



Hilti CP 611A Firestop Intumescent Sealant

Submission Folder

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Firestop intumescent sealant CP 611A



APPLICATIONS

- Single cables and cable bundles
- Plastic pipes up to 50 mm (2") diameter without additional collar
- Sealing penetrations previously sealed with firestop mortar, after installing additional cables
- Small openings

ADVANTAGES

- Paintable
- Fast, easy application and cleaning up
- Particularly suitable for laying new cables
- Silicone-free
- Easy to clean with water

Technical data

Chemical basis	Water-based acrylic dispersion
Base materials	Concrete, Concrete block, Metal, Wood, Gypsum
Movement¹⁾	No
Expansion ratio (unrestricted, up to)	1:10
Approx. tack-free time (ventilated at 77°F, 80% rel. humidity)	15 min
Approx. curing time²⁾	3 mm/3 days
Application temperature range	5 - 40 °C
Temperature resistance range	-40 - 100 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life³⁾	12 Months

¹⁾ according to HTC 1250
²⁾ at 75°F/24°C, 50% relative humidity
³⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Consumption Guide

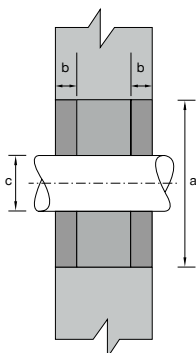
Cartridge size = 310 ml (CP 611A)

Sealing volume in wall application (installation on both sides) $V_s = \frac{\pi}{4} \times (a^2 - c^2) \times 2b$

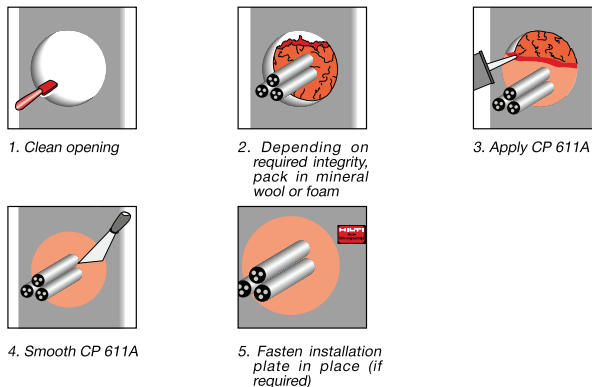
Sealing volume in floor application (installation on one side only) $V_s = \frac{\pi}{4} \times (a^2 - c^2) \times b$

a = hole diameter in cm
 b = installation depth in cm (see approvals)
 c = outside diameter of pipe or bunched cable diameter in cm

No. of cartridges needed,
 $n = \frac{V_s}{310 \text{ (ml)}}$



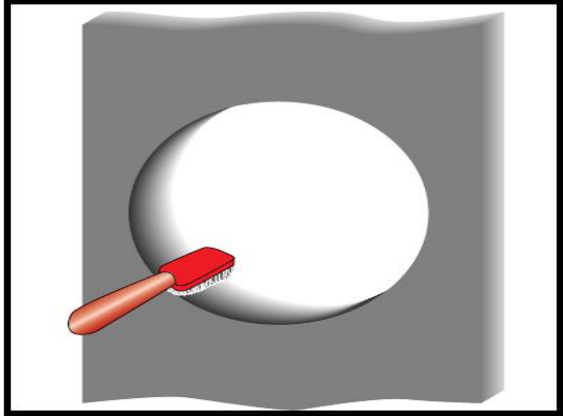
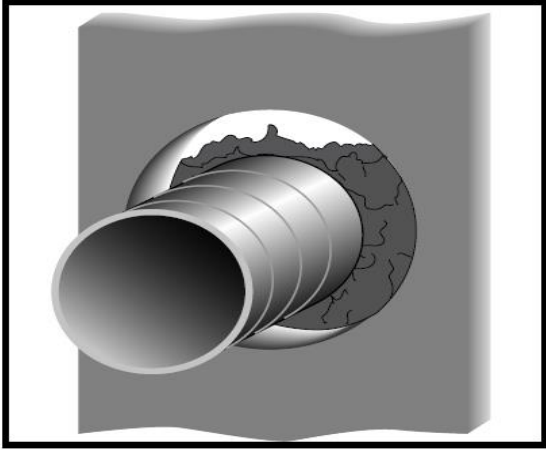
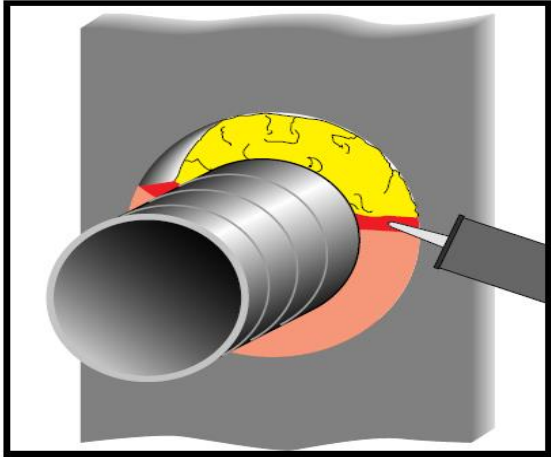
Application Procedure

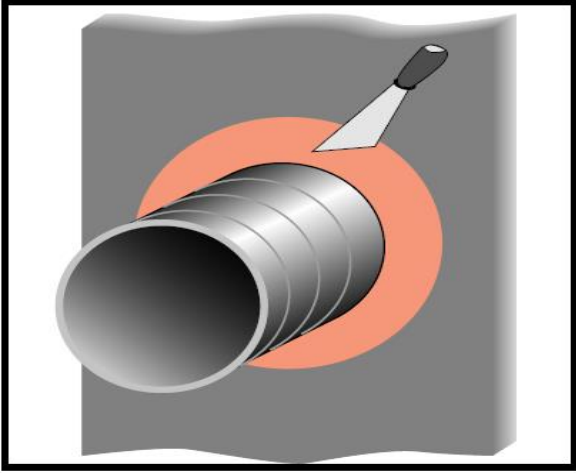
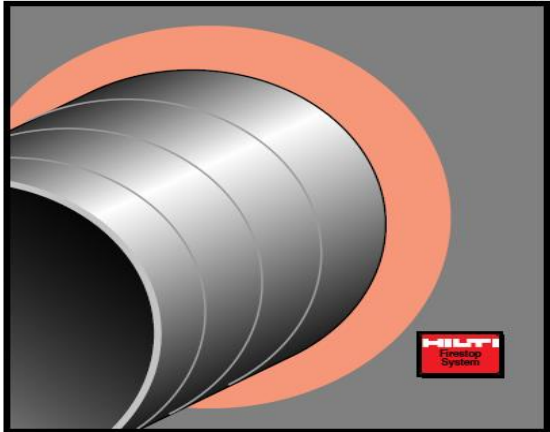


Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
CP 611A INT	Anthracite	310 ml	Cartridge	1 pc	220351

Please visit Hilti website for the latest item numbers and related products

Subject: Method Statement of CP 611A for Penetration Seal.
Material: CP 611A firestop intumescent sealant
Accessory: Hilti Dispenser CFS-DISP or equivalent.

