



Technical Bulletin 技術佈告欄

TB-104 Application of Ardex SLC – typical site with concrete floor / AAU / Nov 12th 2004

TB-104

主題：亞德士自流平使用於一般混凝土基面

INTRODUCTION & SCOPE

This bulletin discusses the mixing and general applications principles for laying Ardex Flooring Smoothing Cements including Ardex K15, K500, V900, Z8, K200 and Ardit 800 or K15. The application discussed is smoothing over concrete substrates using hand methods, but other surfaces can be topped, or the material pumped and advice on these specialist procedures is available from Ardex Technical Services.

The specific details for each product are explained in the relevant Product Technical Datasheet, and other special instructions are explained in the Technical Bulletins

簡介及適用範圍

本技術佈告主要討論亞德士自流平材料在一般混凝土基面上的應用包括 Ardex K15, K500, V900, Z8, K200, Ardex K301, 及 Ardex CL5, CL3, CL1 等不同級別的自由平。這裡主要介紹的是操作者以電動機械攪拌後逐一澆置施工，其餘的如其他基層狀況，或以泵機施工等步驟，可以通過亞德士技術服務來獲得所需要的說明。亞德士個別自流平具體產品的細節在其各自的技術說明書裡有詳細介紹，其它特別技術說明則由技術佈告來加以說明。

PRIMING

After the surface has been mechanically prepared and vacuumed clean of any dust or residues, priming is required. This both provides a mechanical and chemical key for the levelling cement and eliminates the risk of ant holing of the surface.

The primer for porous concrete is Ardex 51 which is diluted with water, the ratio depending on the concrete porosity.

The preferred application method is by bristle broom as this helps the primer to penetrate into all the holes and cavities in the surface.

Puddles are brushed out and the surface allowed to dry before application of the levelling cement.



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塗刷底塗劑

在基層已經機械打磨或刨除並且吸乾淨塵土和殘餘物後需要塗刷底塗劑。從物理和化學層面上講，這是自流平施工的關鍵步驟，底塗劑可以增加自流平的附著並防止自流平施工後表面出現蟻穴狀孔洞。多孔吸水的混凝土基層應使用ARDEX P51底塗劑，使用時應加水稀釋。稀釋的比例取決於混凝土的孔隙率(吸水率)。施工首選方法是以鬃毛刷來塗刷底塗劑，因為鬃毛刷可以讓底塗劑更好的滲入到表面的孔隙中。在澆置自流平前需要確保基面塗刷均勻並且等到底塗劑乾燥後再行施工。

MIXING & APPLICATION

These products must be laid by working to a wet edge of the floor smoothing cement, so a production line approach needs to be adopted with the mixing. A mixing station is set up which then feeds a constant supply of mixed product to the applicators. The following is a list of equipment and materials required.

攪拌 和 施工

自流平產品在施工時，需要在地面上濕對濕澆置搭接，這就需要事先安排好一個作業流水線以保證供料上能滿足這個要求。攪拌混合作業必需足以連續不斷地給前方攤拖整平施工人員供應自流平漿料。以下則是作業時需要準備的工具和材料清單。

Ardex 自流平攪拌頭

Ardex mixing paddle



整平鋼鈹鏟刀 (~400mm長的平口直邊鏟刀)

Hand trowels for flooring (~400mm wide straight edged steel trowels)



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Ardex 厚度控制 T 型刮耙 (可調節漿體厚度)

Ardex thickness rake (this tool is height adjustable)



Ardex 整平拖板

Ardex smoothing spreader



電動混合攪拌機械 (最低轉速~650rpm)

Heavy duty electric drill for mixing (minimum speed ~650rpm)

Ardex 量水桶

Ardex water gauging bucket



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20L混合桶

20 litre mixing buckets

60~100L 儲水桶

60 – 100 litre water vessel

塑膠保護膜

Plastic ground sheeting

帶釘膠鞋 (足球鞋)

Rubber studded boots (football boots)

觸電 Electrical safety cut out device for use with mixer (recommended where the site has no RCD fitted to circuits).

用於混合和工具存放地點的準備：

The area to be used for mixing should be arranged and tools prepared as follows-

Work area needs to be set up with bags lined up and cut open

Water vessel full of drinkable cool water (15 to 20°C. in the summer this can be cooled with melted ice, or warmed slightly in winter)

Water gauging bucket cut to correct delivery quantity

Multiple mixing containers lined up

Drill and mixing paddle placed in drill and connected to electrical safety device

Plastic laid out to protect sub floor

Waste bin for disposal of empty bags

Sufficient labor for mixing, carrying of mixed product, and spreading of materials

Clean hardened FLC off studded boots

Set height for thickness rake, typically 3-4mm

Ensure smoothing spreader is straight

Trolley for conveying mixed material to work face

Team has necessary personal protective equipment

Area is well ventilated.

