

Cormix® Pilecon

NATURAL SODIUM BENTONITE

DESCRIPTION

Cormix Pilecon is a natural premium grade sodium bentonite ideally suited for any type of civil engineering applications and on any kind of soil. Cormix Bentonite matches API RP-13B Section & OCMA-DFCP4.

Cormix Pilecon swells up to sixteen times its volume and, after dispersion in water, shows rheologic reactions that guarantee highly colloidal suspensions which have high waterproofing and lubricating qualities.

USES & ADVANTAGES

Cormix Pilecon is suitable for use with all kinds of soil. It has high filtration properties with low sensitivity to contaminants. It is used in the construction of shafts, micro tunneling, pipe jacking, bore piling, dam grouting diaphragm wall and cavity grouting in segment tunnels.

Advantages include:-

- Reduces fluid loss and prevents water seepage into permeable formations.
- Improves bore hole cleaning.
- Transports the excavated material from the face.
- Helps to develop a layer of filter cake on the micro-tunnel front acting as a membrane and inhibiting diffusion of the suspension into ground.
- Reduces jacking force.
- Reduces friction between the pipe & soil.
- Improves the flow of excavated material through the head chamber
- Prevents ground collapsing into the annulus and causing settlement.
- Provides lubrication.
- Little loss of drilling fluids.
- Easy to mix quickly achieves maximum viscosity.

PHYSICAL PROPERTIES

TESTING	RESULT
Moisture:	Max 13%
Specific Gravity:	2.3-2.6
Bulk Density:	850 - 1050 kg/m ³
Swelling - 2 g:	>30 ml
pH at 5 % :	> 9
Bleeding after 24 hrs:	0
Plasticity limit:	80-100%
Plastic index:	> 500%
Yield Point/Plastic Viscosity Ratio :	1.10
Residue of Diameter Greater Than 75 µm:	15% Max

TYPICAL CHEMICAL COMPOSITION

SiO ₂	45-55%
Fe ₂ O ₃	4-15%
Al ₂ O ₃	10-19%
TiO ₂	0.8-2.2%
CaO	0.7-2.4%
MgO	1.9-3.6%
Na ₂ O	1.6-3.2%
K ₂ O	0.12-0.30%

APPLICATION

The primary aim of **Cormix Pilecon** slurry shall be to ensure that the slurry is capable of fulfilling functions as a retainer, sealant and to stay insular without any deleterious effects on the finished pile, wall or other form of construction.

In order to reach the best performance during the preparation of the drilling fluid, **Cormix Pilecon** must be dispersed using a turbo mixer in a proportion of 30 - 50 Kg of **Cormix Pilecon** per cubic meter of water. **Cormix Pilecon** slurry is prepared with an objective to achieve maximum hydration of the bentonite. Therefore **Cormix Pilecon** must be added to the mixing water gradually in order to ensure that all the particles are wetted and do not clump into partially hydrated lumps.

Potable quality fresh water from a mains supply should be used in the mixing process to achieve the best results. If there is any doubt about the quality of the water, a chemical treatment should be carried out using sodium bicarbonate or soda ash to control the pH before using **Cormix Pilecon**.

In addition, for economic and environmental reasons, the maximum re-use and minimum disposal of used slurry is desirable.

Cormix Pilecon slurry can be re-used provided its properties are carefully monitored and kept under control. Whatever system of excavation is used, loss of slurry will occur. Some will be excavated with the soil, some will permeate into the strata, and some will become too tainted for re-use and have to be taken off site.

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RHEOLOGICAL PROPERTIES

Specification of Bentonite slurry - Mixed at 1,500 rpm for 3 min and after 1 hr ageing at 20°C. Concentration of 3.75% by weight for 1 Lt of Tap Water

TESTING	INSTRUMENT	STANDARD METHOD	MONITORING & ROUTINE PROCESSES	STANDARD REQUIREMENT	MEASUREMENT RESULT
Marsh funnel viscosity	Marsh cone with cup	API RP 13B Section & OCMA DFCP4	After mixing (fresh) Ready for re-use Prior to concreting	* 32- 50 Sec. * 32- 60 Sec. * 32- 50 Sec.	44 Sec. 48 Sec. 46 Sec.
Fluid density	Mud balance	API RP 13B Section & OCMA DFCP4	After mixing (fresh) Ready for re-use Prior to concreting	< 1.10 kg/m ³ < 1.25 kg/m ³ < 1.15 kg/m ³	1.02 kg/m ³ 1.10 kg/m ³ 1.05 kg/m ³
Filtrate loss (@ 30 min, 100 psi)	API-Filter press (LTLP)	API RP 13B Section & OCMA DFCP4	After mixing (fresh)	< 30 ml.	19.4 ml
Mud-cake thickness (@ 30 min, 100 psi)		API RP 13B Section & OCMA DFCP4	After mixing (fresh)	< 3 mm.	2.3 mm
Gel strength (10 Min.)	Shearometer kit	API RP 13B Section & OCMA DFCP4	After mixing (fresh)	4-40 N/m ² .	4.2 N/m ²
pH	pH indicator strips (Litmus paper)	API RP 13B Section & OCMA DFCP4	After mixing (fresh) Ready for re-use Prior to concreting	< 10 < 11 < 12	< 9.5 < 9.5 < 9.5
Sand content	Sand content kit	API RP 13B Section & OCMA DFCP4	After mixing (fresh) Ready for re-use Prior to concreting	< 3% < 3% < 3%	< 1% < 1% < 2%

* Or as recommended by manufacturer/distributor as well as approved by Foundation Engineer / Specialist Geotechnical Engineer

CONCENTRATION (Bentonite)	g/L	50.0	37.5	25.0
		2 Sacks	1.5 Sacks	1 Sack
Swelling Time (1 hr)				
Marsh Viscosity	Sec	67	44	37
Filtrate 7.5 min (100 psi)	mL	8.2	9.4	11.2
Filtrate 30 min (100 psi)	mL	17.8	19.4	22.4
Mud cake (thickness)	mm	2.5	2.3	1.9

PACKAGING

25 kg bags. Or 1.30 MT bags.

STORAGE & SHELF LIFE

Cormix Pilecon has a shelf life of 12 months when stored in a dry place below 35°C in unopened condition.

HEALTH & SAFETY

Cormix Pilecon is alkaline, use protective gloves, glasses and protect skin. If gets into eyes clean out with water immediately, wash off skin with soap and water immediately.

TECHNICAL SERVICE

The Cormix International Technical Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.
ISO 14001: 2015 verified by Lloyd's Register International.

Cormix[®] Pilecon**NATURAL SODIUM BENTONITE****DISCLAIMER**

Performance data is achieved testing in accordance with International Standards. Testing by others may result in different results from those published as a result of external factors such as poor sampling, incorrect mixing, varying temperatures, curing, crushing procedures etc.

Cormix does not take responsibility nor need to defend others testing that does not achieve the published data.

The user must test the products suitability for the intended application and purpose. Cormix reserves the right to change the properties of the product.

Site conditions and differences in materials are such that no warranty or fitness for a particular purpose, nor liability can be inferred from the published data sheet, written recommendations or from other advise offered.

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