



台灣盛隆建材股份有限公司

Taiwan Shenglong Architecture Material Co., Ltd

www.shenglong.com.tw



# SL-668

## 單液型聚胺脂 疏水性發泡止水劑



### 結構止水填補材

Structure Water-Sealing Filling Material

## 『產品簡介』

我們經常可以從隧道、地下室及各種不同型態建築構造物上，發現諸多的漏水現象，然而一般(傳統式)都將漏水處打開成V-Cut狀，以速凝水泥等材料，覆蓋表面充填止水，然而這一類的施作工法所達到的效果往往只能處理表面5~10cm的擋水效果，卻無達到一定程度上的深層止水效果，在一段時間後又會再產生第二次或第三次漏水。

這是因為從隧道或構造物外側土壤內與地盤流出之地下水，經由裂縫、二次接縫、包泥處或蜂巢處等流出，止水行為若不能達到深層的固結與封填並加以阻擋，則將很難達到長久止水效能。所以近年來建築業採用高壓灌注止水法，效果卓越，廣為建築界、營造界一些重大建設工程之業主接受；如地下鐵、衛生下水道、捷運系統等，甚至一般建築工地及民宅修護等。

SL-668聚氨脂灌漿是一種防滲、堵漏的高效材料，它是聚氨基甲酸酯的高聚合物，由異氰酸酯和聚醚多元醇反應而成的聚氨脂樹脂，與其他有關助劑共同組成之化學漿液。由於漿液中含有過量未反應的異氰酸酯，其遇水後立即產生化學反應，並產生二氧化碳氣體，造成體積迅速膨脹，產生較大膨脹壓力，並促使漿液往更深層充填，加大擴散範圍，最終交聯生成不溶於水的聚合體，達到堵漏防水的效果。

這類高效灌漿材料是其他化學漿液(如丙烯酸酯、水玻璃類、脲醛樹脂等)所沒有的優點，因此廣泛應用於土木工程建築中的錨固、加固、密封、防水封、防水等工程。

Usually, we can find many leaking phenomenon from tunnels, underground passages and various types of architectural fabrications. However, general (traditional) working method is to make leaking parts V-Cut shape to congeal material such as cement, and to surface covering filling to seal water, but the effect of this kind of method only provides 5~10cm blocking function on surface, would not reach deep filling and sealing water function. Twice and thrice leaking will then be generated after a period of time.

This is because the underground water from tunnel or outside soil of fabrication and site, which drain from cracks, twice joint covered with cement or combs. If water-sealing work could not reach a certain level, its soiling and fulling and blocking function would not maintain a long-term water-sealing effect.

So, the architecture industry in recent years adopt inverse high-pressure injection water-sealing working method to reach a good performance. This method is adopted widely by architecture and construction industries for large scale engineering, such as subway, hygiene drainage, MRT system...ect, and even general construction building site and house maintenance.

SL-668 polyurethanes grouting material is kind of high-effective impervious and blocking material. It is the high polymer of polyurethanes, a chemical liquid made of polyurethanes resin which is reacted from isocyanate and polyhydroxy and polyester and other related aids.

As to there are excess non-reacted isocyanate in thick liquid, which will generate immediately chemical reaction when meeting water to cause carbon dioxide, which make volume expand rapidly and have bigger expansion pressure. This will cause twice expansion of thick liquid and also expand its scope. Ultimately



頂版裂縫止漏。

Top board cracks leaking sealing.



地鐵外牆止漏。

Subway outside walls leaking sealing.



外牆裂縫止漏。

Outside wall cracks leaking sealing.



## 『產品特性』

- SL-688是單液型聚胺脂系發泡止水漿材，屬於溼氣硬化型，當漿材注入壁體內與水及空氣中水分作用後，迅速膨脹堵塞其裂縫，借助氣體壓力把漿液材料擠入縫隙內，進一步達到止水之目的；亦可搭配與低量催化劑配合使用，依實際施工需要來調整發泡速度，以期達到止漏之功用。

SL-688 is a single-liquid polyurethanes foaming water-sealing thick liquid material whose main ingredient is MDI. SL-688 belongs to wet hardening type. When thick liquid injected into wall object to function with water, the rapid expansion would block the cracks. To reach water-sealing purpose, air pressure will press liquid material into cracks. Also, it can match the use of low amount accelerator, to adjust foaming speed according to practical construction to reach leaking sealing function.