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- 攪拌工作區應當臨近材料堆放區域
- 水桶中儲滿水（15~20°C）在夏季可以使用冰塊降溫，在冬季可以稍微加熱
- 測量桶的切割口依據選用產品用水量先行準確切割開口。
- 多個混合桶一字排開。
- 電動攪拌機裝好攪拌頭接上電源並且和觸電保護裝置連接好。
- 塑膠膜鋪好用來防止污染地面
- 垃圾桶
- 安排好足夠的人員來進行流水作業
- 把鞋上硬化的FLC除掉
- 厚度控制耙的厚度設置好，一般為3-5 mm
- 確保整平拖板無彎曲
- 四輪平板運料車
- 施工人員的個人防護措施
- 通風良好

1. Take the Ardex gauging bucket and immerse it in the large water container. When full draw the bucket up, keeping the sides vertical and allow the water to run out of the side cut out till the desired level is reached. Tilt the bucket slightly away from the cut out side and pour the gauged water into the mixing bucket.

1. 以切割好開口的量水桶在儲水桶中取水，盛滿後垂直取出並讓水漏至正確水量(開口位置)，然後以手指勾住開口(開口側朝上)將水倒入攪拌桶中。



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2. Take a bag of the floor leveling cement and pour it into the mixing bucket whilst at the same time commencing to mix with the power stirrer. *Note that hand mixing is not satisfactory and will not mix the product properly.*
2. 將一包自流平倒入混合桶同時進行機械攪拌。注意, 手動攪拌效果不符合自流平攪拌要求。



By cutting the bag to produce a flap, it is possible to minimise the amount of dust produced during the pouring and mixing process.

It is recommended that the first 75% of the bag is added, then mixed for one minute, and then the remaining 25% added.

- 攪拌時可以將紙袋覆蓋在桶上以減少揚灰。
建議先加入一包的75%，攪拌1分鐘，再加入剩餘的25%自流平乾粉。



3. The material shall be mixed for two minutes in total and the paddle should be scraped around the sides to break up any adhering dry material.

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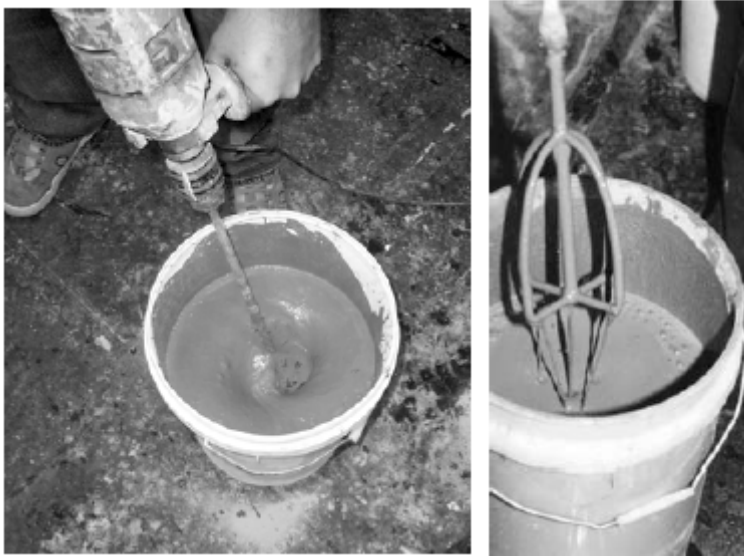


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3. 材料應當攪拌總共2分鐘以上，並且用攪拌頭或小刮板將桶壁附著的乾粉刮除乾淨進行充份攪拌。

After mixing the smoothing cement should be smooth and free flowing. *Note – Do not add water in excess of the recommended amounts as this can seriously effect the performance of the material.*

混合後的漿體應當光滑流動性佳。注意-不要過量加水，否則會對材料的性能產生嚴重的影響。

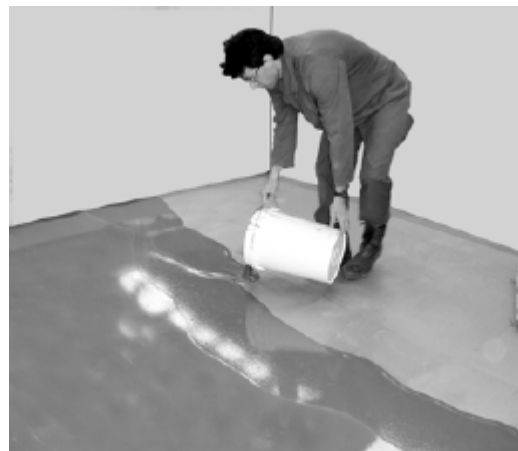


4. Wearing studded boots to allow walking in the wet material, apply the fluid Ardex FLC to an even layer and pour out in a line and working to a wet straight edge leaving no gaps or islands. Working to the wet edge is especially important when it comes to using thin layers 2-3mm thick. It is usually good practice to pour the first couple of buckets together to get started. The material should be poured in such a way that only minimal spreading and smoothing is required to achieve a smooth flat finish.
4. 穿著釘鞋可以在濕漿中行走，將自流平濕漿沿直線倒在地面上，下桶料澆置時沿著地面濕漿邊緣倒置形成對接，不要留有空隙。薄層施工2-3mm厚的自流平時這點尤其重要。一般先將2桶料一起澆置於地面，然後後面的材料在逐一澆置對接，攤托抹平，邊走邊澆置，濕邊對濕邊，濕漿體流動距離愈小整平性能就會愈好

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Pour the smoothing cement whilst walking along, and always apply to the wet working edge.

