 MC-Bauchemie Taiwan Co., Ltd.	Product 對應產品: Nafufill KM 250	Sheet#表單編號: IRP-TDS_DE_NK250 _E0712	Prepared: Max Lu	1 / 4
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Nafufill KM 250

**Fire-resistant, fibre-reinforced PCC-concrete replacement for repair
of concrete components in statically and not-statically relevant areas**

適用於靜力與非靜力相關區域混凝土構件之防火纖維強化聚合物改質粗修補砂漿

Product Properties 產品性能

- One-component
單劑式
- Hand- and spray application
可手工或噴塗施作
- Statically chargeable
具陰極防蝕保護性
- High carbonation resistance
高中性化防護效果
- Resistant to de-icing salts, chloride-proof
耐融雪劑，並具氯化物防護效果
- Non-flammable according to DIN EN 13501 – building material class A1
符合DIN EN 13501非易燃性標準，建材等級A1
- Fire-resistant according to temperature time curves of ZTV-ING, part 5, paragraph 1 + 2, EBA-guideline and TNO-report 1998 – CVB – R 1161 of Rijkswaterstaat (RWS)
防火性能符合ZTV-ING(土木工程之附加技術規範和準則), part 5, paragraph 1 + 2之溫度對應時間曲線標準。
- Fire-resistant according to standard temperature curve (ETK) of ISO 834, fire resistance class F 90
防火性能符合ISO 834標準溫度曲線(ETK)，防火等級F 90
- Mortar class R4 according to EN 1504 part 3
符合EN 1504 part 3砂漿等級R4

Areas of Application 使用範圍

- Concrete replacement according to ZTV-ING, chapter 3 solid construction for area of application PCC II – dynamically and non-dynamically loaded areas – application partially and area-wide
適用於符合ZTV-ING(土木工程之附加技術規範和準則)混凝土修補規範，第3章-施作聚合物改質砂漿之硬質結構物區域-動力與非動力區域-部分施作與廣域面積施作
- Concrete replacement according to ZTV-W LB 219 for repair of water structures, application partially and area-wide
適用於符合ZTV-W LB 219混凝土修補規範，承水結構之部分施作與廣域面積施作
- M3 concrete replacement according to DafStb – repair standard for static strengthening of concrete bearing structures
適用於符合DAfStb(德國鋼筋混凝土委員會)M3混凝土修補規範，混凝土承重結構之靜力強化修補標準
- Repair- and anode embedding mortar according to EN 12696 for repair principle “Cathodic corrosion protection of steel in concrete” (also horizontal areas)
適用於符合EN 12696修補準則之修補與陽極覆蓋砂漿“混凝土內鋼材之陰極防蝕保護”(亦包含水平區域)
- Certified and classified according to EN 1504 part 3 / part 9 for principles 3, 4 and 7 and procedures 3.1; 3.3; 4.4; 7.1 and 7.2
通過EN 1504 part 3 / part 9 for principles 3, 4 and 7 與 procedures 3.1; 3.3; 4.4; 7.1 and 7.2認證與分級
- According to EN 206 suitable for exposition classes XC 1-4; XF 1-4; XW 1-2; XD 1-3 and XS 1-3
符合EN 206適用於exposition classes XC 1-4; XF 1-4; XW 1-2; XD 1-3 與 XS 1-3標準



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Application 使用說明

Substrate Preparation 基材整備

See leaflet "General Application Advice for Coarse Mortars / Concrete Replacement Systems".

請參閱“粗修補砂漿/混凝土替換系統之一般使用須知”技術資料。

Bond coat 黏結層

For hand application Zentrifix KMH has to be used as bonding coat. See leaflet "General Application Advice for Coarse Mortars / Concrete Replacement Systems".

採用手工鏝塗時，必須使用Zentrifix KMH作為黏結層。請參閱“粗修補砂漿/混凝土替換系統之一般使用須知”技術資料。

Mixing 混和

Nafufill KM 250 is added to the water under constant stirring and mixed until a homogenous, lump-free and workable mortar is achieved. Forced action mixers or slowly rotating double mixers must be used for mixing. Mixing by hand and preparation of partial quantities is not allowed. Mixing takes at least 5 minutes.

將Nafufill KM 250於持續攪拌下倒入預先準備之水中，徹底拌合直到形成均質、無塊狀且具工作性之砂漿。請務必使用強制式攪拌機或慢速雙軸式攪拌機進行拌合作業。請勿使用手工拌合或預拌部分數量。拌合時間至少達5分鐘以上。

Mixing Ratio 混和比例

Please see "Technical Data" table. For a 25 kg pack of Nafufill KM 250 approx. 3.75 to 4.00 litres of water are required. As with other cement-bound products the quantity of added water may vary.

請參閱技術資料表。一包25公斤裝的Nafufill KM 250約需3.75至4.00公升的水進行混合。若含其他水泥產品則加水量需變更。

Application 使用方法

Nafufill KM 250 can be applied by hand or spray application. The material may be applied in one or more layers. A worm pump with adjustable discharge flow is advised for spray application. Please request our assistance or an equipment planner leaflet in such a case.

