquid superplasticizing admixture for quality concrete (watertight, durable, high-strength).

WHERE TO USE
Because of the high workability (consistency class S4 and S5 according to EN 206-1) obtained without excess water in the mix, concrete with **Mapefluid N200** admixture is easy to place in the plastic stage and has high-performance characteristics when hardened.

Mapefluid N200 is suitable for all applications which require high workability and a low water/cement ratio. Its principal uses are for:

- precast concrete;
- ready-mix concrete (especially in cold weather);
- pumped concrete.
- mass concrete;

Some application examples
In addition to its plasticising effect, **Mapefluid N200** has a slight retarding action on the hydration of cement and is therefore particularly suitable for:

- concrete for precast steam-cured elements.
- ready-mix quality concrete for structures with R_{ck} higher than 25 MPa;
- ready-mix concrete for structures in reinforced and pre-stressed reinforced concrete exposed to aggressive agents: beams, columns, bridge-decks and viaducts;
- ready-mix concrete for watertight structures: purification plants, reservoirs, canals, tunnels, etc;

TECHNICAL CHARACTERISTICS
Mapefluid N200 is a 40% water solution of active polymers that disperse cement granules (see “Technical Data” table). **Mapefluid N200**'s dispersing action (Fig. 1) can be used in three ways:

A) to reduce mixing water only compared with that of plain concrete with the same workability, for increased compressive strength, reduced permeability to water and improved durability (see “Concrete Performance” table).

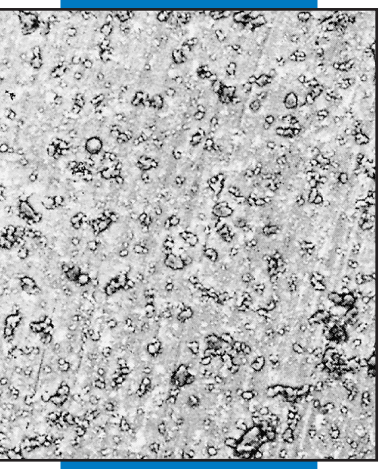
B) to improve workability compared with that of plain concrete with good-performance characeristics (strength, impermeability, durability) that is otherwise difficult to place (stiff or plastic concrete);

C) to reduce both water and cement (in equal proportions) so that the water/cement ratio and concrete performance are not changed in comparison with those of plain concrete without admixture: in this case, there are both economic advantages (the cost of the admixture is lower than the saving on cement), and technical improvements, due to reduction in hydrometric shrinkage, creep and thermal stress caused by the heat developed during cement hydration.

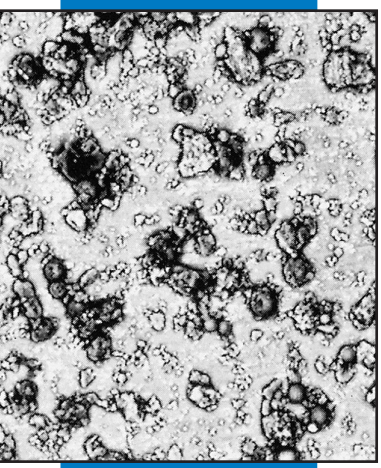
This method is especially recommended for concrete with a high cement factor (> 350 kg/m^3).

Fig. 2 illustrates three ways of using **Mapefluid N200**. The admixture's special action can be adjusted to obtain the results required (increased strength,

Mapefluid N200



A



B

Fig. 1 - Water suspension of cement with (A) and without (B) superplasticiser

improved workability, reduced cement factor) by varying the dosage between 0.5% and 1.5% by weight of cement: the greater the dosage, the greater the effect.

RECOMMENDATIONS

Although there are no specific uses for which **Mapefluid N200** is unsuitable, the following are effective alternatives:

- for preparation of ready-mix concrete in hot weather, use **Mapefluid R104** or **Dynamon SR2**, for better initial retention of workability in the mix.

APPLICATION PROCEDURE

It is preferable to add **Mapefluid N200** into the mixer after all the other ingredients (water, cement, aggregates). The action of the admixture is more effective when added later.

Mapefluid N200 is most effective when cement and aggregate grains are already wet, and least effective when the admixture is mixed with dry solids, especially if porous, which partially absorb it. It is advisable to begin adding the admixture with an automatic dispenser when at least half the water required for the mix has been introduced into the mixer.