5. The thickness rake is used when leveling over tiles or surfaces that do not have significant relief (for example already flat or only lightly ground). Drag the rake at 90 degrees to the direction that the material was poured on the floor. Keep the head main bar vertical to obtain the correct thickness when dragging the rake. Overlap each pass by approximately 30%.
5. 如果是在瓷磚上澆置自流平或者基層表面相對平整時(比如已先行墊平或者輕微打磨就可的基層)上可使用T型厚度控制刮板,使用時T形厚度控制板應與澆置漿料成90度的方向進行拖耙。T形刮板應保與地面垂直角度以保證正確的厚度。每次拖耙的路徑和前次路徑保持30%的重疊。



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6. The floor spreading tool is used to smooth out the surface after it has been raked, or spreading the poured cement if the surface is too irregular to use the thickness rake

The spreader blade is drawn at 90 degrees to the direction that the rake was dragged. The blade is started parallel to a wall, and then after starting to move, change the blade angle to act in a similar fashion to that of a grader blade. The blade should be at an angle of about 30° to 40° to the surface and held well behind the body. Walk at a brisk pace so that the smoothing spreader glides over the surface with only moderate downward pressure on the trowel. A bow wave is produced and should be no more than ½ the thickness of the depth of material. Each pass of the smoothing spreader should be half the width of the trowel overlapped on the previous pass.

As the end of each run is reached the spreader is turned in a shallow arc for 90 degrees, and the subsequent pass is run in the opposite direction to overlap the turn.

6. T形厚度拖耙走過後就可以用整平拖板來抹平，或者使用拖耙會造成漿料表面很不規則時則直接使用整平拖板來抹平漿料。整平拖板的抹平方向同厚度拖耙的方向成90度，以和牆平行的位置開始，走動起來後整平刮板與地面漿料的角度大概保持在30-40度，整平刮板拿在身後拖。步伐輕盈一些，使拖板飄滑過漿料表面並產生適當的向下壓力，壓入距離最大不能超過漿料厚度的1/2。每次路徑和前次路徑有50%的重疊。每次端邊轉向的時候會有個拖板留下的淺圓弧，下次轉向正好和前次方向相反，可以蓋住前次轉向的痕跡。



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7. The last pass against a door or wall is done by pulling the tool along and walking backwards to the exit point, which is then finished with hand trowels.

Note: Do not overwork the material as this causes fines to rise to the surface and results in a soft surface. Also do not work, or walk onto material that has been previously laid for more than about 5 minutes.

7. 在最後收尾碰到門或者牆的時候，將工具沿著其方向後退出來，最後用手鏟刀以人工抹平。注意：不要過度鏟整材料，因為可能會將細料翻到表面導致表面強度不夠。也不要再次進入已經澆置超過5分鐘的地面過度操弄漿料。



鏟刀對於最後收尾工作是必不可少的。

Hand trowelling of the FLC is necessary at doorways to finish off the job.

8. Clean up is done in water.

8. 用水進行工具空桶清洗工作。

9. Once the material has been laid, allow to cure prior to laying the floor covering.

9. 自流平漿料澆置好以後，待其養護時間達到後再進行後續地板材的鋪設。

10. Subsequent coats of FLC, such as over bulk fills require re-priming prior to application of the smoothing cement.

10. 倘若後續再次鋪設自流平，則需要再次刷底塗劑。

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Note -

The application of Ardex Arditec is the same except that a Latex Liquid is used instead of water and the surface can be finished with a spiked roller after trowelling where carpet or timber is to be laid.

Where the mix design requires the use of Ardex 25 Improver, this is added to the gauging water prior to addition of the powder.

THINGS TO WATCH OUT FOR

Surface preparation is vital to achieve a good long lasting installation. Poor surface preparation of the subfloor is the main source of problems in these installations.

Concrete surfaces need to be open and porous, and free of all contaminants, coatings, old adhesives, weak concrete layers or dust and dirt. Refer to Technical Bulletins TB039 and TB041 for more information.

Always prime the surface as failure to do so will result in air holing and possible poor adhesion.

Over-watering the product does not make it flow better, but does result in slower drying, poor strength development and weak surfaces.

Do not lay material at temperatures below 10°C and above 35°C. Refer to Technical Bulletin TB097 for more information.

注意的事項

使用Arditec 雙組份自流平時以乳膠取代清水進行拌合

某些情況下使用Ardex 25 自流平乳膠添加劑時先將Ardex 25 對水稀釋後使用

重要提醒

基層處理對於獲得一個牢固耐久的地坪至關重要。基層處理不好往往是各種施工問題的根源。混凝土樓版在自流平施工前必須有足夠的毛細孔,排除所有污染及清潔乾淨對施工品質起到絕對影響

底塗劑須嚴格依建議方式施工,加水量切勿隨性而為對產品的最終表現也都不可輕忽,另外自流平施工溫度應限制在10-35°C間為佳,地面溫度低於5°C時應停止施工

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