Setting Operation		
1	<p>Clean the opening. Surfaces to which CP 611A will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.</p>	
2	<p>Insert the required fill of mineral wool and backer.</p>	
3	<p>Apply firestop CP 611A over backer.</p>	

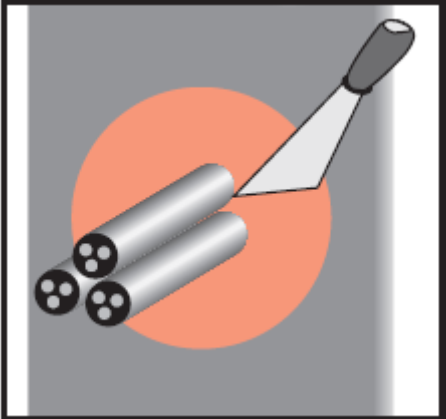
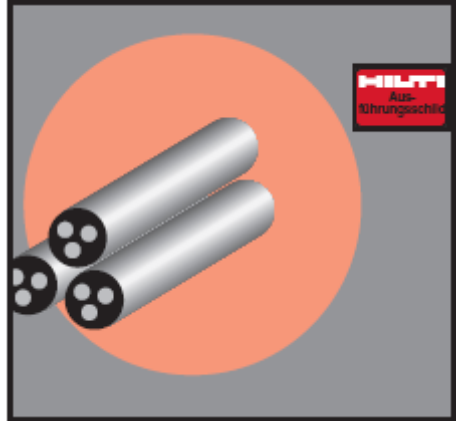
4	<p>Smooth the firestop sealant with a trowel before the skin forms. Once cured, CP 611A can only be removed mechanically.</p>	 A 3D cutaway diagram of a pipe penetration through a wall. The pipe is surrounded by a thick, orange-colored firestop sealant. A trowel is shown smoothing the sealant on the exterior side of the wall.
5	<p>For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the Identification plate and fasten it in a visible position next to the seal.</p>	 A 3D cutaway diagram of a pipe penetration through a wall, similar to the previous one. The orange firestop sealant is shown. A small red identification plate with the HILTI logo and the text 'Firestop Systems' is attached to the exterior wall next to the sealant.

Safety precautions:

- Never use in areas immersed in water
- Not to be painted
- Store only in the original packaging in a location protected from moisture at a temperature of 5°C to 25°C
- Observe expiration date on package.

Subject: Method Statement of CP 611A for Joint Seal.
Material: CP 611A firestop intumescent sealant
Accessory: Hilti Dispenser CFS-DISP or equivalent.

Setting Operation		
1	<p>Clean the opening. Surfaces to which CP 611A will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.</p>	
2	<p>Insert the required fill of mineral wool and backer.</p>	
3	<p>Apply firestop CP 611A over backer.</p>	

4	<p>Smooth the firestop sealant with a trowel before the skin forms. Once cured, CP 611A can only be removed mechanically.</p>	 An illustration showing a trowel being used to smooth a firestop sealant on a wall. The sealant is applied in a circular pattern around a penetration. The trowel is shown in the process of smoothing the sealant.
5	<p>For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the Identification plate and fasten it in a visible position next to the seal.</p>	 An illustration showing a penetration seal with an identification plate. The sealant is applied in a circular pattern around a penetration. An identification plate with the HILTI logo and the text 'Ausführungsschicht' is fastened to the wall next to the seal.

Safety precautions:

- Never use in areas immersed in water
- Not to be painted
- Store only in the original packaging in a location protected from moisture at a temperature of 5°C to 25°C
- Observe expiration date on package.



檢驗報告

No. 2005-FRT46

產品名稱: CP 611A Intumescent firestop mastic

報告發致下列單位:

送檢單位: 喜利得(香港)有限公司
製造商: Hilti

報告日期: 2006年1月18日

澳門大學




檢驗報告


No: 2005-FRT46

產品名稱	CP 611A Intumescent firestop mastic
送檢單位名稱	喜利得(香港)有限公司
產品銷售代理	喜利得(香港)有限公司
製造商	Hilti
試件產地	德國
樣本技術數據	密度: 約 1.3 g/cm^3 施工溫度: $+5^\circ\text{C}$ 至 $+40^\circ\text{C}$ 容許變形: 10% 表皮型成時間: 約 10 分鐘 固化速度: 約 3mm/3 天
送檢日期	2005 年 12 月 27 日
送檢時附上報告	Warrington Fire Research Centre Ltd. 報告號碼: WARRES NO.57312A WARRES NO.62293A
檢驗項目	耐火性能
檢驗依據	BS476:Part 20
檢驗日期	2005 年 12 月 29 日
檢驗結論	經檢驗, 此膨脹性防火膠的隔熱性及完整性均能達到 245 分鐘。

檢測人員,


黃傑勇
澳門大學實驗員

審核,


譚立武
澳門大學機電工程系主任

1 檢測目的

- 1.1 根據英國標準 BS476 第 20 部份:1987，測試 CP 611A 膨脹性防火膠之耐火性。

2 引言

- 2.1 根據送檢單位的要求，CP 611A 膨脹性防火膠耐火測試需滿足英國標準 BS476 第 20 部份:1987 之要求。

- 2.2 試件由製造商於 2005 年 12 月 27 日安裝，並於 2005 年 12 月 29 日進行測試。

3 試件構造

- 3.1 試件由輕質混凝土及膨脹性防火膠組成。主要測試試件尺寸為 600mm x 600mm x 150mm，1 束包含多條小電纜的電纜及 1 條 PVC 喉將穿過該膨脹性防火膠，而電纜及 PVC 喉的總長度各為 550 mm。試件以輕質混凝土安裝於檢測框內，詳細圖則及試件構造可參照附錄 A。