- 灌入疏鬆地層的孔隙中，使多孔隙結構或地層完全充填密實，直到反應結束時為止。

Push into the cracks of loose stratum to make multiple cracks structure or stratum be filled closely knit till its reaction ending.

- 由於漿液在反應時有膨脹的特性，產生的壓力會產生二次擴散現象，其體積的膨脹可達原體積的1~23倍，應有較大的擴散半徑和凝固體積比。

Because the thick liquid has expansion character while in reaction, twice expansion phenomenon would be generated. The expansion volume can reach 1~23 times compared to the original one. Should have bigger expansion radius and solidifying volume proportion.

- 聚胺脂非極性強，一旦漿液在壁體內作用固體成型後，使結構得到適度的充填與補強作用，形成聚合體抗滲固結強度。

Strong polyurethanes character. Once the thick liquid works inside wall object to solidification, makes adequate filling and reinforcing function, which will generate polymer anti-penetration intensity.

- 在含水的地層中，漿液的固化將不會受到地下水沖壓的破壞與影響。甚至在基坑挖掘時，不會出現壁體塌陷現象，漿液固化可持久密封塌陷部位。

Under water contained layers, the solidifying of thick liquid will not be destroyed or affected by the flush of groundwater. Even while foundation pit digging, no wall object dent. The solidification of thick liquid can remain dent part sealed well.

### 其特性如下

1. 本身產品黏度低，不因灌注設備管內黏度不斷提高而造成堵塞，且容易施工、操作性佳。

Low viscosity. No blocking causes by continuous increasing viscosity inside injecting equipment hoses. Easy to be constructed and operated.

2. 疏水性，如此不易造成縫隙內有殘餘的水份存在，長時間會破壞發泡體，造成二次漏水。

Hydrophobic property, no residual water existing in cracks which will destroy foaming objects for long to cause 2nd leaking.

3. 反應佳，與水反應約5~10分鐘發泡完成，2~3小時可完成硬化。

Good reaction. Foaming is finished in 5~10 minutes after reacting with water. Hardening will be completed within 2~3 hours.

4. 產品不會收縮，如此才不致於使得發泡體未完全填滿縫隙，造成二次漏水。

No contraction which would cause 2nd leaking because foaming objects could not fill cracks totally.

5. 發泡體倍數夠，可至1~23倍左右，如此可節省產品使用量並達到一定的效果。

Enough foaming objects (1~23 times), save product using volume and reach a certain effect.

6. 安定性佳，在開封後，可以在施工的時間內不會變質；未開封時，產品可儲存長達半年以上不會變質。

Good stability. After opening, no denaturalization during construction hours. While not opening, it can be stored more than 6 months and no denaturalization.



7. 可與偏酸或偏鹼甚至海水的水質反應而不影響發泡體的作用物性化性。

It can be used with acid or alkali slanted seawater and does not affect the physical properties of foaming objects.

8. SL-688止水完成後，溢出藥劑附著壁面上，屬硬性膠體容易清除乾淨。

After SL-668 water-sealing work finished, the overflowed medicament attached wall surface which is a kind of hard colloid can be cleaned off easily.

## 『硬化特性』 Hardening Characters

1. 止水劑與水的混合比例及週邊環境溫度等都會影響凝結時間與固結體的強度，水量多寡與凝結時間成正比、與止膠體強度成反比；故於使用前一做簡單的測試，以發揮產品最大的功效。

The mixed proportion of water-sealing agent and water, and its surrounding environment temperature both affect congealing time and the intensity of solidifying object. The volume of water and the time of congealing are in direct proportion, but with the intensity of colloid are in inverse proportion. Temperature and solidifying time are in direct proportion, but with the intensity of sealing-colloid are in inverse proportion. Thus, a simple test before using is necessary for amplifying its best effects.