可採手工或噴塗方式施作Nafufill KM 250。本材料可施作一至數層。建議使用含多變可調式流速功能之噴塗灰漿機進行噴塗作業。請詢問我們或者取得設備規劃資料以獲得諮詢與協助。

Finishing 表面修飾

After application Nafufill KM 250 may be smoothed and finished with a wooden or plastic float or with a porous sponge rubber squeegee.

施作完後，請使用木質鏝刀、塑膠鏝刀或細孔海綿橡膠刮刀抹平與修飾Nafufill KM 250。

Curing 養護

Nafufill KM 250 must be prevented from drying out too rapidly and protected from direct sunlight and wind exposure. Curing usually takes 3 days.


請避免Nafufill KM 250受到陽光與風的影響與過快乾燥。養護作業通常需要3天時間。



Technical Data for Nafufill KM 250 技術資料

Characteristic 特性	Unit 單位	Value**數值	Comments 註釋
Largest aggregate 最大粒徑	mm	2	-
Fresh mortar density 新拌砂漿密度	kg/dm ³	2.06	-
Dry mortar density 乾燥砂漿密度	kg/dm ³	1.85	-
Bending tensile / Compressive strength 彎曲強度/抗壓強度	MPa	4.7/34.4 5.8/50.4 8.5/55.0	after 2 days 天之後 after 7 days 天之後 after 28 days 天之後
Dynamic E-modulus 動態彈性模數	MPa	32,500	after 28 days 天之後
Static E-modulus 靜態彈性模數	MPa	22,600	after 28 days 天之後
Shrinkage 收縮	mm/m	0.78	after 28 days 天之後
Carbonation depth 中性化深度	mm	0	after 90 days 天之後
Chloride migration coefficient 氯離子擴散係數	m ² /s	2.53x10 ⁻¹²	
Coverage (dry mortar) 耗用量(乾燥砂漿)	kg/m ² /mm	1.80	
Pot life 使用時間	minutes	60 45 30	at + 5 °C at + 20 °C at + 30 °C
Layer thickness* 塗層厚度	mm	6 30 60*** 100	minimum layer thickness per work step 每工作階段之最小塗層厚度 maximum layer thickness per work step 每工作階段之最大塗層厚度 max. total layer thickness, before initial cure 初凝前之最大總塗層厚度 partial application 局部施作
Application conditions 使用環境	°C	≥ 5 - ≤ 30	air, material and substrate temperature 大氣、材料與基材溫度
Mixing ratio 混合比例	p. b. w.	100 : 15 - 16	Nafufill KM 250 : water 水



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Product Characteristics Nafufill KM 250 產品特性	
Colour 顏色	cement-grey 水泥灰
Delivery 包裝	25 kg bags 袋
Storage 儲存	Can be stored in cool and dry conditions for at least one year in original unopened packs. Protect from frost! 原包裝未拆封情況下，可在乾燥陰涼的環境中保存至少 1 年以上。避免霜害。
Disposal 廢棄處理	Packs must be emptied completely. 殘料應完全清除。

- * Within the scope of certification according to ZTV-ING the minimum layer thickness per work step is 10 mm.
依 ZTV-ING(土木工程之附加技術規範和準則)認證範疇內的每工作階段之最小塗層厚度為 10 mm。
- ** All values have been determined at 23 °C and 50 % relative humidity.
所有技術數據之測試條件為 23 °C 與 50 %相對溼度。
- *** Permitted total layer thickness in line with ZTV-ING: 50 mm.
符合 ZTV-ING(土木工程之附加技術規範和準則)規範允許之總塗層厚度為 50 mm。

Safety Advice 安全須知

Please take notice of the safety information and advice given on the packaging labels and safety information sheets.
請注意包裝標籤以及安全資訊表標示之安全資訊與須知。

Note: The information on this data sheet is based on our experiences and correct to the best of our knowledge. It is, however, not binding. It has to be adjusted to the individual structure, application purpose and especially to local conditions. Our data refers to the accepted engineering rules, which have to be observed during application. This provided we are liable for the correctness of this data within the scope of our terms and conditions of sale-delivery-and-service. Recommendations of our employees which differ from the data contained in our information sheets are only binding if given in written form. The accepted engineering rules must be observed at all times.
以上技術資料係根據我們豐富的施作經驗以及所知的最正確資訊，然而這並非是絕對性的，相關數據仍需依各結構、施工目的、特別是當地環境作適度調整。我們的技術資料皆參照使用中測得之公認施工常規，我們對產品買賣、運輸與售後服務條款範圍內資料之正確性附有相關責任。若本公司人員書面形式之建議資訊不同於我們的技術資料內容則僅供參考使用，施工常規需時時於現場觀察。公認之施工常規必須於現場不停測得。
Edition 07/12. Some technical changes have been made to this print medium. Older editions are invalid and may not be used anymore. If a technically revised new edition is issued, this edition becomes invalid.
版次07/12。部分技術變更已完成於本印製途中。舊版資料即宣告失效並不再使用。若有新技術修訂版本發行，則本版次即宣告失效。



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