- 3.2 本報告所繪製之圖則及其材料是根據製造商所提供的資料而作。試件之厚度及結構由本中心之檢測員驗證。

- 3.3 試件由送檢單位安裝於檢測框上進行測試，該檢測框由檢驗單位提供。

- 3.4 試件在測試前數天內安裝。

4 測試設備及程式

- 4.1 測試設備按照英國標準 BS476 第 20 部份:1987 的要求設置。
- 4.2 爐體內部之平均溫度值由 5 個平均分佈於爐內的熱電偶取得，根據英國標準 BS476：第 20 部分：1987 所指定之溫度時間關係而操控升溫。溫度時間記錄圖見附錄 B。
- 4.3 爐體內設有壓力計以監察爐體壓力。小型檢測爐的壓力變化並不明顯。
- 4.4 試件的背火面均設有熱電偶，以作監察溫度之用，熱電偶分佈位置見附錄 A 之圖 3 及圖 4。背火面所有熱電偶均用作判斷試件的絕熱性。
- 4.5 測試過程中，棉墊及縫隙測量探棒用作評估試件的完整性。
- 4.6 測試過程中，應記錄試件的變形情況和試件出現全部或部分毀壞時的時間。試件背火面如有火焰並持續 10 秒或以上，以及有煙散發出的情況也應記錄。
- 4.7 背火面及向火面於測試前後需拍照記錄。測試過程中，需拍照及用攝錄機記錄背火面情況以作日後評估之用。

5 測試數據及資料

- 5.1 測試過程所記錄之數據可參考附錄 B，記錄內容如下：
- 5.1.1 實際爐溫按照英國標準 BSI 所指定溫度時間關係圖。
- 5.1.2 由熱電偶所記錄背火面的溫度。
- 5.2 在測試過程中，試件的實驗狀況已詳細記錄於附錄 C 中以供參考。



- 5.3 有關試件圖片, 見附錄 D。
- 5.4 測試開始時周圍環境溫度為 20°C。
- 5.5 在送檢單位的同意下, 試件在 245 分鐘終止整個測試。

6 耐火極限之評定條件

6.1 按英國標準 BS476 第 20 部份:1987 之標準, 試件之耐火表現將會根據以下之條件作評定:

6.1.1 完整性 - 當測試過程中, i) 在試件之背火面進行棉墊點燃測試; ii) 如背火面出現較大的裂縫, 用 6mm 及 25mm 直徑之量測棒來量測裂縫之寬和深度。如棉墊沒有被背火面之高溫點燃及試件背火面未出現能讓量測棒插入貫通之裂縫, 試件之完整性才被判斷為合格。

6.1.2 絕熱性 - 背火面最高平均溫度及單點溫度與超始溫度之升幅不得超過 140°C 和 180°C。

7 結論

7.1 根據 BS476 英國標準第 20 部分所制定的準則 — 完整性和絕熱性評估試樣的耐火性能測試結果如下：

完整性	不少於 245 分鐘
絕熱性	不少於 245 分鐘



8 限制說明

- 8.1 本測試結果僅反映特定測試條件下, 建築構件之試驗情況。此測試結果並非判斷試件在實際應用時防火特性的唯一標準, 同時亦不反映試樣在實際火場上所能表現的防火性能。
- 8.2 本試驗結果只反映與報告相同之物料、結構、厚度及安裝方法之系統, 如將此試驗結果應用於試件組合型式不同的情況時, 應按照實際用途而作出相應之評估。

