



Special steel fiber reinforced modified concrete surface coating

Uses

METOP TM4 is a very hard wearing special purpose heavy duty industrial coating durable concrete surface coating with very high abrasion resistance. Suitable for military use such as **tank testing areas**, as well as very heavy duty floors such as **Airplane hangers** and maintenance areas ,floors subjected to moving tracked vehicles and heavy loading/unloading areas .

Advantages

- Supplied ready to use
- Easy to apply.
- High compressive , flexural and wear resistance
- Contains very hard aggregates (Corundum) as well micro steel fibers and very special additives which gives the finished surface very high abrasion resistance as well as high flexural strength

Application areas:

- *All types of Military areas, specially tank testing floors, , and production area .
- *Other heavy duty roads,
- *heavy duty parking area
- *On floors subjected to tracked vehicles.
- *In ware houses
- *Heavy duty factory floors.
- *Steel factories
- *Agricultural vehicle factories

Aggregate type

Table 1.0-Aggregate type of METOP TM4	
Aggregate type	Hardness (Mohs)
Corundum aggregates	9.0 Mohs

The Corundum aggregate has a hardness of 9 Mohs, gives the final concrete surface very high abrasion and wear resistance.

Description

METOP TM4 is a factory blended , quality controlled , ready to use mixture in powder form.

Consists of natural and very hard mineral/metallic aggregates. It also contains surface type steel fibers, excellent quality cement and very special additives.

Color

Standard color is dark concrete grey color .Its also available ,Brick red, Green

Properties

Abrasion resistance

METOP TM4 has high abrasion resistance.

Böhme Test ,Abrasion loss around 2.3 cm³/50cm²

Table 2.0-Abrasion test results of METOP TM4

Type of coating	Average abrasion resistance Böhme test (TS 699) (cm ³ / 50 cm ²)
METOP TM4	2.3

The average 28 day flexural and compressive strengths of METOP TM4 are (these tests were performed on samples of METOP TM4 which were prepared and tested according to internationally accepted standards without the presence of any concrete mortar) :

Table 3.0 Flexural strength

Type of coating	Average Flexural strength (Mpa)
METOP TM4	12.4

Compressive strength

Table 4.0-Compressive Strength

Type of coating	Average Compressive Strength (Mpa)
METOP TM4	110.9





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Design criteria

Base concrete :

The quality of the base concrete is important and will effect the final finished surface. High quality concrete mixture must be (mutlaka üzerindeki yuklere gore hesap edilmiş özelliklerde beton harcı kullanılması uygun olur) used with a minimum 250-350 kg/m³ cement content. The water cement ratio and The concrete mix are very important too because excessive bleeding and segregation are not desirable and must be brought down to minimum level. Depending on the weather conditions (of the area) the water/cement ratio can vary between 60-120mm.

Instructions for use

-Site preparation

*Finish all necessary soil compaction and floor preparation work before placing the concrete.

*Sub grade must be well drained and must be graded in uniform thickness to create uniform load bearing characteristics and eventually reduce cracks ,

- Concrete placement

* Protect the working area from wind and direct sunlight. Preferably finish concreting work, after finishing roofing and wall construction. If it is necessary to place concrete outdoors the weather conditions must be taken into account to minimize the it's effect on the fresh concrete.

* The concrete forms must be positioned in their correct positions one or two days before placing the Concrete, taking into consideration joint locations such as control and construction joints.

* Always use good quality concrete mix suitable for industrial floors and prepared according to internationally accepted standards.

*In industrial floors thickness of the placed fresh concrete should not be less than 10cm. (Ama tm4 için büyük yuklerde bu min 20 cm ve üstü , çift kat hasır celik donatılı olmalıdır)unless it contains special additives to reduce thickness.

* Discharge the concrete directly from the concrete mixer truck. Deposit concrete uniformly in front of the vibrating screed.

* The grade behind the screed must be checked frequently , over vibration must be avoided to stop excess fine material from coming to the surface. Remove some of the mortar from the surface average 2-3 mm which will be placed by Metop TM4 coverage

* The surface is then bull floated with wood or magnesium floats.

- Color hardener application

There are two application methods

1)The product Metop Tm4 is mixed for with 15-20% pbw water in a small mixer close to the area to concreted. After mixing . leave for (3-5 min) and then remix. Then place on the prepared surface (wet on wet) to the required level. Bull float or use a floating machine by pan to increase the adherence between the two surfaces. Then step by step continue to finish by trowelling with steel blades , using the same procedures used in normal surface hardener application.

Apply to the finished surface METOCURE ACR 150 curing agent .

(Always use hand glowes before contact to Tm-4 and avoid from micro steel fibres)

2) After screeding the concrete surface, 2-3 mm of the surface is removed. Enough to be replaced by (coverage min 10 kg/m²) METOP TM4.

Apply half of the powder mixture of METOP TM4 to the fresh concrete surface bull floated or by floating machine using only discs. Then apply the second half of powder METOP TM4 mixture , small amount of water can be sprinkled between the two surface to increase adhesion. The same application procedure is repeated for the second half. Finish the surface by trowelling with blades to get a hard smooth surface. If a rougher surface or broom finish is required then the surface can either be finished at the floating stage or shaped with hard broom.

Again apply METOCURE ACR 150 curing agent .

If Metop TM4 is required for a lighter or forklift traffic , application can proceed without removing any of the concrete mortar, making sure that vibrating screed is used at least twice , apply METOP TM4 (6-8 kg/m²) and finish the the surface the same way as any normal dry shake hardener.

Cleaning

All tools should be washed with water after use.

Curing

-100-200 g/m² METOCURE curing agent should be applied to the dry cleaned concrete surface . It is manufactured to conform to ASTM C309.

-METOCURE has the advantage of preventing initial water loss from the concrete surface and eventually result in better quality and higher strength concrete . Depending on the type of curing agent used best results can be achieved if no moisture is present on the surface of concrete during the curing agent application.





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STORAGE:

- Store in a dry , non humid area,
- No more than five bags should be stacked on top of each other,
- For cement based hardeners. preferably use in 6 months from production date and if properly stored this period can be as long as 1 year.

COVERAGE :

Heavy duty surface 10-25 kg /m2

Moderate industrial traffic -8-10 kg/m2

CAUTION:

Fire

METOP TM4 is not flammable.

Health and safety

*It is cementitious material so do not use on floors subjected to acids and other corrosive chemicals,

*The above mentioned application system is for normal weather conditions. In the case of extreme weather conditions this application method, the concrete mixing and curing application must be modified accordingly.

* METOP TM4 is a cementitious material and become alkaline when mixed with water therefore avoid contact with skin it can be harmful and wash thoroughly with water.

LIMITED WARRANTY

All recommendations, statements and technical data herein are based on tests we believe to be reliable and correct also based on our long experience in this field of construction.

METOP LTD. Warrants it's products (METOP TM4) to be free of manufacturing defects and contains best quality ingredients. Since no control is exerted over it's application and use METOP LTD. Makes no warranty ,either expressed or implied, concerning this product.

Extra and special guaranties can be granted to certain big project by obtaining mutual agreements between concerning parties. The company detailed application instructions must be complied with for any company guaranties to be applicable.