2. 硬化後的膨脹體能抵抗弱酸、弱鹼，對瀝青填縫材、止水材、混凝土等皆能適用。

The expanding object can resist weak acid and weak alkali, it is suitable for use to asphalt cracks-filling material, water-sealing material, and concrete.

3. 單液型止水劑如用於地下水位以下的地方，由於水量太多、膨脹過大時則會發生過度飽和水殘留現象，造成止水效果不佳，可於第一次灌注發泡完成後，再持續第二~三次灌注填塞發泡體內空隙。

For single-liquid water-sealing agent, while applying on the positions which is below water level, after the first injection foaming finished, the second and third injection foaming can be processed if worried about over saturation or water remaining phenomenon occurred because of too much water bringing too much expansion.

4. 地下水流之裂縫注射，可配合催化劑使用，在3秒內形成泡沫，與水接觸後10分鐘內，可完全膨脹及凝固。

The cracks injection of water-pressure style groundwater flow can use with accelerator. Foam can be generated within 3 seconds. A total expansion and solidification will be completed in 10 minutes after touching water.

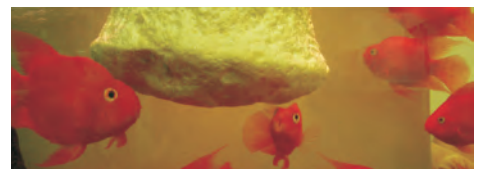
## 『應用範圍及用途』 Applying Scopes and Purposes

主要使用於固定結構體如：使用於連續壁、地下鐵、隧道、箱涵裂縫，水庫、頂版、小蜂巢、髮絲微細裂縫等滲水處止漏、隧道環片裂縫、港灣工程、內外壁、水庫、環片裂縫止水等。

It is mainly used in the fixed structure such as the leaking sealing, tunnel loop cracks, harbor engineering, inside and outside walls, reservoir, loop cracks water sealing of diaphragm wal, subway, tunnel, box culvert cracks, reservoir, tiny comb, tiny cracks as hair.

## 『物性』 Physical Properties

比重 Specific gravity g/cm <sup>3</sup>	≥ 1.10
黏度 Viscosity Brookfield, cps(25°C, No.2/60rpm)	1000CPS
收縮性 Contractibility	不收縮
膨脹率 Expansion proportion 倍數 multiple	10~25倍
固成分 Solidifying ingredients	> 80%
硬化時間，與80%水混合，秒 Hardening time, mixed with 80% water, second	60秒內
鋼筋腐蝕性 Steel bar erosion	氯離子未檢出
毒性 Toxicity	無毒性



無毒測試體放入魚缸內168小時後目視觀察該魚活動自如。

Put nontoxic testing object into fishbowl. After 168 hours, fishes are still dynamic which is viewed by eyes.





# 『高壓灌注工法簡介』 High Pressure Injection Working Method Introduction

- ▲ 高壓灌注止水工法大致上是以使用高壓灌注機在3000~6000psi或更高的壓力將聚胺脂發泡止水漿料注入結構體內。在結構體內與水作用發泡因而將壁體內之孔洞與裂縫填補。

Basically, high pressure injection working method uses electric pump of 3000~6000 psi, or higher pressure to inject polyurethanes foaming water-sealing liquid material into structure objects. Its purpose is to fill cavities and cracks inside walls which is made from the foaming function of the mixed material and water.

## ① 施工縫漏水處理 Leaking disposal of construction cracks

- ▲ 判定施工縫內是否有殘渣、異物，足以造成高壓灌注止水劑無法止水時將二次施工縫打V槽以快乾水泥砂漿補平硬化完成後於施工縫最低處左或右5cm~10cm處傾斜45度角鑽孔至結構體厚度之半深度，循序由低外往高處鑽，孔距為10cm~40cm為宜，鑽至最高處後再一次埋設灌注針頭。

If there are feces, foreign bodies which would cause high pressure injection water-sealing agent could not work, use quick-drying cement mortar to fill the second constructing cracks v-shape concave. After hardening process completed, drill holes from the lowest left or right 5cm~10cm positions with slope 45 degree till a half depth of structure object. The holes are better to be made from bottom to top, the distance of each hole is 10cm~40cm. While drilling to the top, cover injecting pinhead again.