附錄 A
試件構造說明及附圖

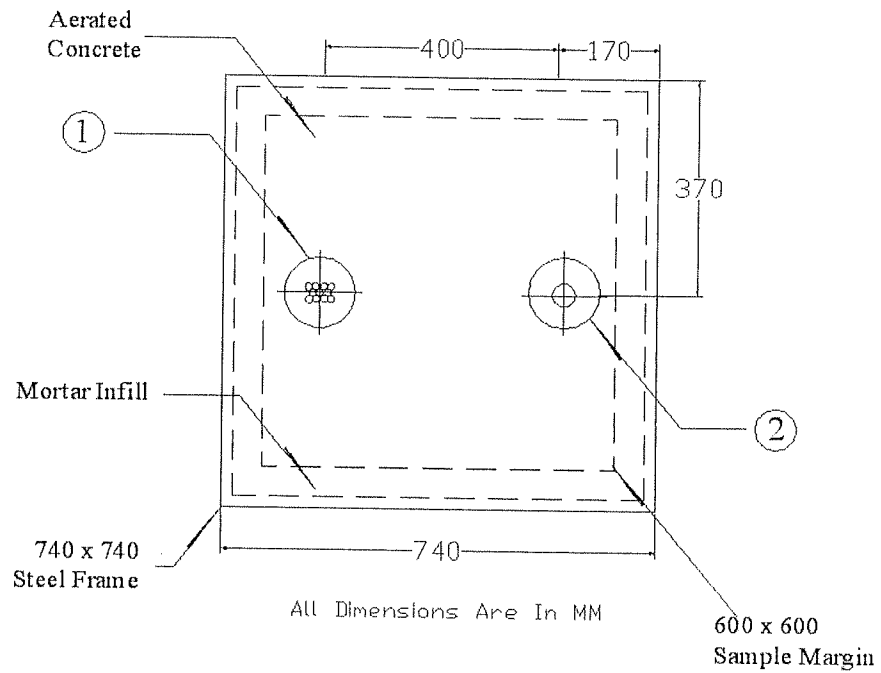


圖 1 試件之正視圖

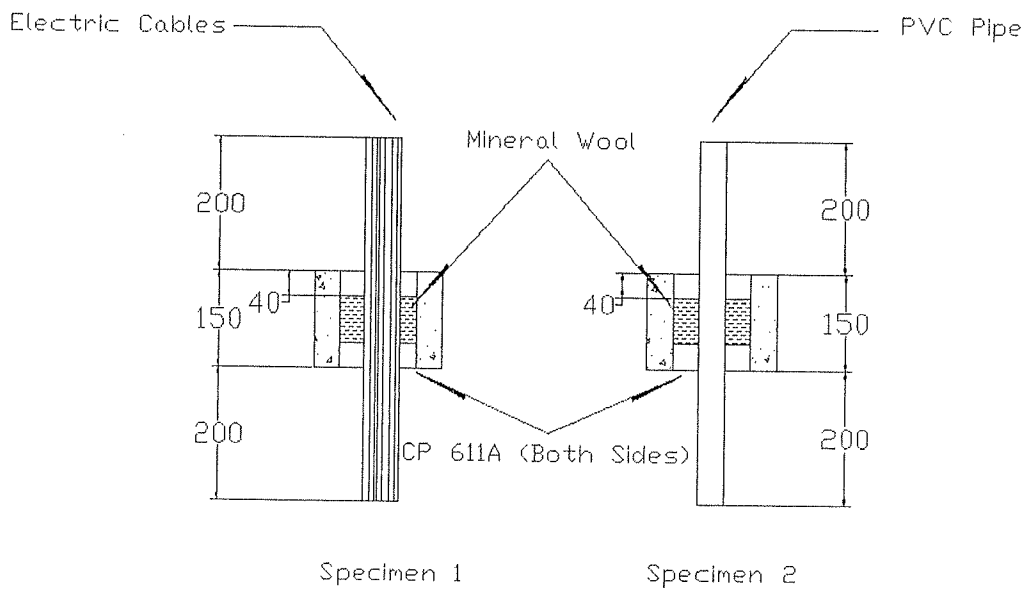


圖 2 試件之截面圖

Ken

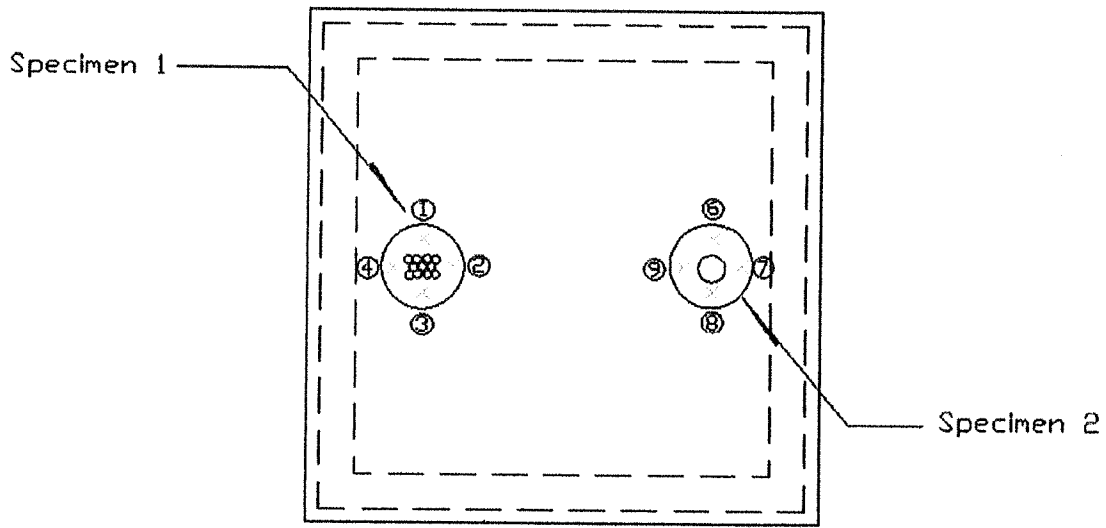


圖 3 熱電偶分佈位置圖 (一)

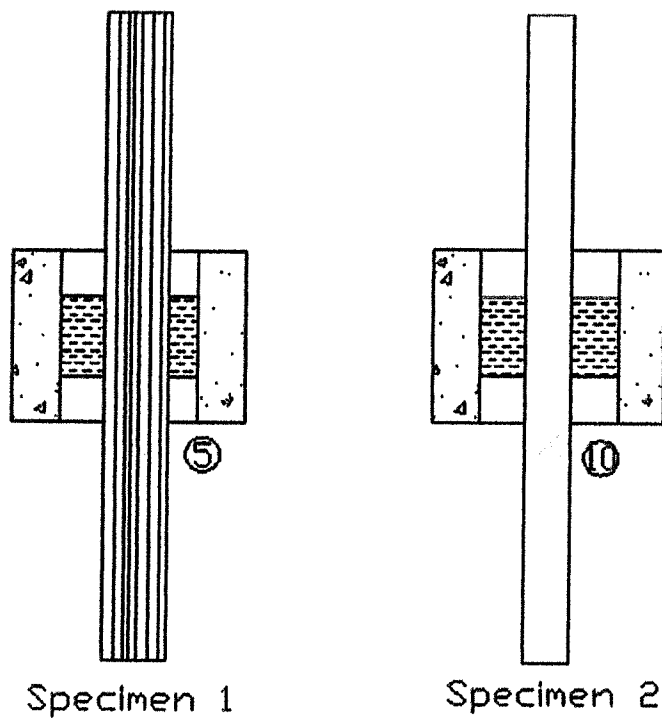


圖 4 熱電偶分佈位置圖 (二)

試件資料

(參照圖 1 至圖 4)

(除非特別指定, 否則全部數值都為標準值)

(全部資料和數值由喜利得(香港)有限公司提供)

表 1 材料列表

Item		Description	
1.	Specimen 1	(i) Mastic (ii) Depth of mastic (iii) Backing Material (iv) Aperture Size (v) Cable bundle	CP611A 40mm Mineral wool, Density = 60 kg/m ³ Diameter = 120mm Depth = 150mm 11 nos. armoured cables
2.	Specimen 2	(i) Mastic (ii) Depth of mastic (iii) Backing Material (iv) Aperture Size (v) PVC pipe	CP611A 40mm Mineral wool, Density = 60 kg/m ³ Diameter = 120mm Depth = 150mm Diameter = 40mm