Some users prefer to add the admixture at the job-site just before pouring the concrete, when the admixture's action is most effective (provided the solid ingredients are already wet), but it must be mixed evenly throughout the concrete by spinning the cement mixer at maximum speed. It is worth noting that with a dosage of 1% to 1.2% it is possible to transform a stiff concrete (20-30 mm of slump) into self-levelling concrete (220 mm of slump).

However, this is not easy to do at the job-site because of the difficulty of preparing and delivering concrete with a slump of 20-30 mm (before adding the admixture) that is consistent and homogeneous.

Compatibility with other products

Mapefluid N200 is compatible with other products for producing special concrete, and especially with:

- **Mapeplast PT1**, air-entraining agent for producing concrete resistant to freeze-thaw cycles;
- **Mapeplast SF**, micro-silica powder admixture for producing top-quality concrete with strength, durability and impermeability;
- **Expancrete**, expansive agent for producing shrinkage-compensated concrete;
- fly ash for producing concrete with artificial pozzolan;

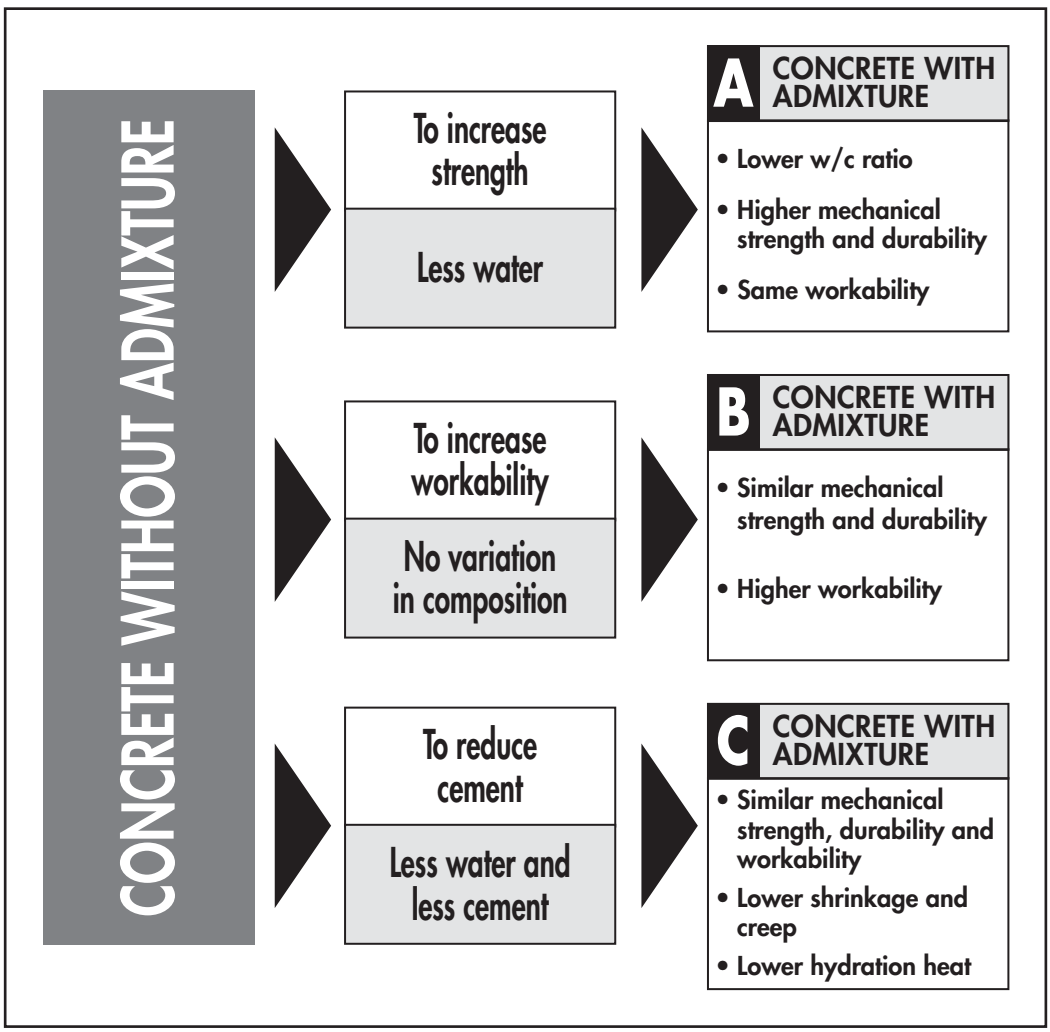


Fig. 2 - Three different ways to take advantage of Mapefluid N200 admixture

TECHNICAL DATA (typical values)