- ▲ 灌注針頭設置完成後，再以高壓灌注機由下往上注入止水劑至止水劑於結構體表面滲出時，再灌注其它針頭。

After the settlement of injecting pinheads is finished, inject water-sealing agent with high-pressure injection machine from bottom to top till the water-sealing agent diffused to the surface of structure object, inject other pinheads.

- ▲ 止水完成後，不可立即拆除灌注針頭。待1~2天後再拆除灌注針頭，並將孔洞以封口膠填補。

While water-sealing work finished, if possible, do not demolish injecting pinheads immediately. The demolishing can be down after 1~2 days, and seal the cavacity with porthole-sealing gel.

### 施工狀況概略圖

Construction Condition Skeleton Diagram



牆  
Wall

◎ 裂縫止漏  
sealing works of  
construction cracks



連續壁體止漏  
Diaphragm wall leaking sealing



牆版接縫止漏  
Wall joints leaking sealing



電梯機坑止漏  
Elevator trench leaking sealing



大底湧水止漏  
Plate water gushing leaking sealing



RC結構  
RC structure

◎ 二次層縫止漏  
2 leaking sealing  
works of layer cracks

RC結構  
RC structure



二次接縫止漏  
Second joints leaking sealing



地鐵牆面止漏  
Subway wall leaking sealing



## ② 結構體龜裂漏水處理 Structure object chaps leaking disposal

- ▲請於裂縫最低處左或右5~10cm處傾斜45度角，鑽孔至結構體厚度1/2深度，循序由低處往高處鑽，孔距為10~40cm為宜，鑽至最高處後再一次埋設灌注針頭。

Please do drilling to half depth of structure object on the lowest left or right sides 5~10 cm of cracks with sloped 45 degree, from bottom to top in order, 10~40 cm for cavities distance is suitable. Settle injecting pinheads again while drilling to the top.

- ▲灌注針頭設置完成後，再以高壓灌注機由下往上注入止水劑至止水劑於結構體表面滲出時，在灌注其他針頭。

After settling injecting pinheads, inject water-sealing agent with high-pressure injection machine from bottom to top. Inject other pinheads till water-sealing agent diffusing to the surface.

- ▲止水完成後，不可立即拆除灌注針頭。待1~2天觀察確定不漏水後再拆除針頭，並將孔洞以封口膠填補。

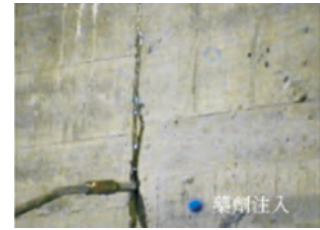
While water-sealing work finished, if possible, do not demolish injecting pinheads immediately. The demolishing can be down after 1~2 days, and seal the cavacity with porthole-sealing gel.



一、鑽孔  
Holes drilling



二、針頭固定鎖緊  
Fix and lock pinheads tiely



三、藥劑注入  
Inject medicament



四、壁面發泡殘漬清除  
Clean off foaming residuum  
on walls



五、針頭拆除  
Demolish pinheads



六、針頭拆除後孔洞填補  
Fill cavities after demolishing  
pinheads

## ③ 蜂巢漏水處理 Combs leaking disposal

- ▲在蜂巢範圍處，間隔25cm~30cm鑽一孔，深度為結構體厚度之一半為宜，再埋設灌注針頭並加以旋緊固定後再以高壓灌注機注入止水劑。

Within combs scope, drill a hole by every 25cm~30cm, the depth is better to be half of the structure object. Cover injecting pinheads and fix them tiely, put water-sealing agent by high-pressure injection machine.