附錄 B
測試數據

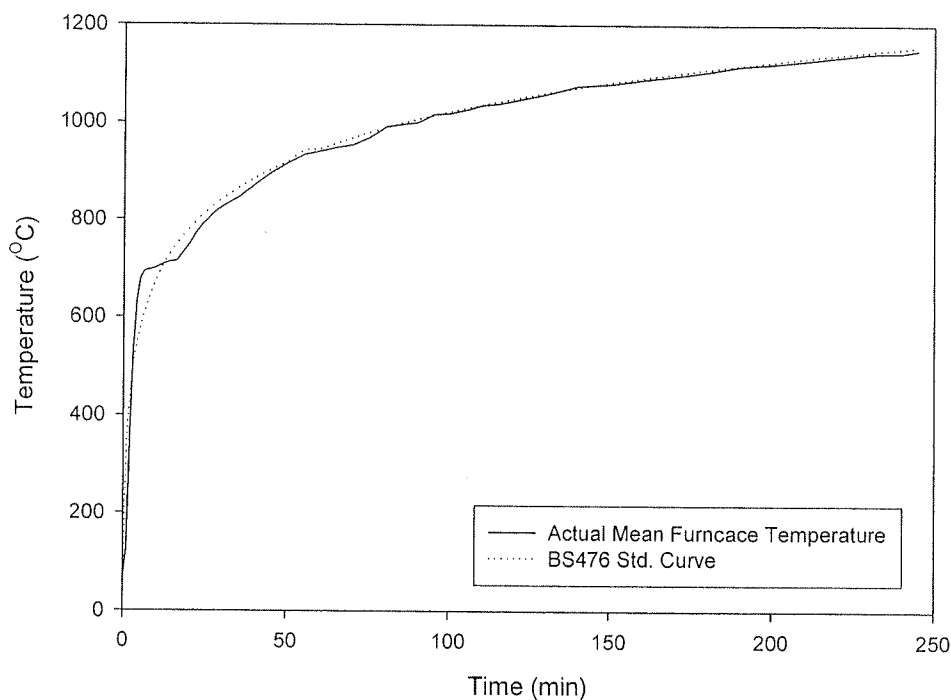


圖 5 平均爐溫與標準(溫度/時間)曲線圖

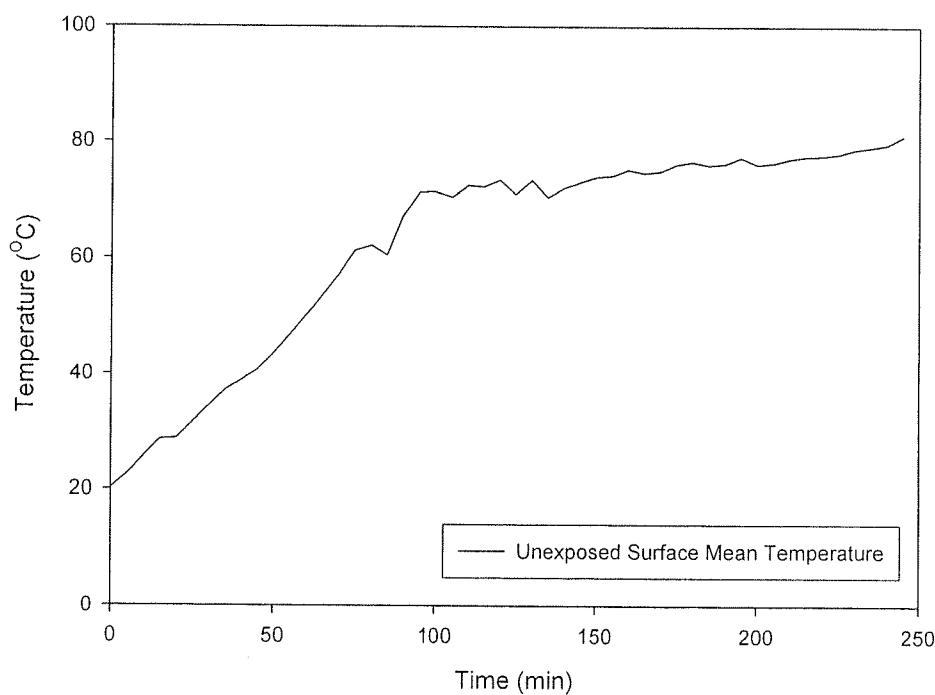


圖 6 背火面平均溫度/時間曲線圖

表 2 平均爐溫與標準溫度之比較

Time (minute)	Standard Furnace Temperature (°C)	Actual Furnace Temperature (°C)	BS476 Tolerance (%)	Percentage Difference (%)
0	20.00	65.05		
1	349.21	123.99		
2	444.50	366.96		
3	502.29	528.29		
4	543.89	631.90		
5	576.41	678.66		
6	603.12	691.79		
7	625.78	695.23		
8	645.46	696.48		
9	662.85	698.00		
10	678.43	700.69	±15	8.27
12	705.44	707.19		
14	728.31	712.34		
16	748.15	714.47		
18	765.67	731.75		
20	781.35	749.37		
22	795.55	772.17		
24	808.52	788.61		
26	820.45	802.52		
28	831.50	816.59		
30	841.80	825.92	±10	-1.62
35	864.80	846.08		
40	884.74	871.62		
45	902.34	895.24		
50	918.08	915.76		
55	942.83	933.06		
60	945.34	940.37		
65	957.31	948.52		
70	968.39	953.84		
75	978.71	967.71		
80	988.37	990.99		
85	997.44	995.45		
90	1005.99	999.26		
95	1014.08	1015.88		
100	1021.75	1018.23		
105	1029.06	1025.36		
110	1036.02	1035.41		
115	1042.67	1038.32		
120	1049.04	1045.16		
130	1061.02	1058.59		
140	1072.11	1075.88		
150	1082.44	1079.19		
160	1092.10	1088.76		
170	1101.18	1096.51		
180	1109.74	1105.00		
190	1117.84	1116.46		
200	1125.52	1121.31		
210	1132.82	1128.00		
220	1139.79	1135.08		
230	1146.44	1142.29		
240	1152.82	1144.22	±5	2.58
245	1156.52	1149.51		

表 3 背火面單點及平均溫度 (°C)

Time (minute)	Thermocouple Number					
	1	2	3	4	5	6
0	20.26	21.86	21.05	20.13	20.15	19.75
5	21.03	21.28	20.11	20.47	23.70	22.69
10	21.95	23.10	22.11	21.23	25.55	29.21
15	23.59	23.68	22.89	22.47	27.84	36.33
20	25.88	25.34	23.95	23.64	30.95	35.15
25	28.62	27.57	26.20	25.37	34.62	38.20
30	31.80	30.88	30.06	27.39	38.04	41.94
35	35.46	32.95	32.73	29.93	42.52	44.88
40	39.91	36.71	35.91	33.17	46.68	44.82
45	45.17	39.95	37.04	37.37	51.53	44.35
50	51.55	46.08	42.96	42.72	56.53	43.53
55	56.49	52.69	48.89	51.25	60.92	43.34
60	62.17	58.77	53.11	58.99	64.95	43.51
65	66.84	64.25	57.32	63.28	69.80	44.95
70	72.81	68.99	61.62	61.55	74.41	47.05
75	80.06	71.85	62.36	64.86	84.94	49.55
80	78.53	59.18	64.01	63.61	91.05	52.34
85	71.94	63.50	65.32	73.99	50.59	56.79
90	80.13	75.32	70.93	67.85	78.68	61.49
95	82.97	76.92	77.55	72.22	85.64	64.29
100	83.19	74.73	75.04	66.92	89.01	65.94
105	81.48	64.86	74.32	64.38	91.66	66.25
110	85.27	65.94	74.49	66.84	95.67	67.69
115	85.44	65.59	72.64	64.78	98.00	67.74
120	84.98	71.50	75.82	63.48	101.62	67.78
125	84.52	50.67	72.96	62.34	103.92	67.85
130	85.75	68.13	75.41	62.34	106.05	67.91
135	87.46	67.12	70.82	38.97	108.94	66.99
140	85.18	58.79	71.70	61.53	108.63	67.71
145	85.82	66.95	72.05	61.31	110.66	67.47
150	86.49	73.75	72.59	59.89	113.26	67.67
155	89.19	73.11	73.53	62.71	114.15	66.88
160	92.56	73.71	75.28	65.72	114.98	67.65
165	92.25	73.32	73.75	61.88	116.95	67.32
170	91.25	75.67	73.40	63.11	118.01	67.14
175	93.48	74.60	76.87	67.28	121.78	67.82
180	94.80	74.46	75.82	66.31	122.80	68.61
185	94.86	74.33	75.58	64.40	121.53	68.13
190	97.54	74.70	76.24	66.16	120.71	67.28
195	97.43	74.63	76.83	66.11	123.07	68.15
200	99.69	74.52	75.21	63.35	124.52	66.55
205	99.49	75.53	76.09	63.11	126.74	67.25
210	100.88	75.33	76.11	63.13	130.78	67.25
215	102.48	75.68	77.16	65.78	131.07	67.21
220	104.00	75.97	75.63	64.93	132.23	67.67
225	105.92	76.07	78.03	65.17	132.05	66.90
230	110.04	77.26	78.20	67.12	132.46	66.92
235	113.57	78.64	78.05	65.96	133.57	66.92
240	117.30	78.56	78.42	64.97	134.74	66.66
245	125.45	79.11	75.06	74.54	135.77	66.35