PRODUCT IDENTITY			
Consistence:	liquid		
Colour:	brown		
Specific gravity (kg/l):	1.20 ± 0.03 at +20°C		
Active product (%):	40 ± 2		
Specific action:	high-range water reduction and/or improved workability		
Collateral action:	initial retarding of hydration when used in high dosages		
Classification:	high range, water reducing, superplasticizer according to EN 934-2 tables 3.1 and 3.2		
Chlorides:	no		
Storage:	12 months. Protect from frost		
Hazard classification according EC 99/45:	none		
Customs class:	3824 40 00		

PERFORMANCE DATA OF MAPEFLUID N200 IN CONCRETE*			
Admixture dosage (% in volume by weight of cement):	0	1.0	1.5
w/c:	0.60	0.48	0.43
Water reduction (%):	–	20	28
Initial slump (mm)	200	210	210
Slump after 30 min. (mm)	140	140	130
1-day Rcm (N/mm²): **• 20°C:**	8	15	19
3-day Rcm (N/mm²): **• 20°C:**	16	29	34
7-day Rcm (N/mm²): **• 20°C:**	24	42	48
28-day Rcm (N/mm²): **• 20°C:**	35	55	63
R_{ck} (N/mm²):	30	50	55
Water penetration under pressure according to EN 12390/8 (mm):	30	10	3
Durability (environmental exposure classes according to EN 206-1):	X0 XC1 XC2	X0, XC1, XC2 XC3, XC4, XS1 XD1, XD2 XF1, XF2, XF3 XA1, XA2	X0, XC1, XC2, XC3 XC4, XS1, XS2, XS3 XD1, XD2, XD3 XF1, XF2, XF3, XF4 XA1, XA2, XA3

* These data are average values obtained for concrete with 335 kg/m³ of cement CEM I 42.5 R, with natural aggregates (max. diam: 30 mm).

Mapefluid N200

- **DMA 1000**, **DMA 2000** or **DMA 3000 Form-Release Agents** for stripping concrete formwork;

- **Mapecure E** or **Mapecure S** curing compounds for preventing overly rapid evaporation of mix water in concrete flatwork (flooring).

DOSAGE

Dosage by volume:
From 0.5 to 1.5 l per 100 kg of cement.

PACKAGING

Mapefluid N200 is available in 200 l drums, 25 kg and 10 kg buckets and 1,000 l tanks. It is also available in bulk on request.

STORAGE

Store in closed containers; protect from frost and direct sunlight.

FOR PROFESSIONALS.

WARNING

Although the technical details and recommendations contained in this 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 application. For this reason, anyone intending 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 use of the product.

All relevant references of the product are available upon request

704-2-2004

MAPEI®

BUILDING THE FUTURE

MAPEI GROUP CERTIFIED MANAGEMENT SYSTEMS (Quality, Environment and Safety)

CERTIQUALITY No. 250 · The Mapei Environmental Management System ISO 14001 Plant in Robbiano di Mediglia CERTIQUALITY No.1230 · The Mapei Environmental Management System ISO 14001 Plant in Latina CERTIQUALITY No. 6127 · EMAS · OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEMS OHSAS 18001 CERTIFIED BY CERTIQUALITY PLANT IN ROBBIANO DI MEDIGLIA Certificate No. 3586 MAPEI

MAPEI S.p.A. - ITALY

CERTIQUALITY No. 3358

MAPEI FAR EAST Pte Ltd MAPEI MALAYSIA SDN BHD

ITC No. 03 0063 SJ

MAPEI s.r.o. - CZECH REP.

CERTIQUALITY No. 1517

MAPEI FRANCE

QMI No. 004157

MAPEI INC - CANADA

DNV No. 94-OSL-AQ-6236 · The Mapei Environmental Management System ISO 14001 Plant in Sagstua DNV No. 2002-OSL-SYMI-8147 · EMAS

RESCON MAPEI AS - NORWAY

DNV No. 12026-2002 AQ-BUD-TGA

MAPEI Kft. - HUNGARY

IRAM No. AR-QS-688

MAPEI ARGENTINA S.A.

CERTIQUALITY No. 5776

MAPEI SUISSE SA

www.mapei.com