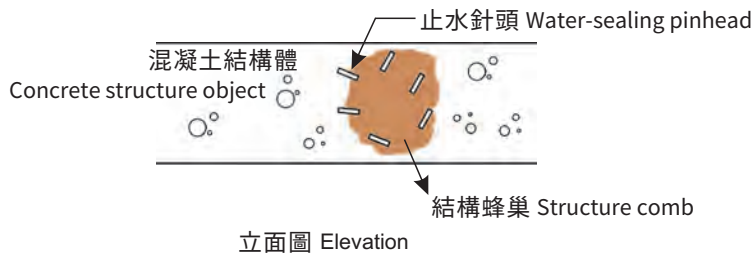
- ▲灌注順序可從最低處之灌注針頭開始灌注，當蜂巢內經由止水劑發泡填滿硬化後，從表面滲出時再順序向高處進行灌注，止水劑經與水反應後會所有的細縫填滿，即可完全解決漏水問題。

The injection order--from the injection pinheads at the bottom. While it turns to hardening inside combs by water-sealing agent foaming, do injection from the topwhile it diffusing from surface.All tiny cracks will be filled after the mixing of water-sealing agent and water which can totally solve leaking problems.

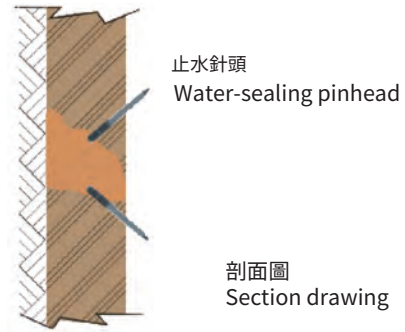
- ▲止水完成後，不可立即拆除灌注針頭。待1~2天後再拆除針頭，並將孔洞以封口膠填補。

After water-sealing work finished, do not demolish injecting pinheads immediately if possible. The demolishing could be down after 1~2 days, and use sealing gel to seal cavities.





《蜂巢止水示意圖》 Comb water-sealing diagram



連續壁包泥搶救 Diaphragm wall earth covering salvage

#### ④ 環片隧道止水工法 Loop tunnel sealing working method:

▲ 環片厚度皆為25cm，為工廠預鑄完成在工地推進組裝。

說明:淺盾隧道工法係由淺盾機推進環片組裝而成，而環片皆由預鑄廠預鑄完成，運送至工地組裝，施工期間可能造成漏水現象。其約如下所述:

狀況1.環片本身裂縫。

狀況2.環片:片與片之間漏水。

狀況3.每一環與環之間漏水。

狀況4.螺帽灌漿孔滲水。

The thickness of loop is 25cm, and it was prefabricated in factory and installed in construction site.

Description: Shield tunneling is fabricated by loop sets pushed by shield machine. The loops are prefabricated in pre-fabricated factory, then send to factory to be fabricated. During construction period, it may cause leaking situation. Below is its description:

Situation 1. Cracks on loops.

Situation 3. Leaking between rings.

Situation 2. Loop: leaking between slices.

Situation 4. Leaking on nut injecting holes.

#### 處理工法:(環片厚度為25cm) Disposal working method: (Loop's thickness: 25cm)

狀況1.於裂縫兩側約5~10cm處對角鑽孔，其鑽孔深度為不超過10~15cm為宜。

狀況2-3.於片與片之間或環與環間距約5mm處對角鑽孔，鑽孔深度為不超過10~15cm為宜。

狀況4.灌漿孔蓋鑽5mm孔，再由此孔注入止水材至止漏完成。

Situation 1. Drill holes on the 5~10 cm crossed corners on both sides of cracks. The depth is no more than 10~15cm.

Situation 2. and 3. Drill holes on 5mm crossed corners between rings and slices. The depth is no more than 10~15cm.

Situation 4. Drill a 5mm hole on injecting cover, and inject water-sealing material via the hole till leaking sealing completed.