表 3 背火面單點及平均溫度 (續)(°C)

Time (minute)	Thermocouple Number				Average Temperature (°C)
	7	8	9	10	
0	19.70	19.75	19.75	19.72	20.21
5	20.78	20.89	21.61	33.48	22.60
10	22.65	21.75	24.78	44.73	25.71
15	26.74	23.95	29.61	48.78	28.59
20	27.82	24.62	29.70	40.42	28.75
25	29.10	25.61	31.37	48.76	31.54
30	31.11	26.78	34.33	52.47	34.48
35	33.28	28.38	36.88	55.48	37.25
40	34.64	29.25	37.06	50.81	38.90
45	35.84	30.48	37.51	47.65	40.69
50	36.75	31.71	38.44	45.44	43.57
55	38.82	33.15	39.48	43.82	46.89
60	40.90	35.53	41.65	42.69	50.23
65	43.82	38.73	45.04	43.56	53.76
70	47.61	43.45	49.84	44.49	57.18
75	51.09	48.07	53.59	45.99	61.24
80	53.64	52.93	57.01	48.51	62.08
85	55.10	56.92	59.91	50.46	60.45
90	60.21	61.33	63.81	52.50	67.23
95	63.39	66.53	69.14	53.96	71.26
100	65.30	68.96	69.03	55.10	71.32
105	64.47	71.17	70.21	55.74	70.45
110	67.56	73.31	71.48	56.11	72.44
115	67.65	73.47	70.63	56.29	72.22
120	67.23	73.71	71.22	56.38	73.37
125	66.40	73.64	71.26	56.27	70.98
130	66.38	73.79	71.46	56.35	73.36
135	63.96	72.92	71.13	56.05	70.44
140	64.97	73.60	71.89	56.22	72.02
145	64.51	73.14	71.20	56.38	72.95
150	63.70	73.34	71.26	56.82	73.88
155	63.22	72.75	69.14	56.73	74.14
160	62.58	72.07	69.89	57.30	75.17
165	61.60	72.94	68.33	57.85	74.62
170	62.25	73.07	66.07	58.48	74.85
175	64.21	70.17	66.14	58.57	76.09
180	65.24	70.72	67.52	59.05	76.53
185	65.00	70.15	66.68	59.40	76.01
190	64.49	69.82	66.14	59.21	76.23
195	64.40	72.68	70.21	59.64	77.32
200	60.85	69.71	66.73	59.86	76.10
205	62.19	68.72	64.75	59.84	76.37
210	62.21	69.42	65.87	60.04	77.10
215	61.40	69.51	64.34	60.26	77.49
220	61.31	68.85	64.21	60.76	77.56
225	63.20	67.96	62.89	60.74	77.89
230	60.50	68.70	64.45	61.25	78.69
235	60.94	67.87	63.77	61.05	79.03
240	60.96	68.39	64.32	61.25	79.56
245	59.03	68.66	65.02	61.57	81.06

附錄 C
觀察情況

表 4 測試過程中，觀察試件情況如下

時間 (小時:分鐘)	事件
-0:01	攝錄機、監察和操控儀器啓動。
0:00	開啓石油氣閥，測試開始。周圍環境溫度爲 20°C。
0:03	背火面電線附近有白煙溢出。
0:06	背火面電線附近冒煙情況減弱。
0:20	於 0:06 提及之冒煙情況仍然持續。
0:30	棉墊測試 -- 棉墊沒有被點燃。
0:45	於 0:20 提及之冒煙情況仍然持續。
1:00	棉墊測試 -- 棉墊沒有被點燃。 試件之隔熱性及完整性均能達到標準。
1:05	背火面位於左邊的防火填塞逐漸膨脹。
1:45	棉墊測試 -- 棉墊沒有被點燃。
2:00	試件之隔熱性及完整性仍能達到標準。
2:15	於 0:45 提及之冒煙情況仍然持續。
2:45	棉墊測試 -- 棉墊沒有被點燃。
3:00	背火面兩邊的防火填塞繼續膨脹。 試件之隔熱性及完整性仍能達到標準。
3:30	棉墊測試 -- 棉墊沒有被點燃。
4:00	試件之隔熱性及完整性仍能達到標準。
4:05	在送檢單位同意情況下，測試結束。
備註	背火面結構仍完整(見圖 19)



附錄 D

圖片

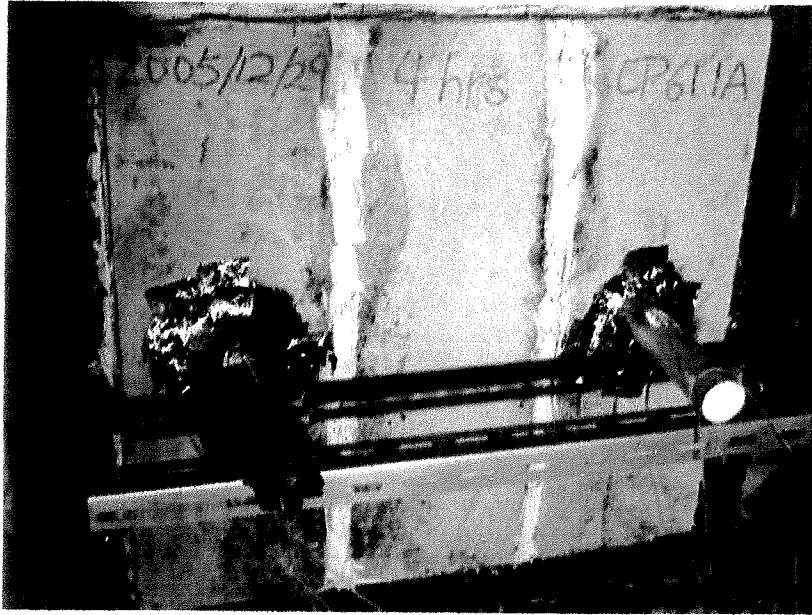


圖 7 測試前試件背火面

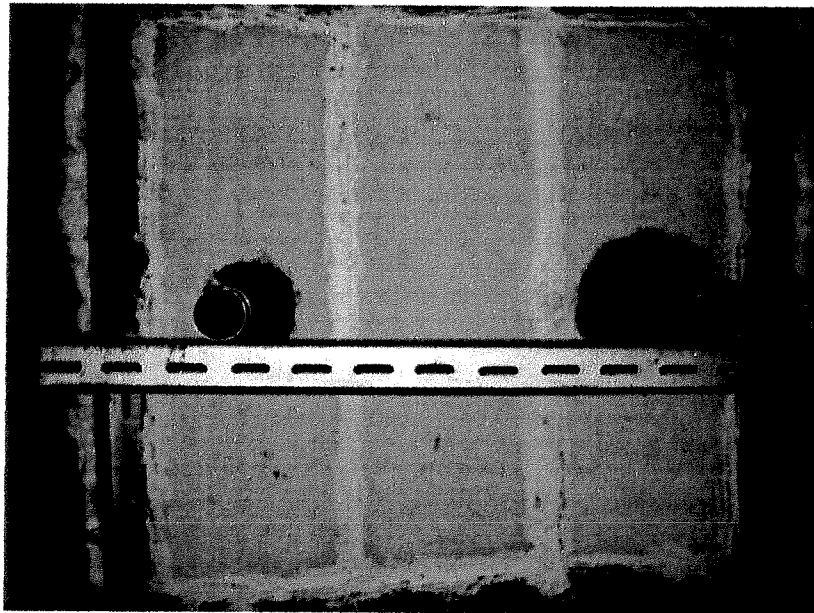


圖 8 測試前試件向火面

A handwritten signature in black ink, appearing to be 'Ken'.

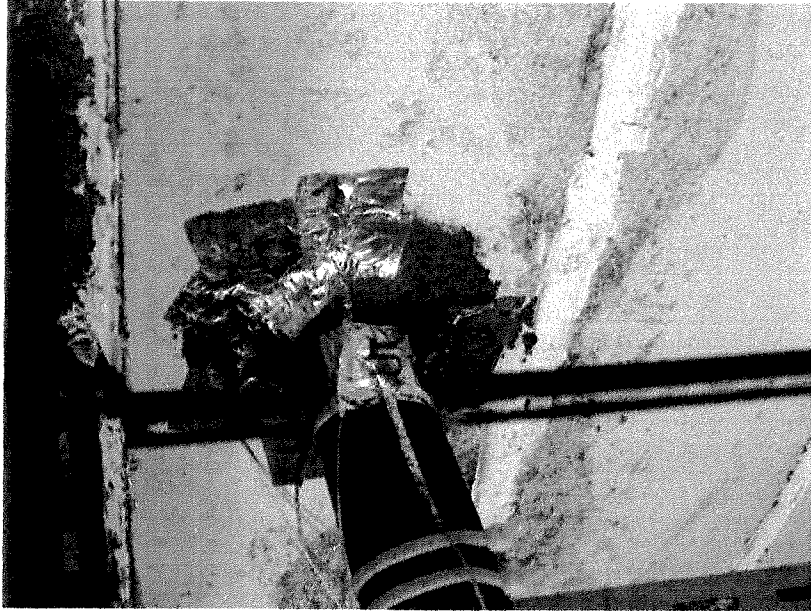


圖 9 熱電偶位置分佈圖(一)

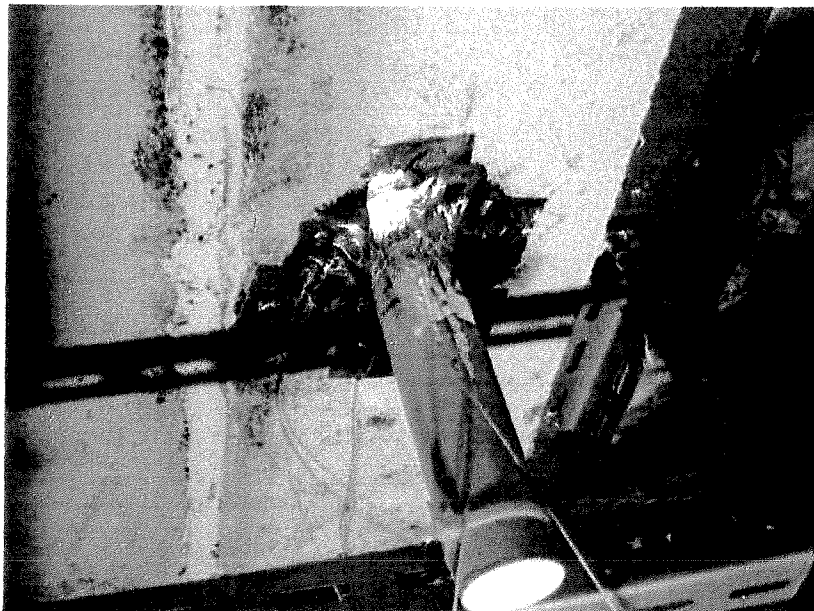


圖 10 熱電偶位置分佈圖(二)