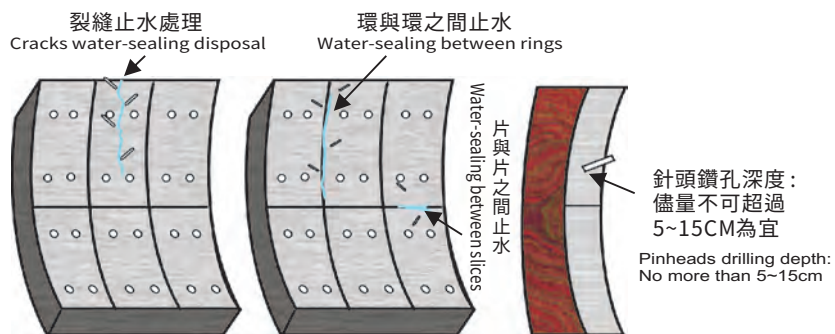
#### 特殊狀況處理: Special situations disposal

以上狀況1.2.3若只能暫時止水，則需採用地盤改工法，請於漏水處鑽孔超過環片厚度(25cm)m，約先鑽孔三處以利洩水壓，再由第一支灌注針頭注入止水材，循序施工即可。

If above Situations 1, 2 and 3 can only seal water temporarily, use groundimprovement. Drill holes on leaking part whose thicknes have to thicker than25cm loop. 3 hole are necessary for better reducing water pressure. Then, inject water-sealing material through the first injecting pinhead, and do this



隧道止漏  
Tunnel Leaking sealing



《環片止水施工圖示》  
Loops water-sealing working diagram





## ● 施工注意事項 Safety and Protection Remarks

為便於清除施作面溢流之發泡體，請於灌注前先將施作面之範圍施以噴塗離形劑，以利爾後之清除工作。

鑽孔時請特別注意給排水管路之位置，避免發泡止水劑注入管內發泡後，無法溶解造成阻塞。倒料完成後請蓋緊料杯蓋密封。

For easy clean the foaming objects overflowed on working surface, please spray release agent on construction surface before injecting to make cleaning work by order. easlier after.  
Please pay attention to the positions of drain while drilling holes to avoid blocking after foaming water-sealing agent injected into hoses which cause non-melted. Please tie the cover of material cup closely after material pouring completed.

## ● 施工人員安全注意事項 Working People Security Remarks

使用時避免噴濺眼睛請戴護目鏡施工，如噴到眼睛請速送往醫院處理。通風不良之處所，為保護施工人員之安全，請用無味型止水漿材系列產品。

Avoid splash on eyes. If so wash eyes with water, then go to hospital. In the places of stuffiness, please use flavourless water-sealing thick liquid products to maintain the security of working people.

## ● 材料存放注意事項 Material Store Remarks

請勿儲存於-5°C以下低溫處或高溫處放置。置放於乾燥處，保存期限6個月。

Please do not store under -5oc, or high temperature places. Store under dry, conservation for 6 months.

## 『包裝方式』

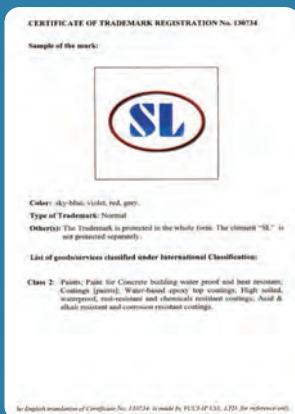
5加侖/圓塑桶裝 5 gallons in round barrel

**Note:** 本說明書的內容是建立在於真實準確的數據與理念上，供材料使用者參考，由於無法改變控制施作時天候所造成之材料質變等各種不確定因素，所以我們無法負責保證現場施作所得之結果。請詳閱我方所提供之產品說明，我方銷貨條件及有關聲明和建議，都不可用來違反法律規則或侵犯第三者利益。

The content of this manual is created on real and precise statistics and principles as a reference for material users. As some factors can not be made sure such as material qualitative change by different climates, we are not responsible for the result because of different construction conditions. Please read our product instructions, selling conditions and related statements and suggestions, which are not used to violate law rules or to invade the right and advantage of third party.







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