Ken

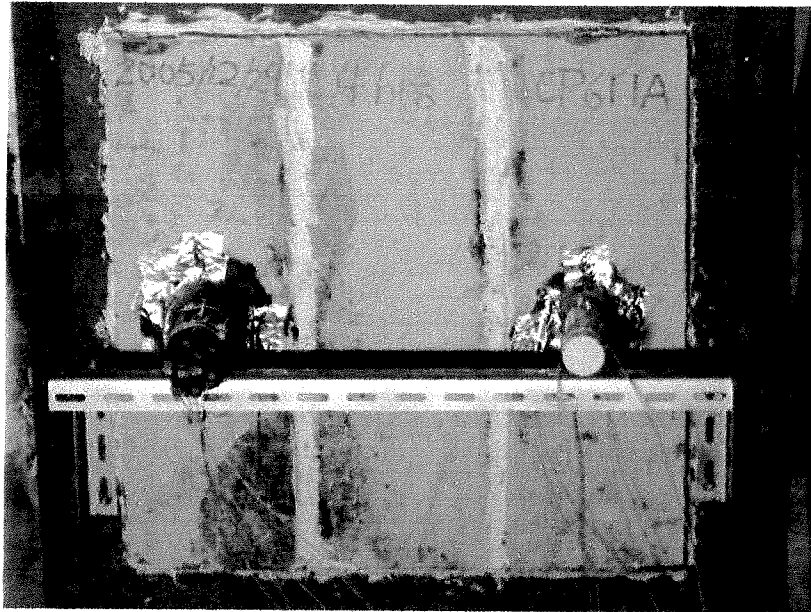


圖 11 測試 30min 時試件背火面

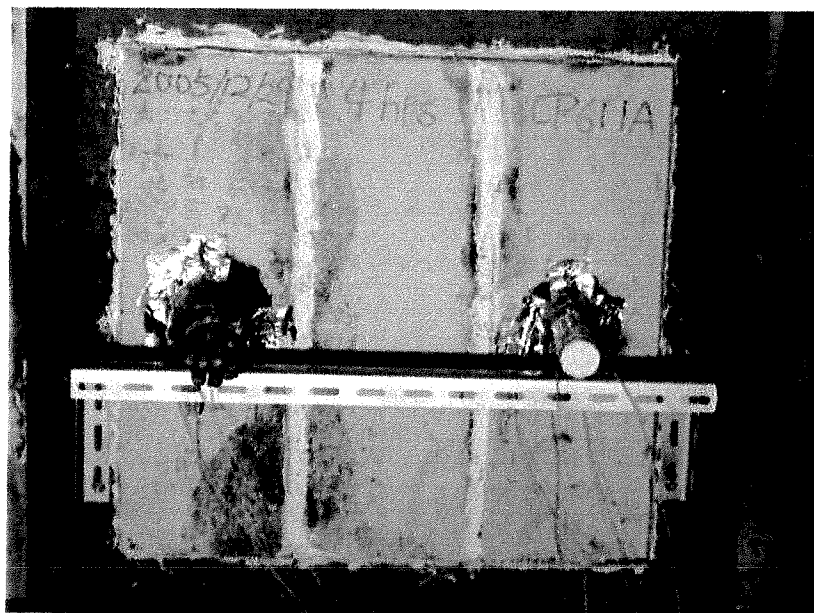


圖 12 測試 60min 時試件背火面



圖 13 已膨脹之背火面防火填塞材料

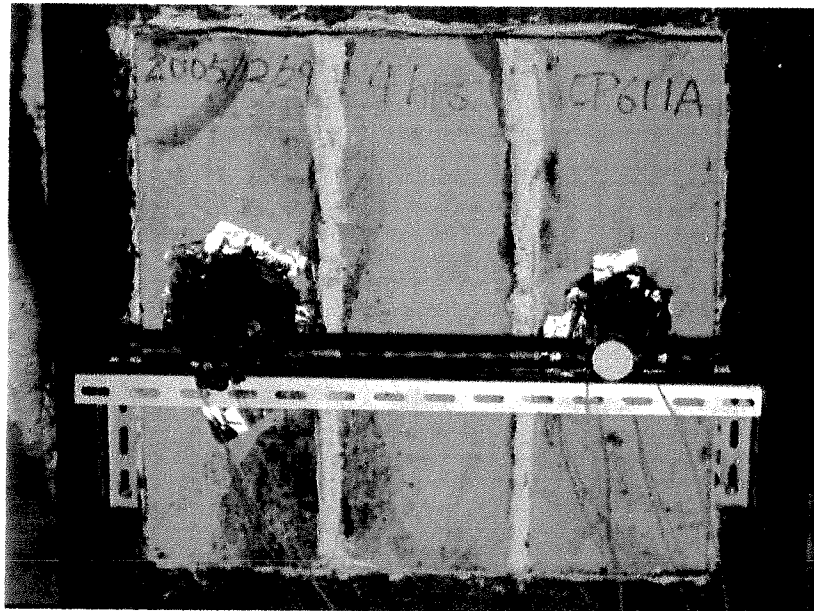


圖 14 測試 90min 時試件背火面

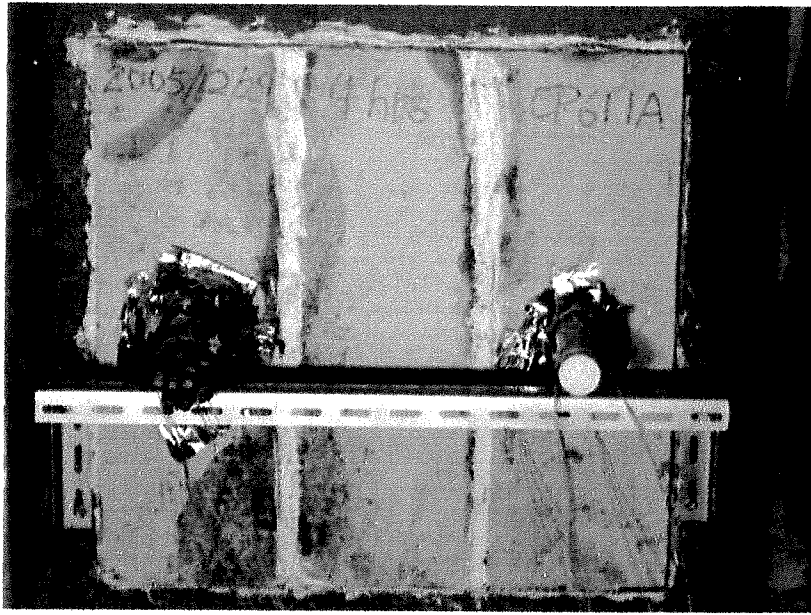


圖 15 測試 120min 時試件背火面

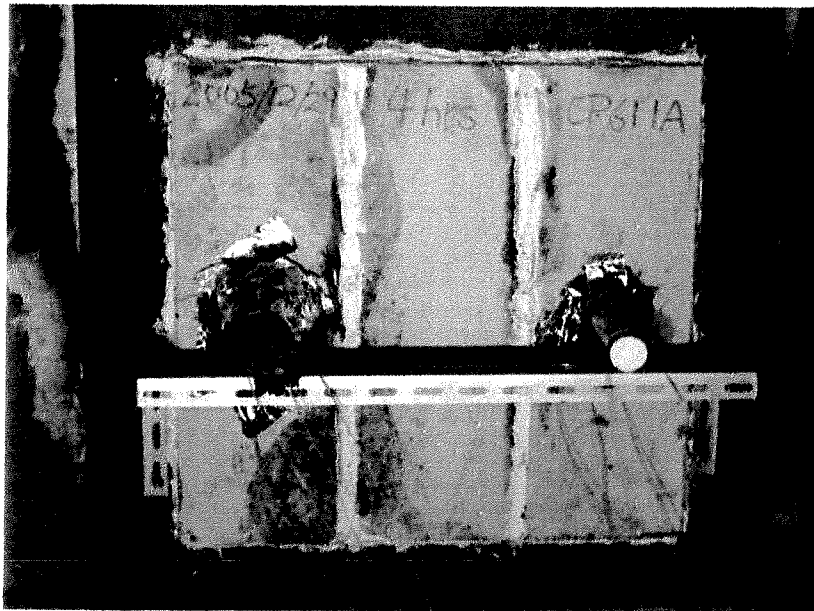


圖 16 測試 150min 時試件背火面

A handwritten signature in black ink, consisting of a stylized cursive name.

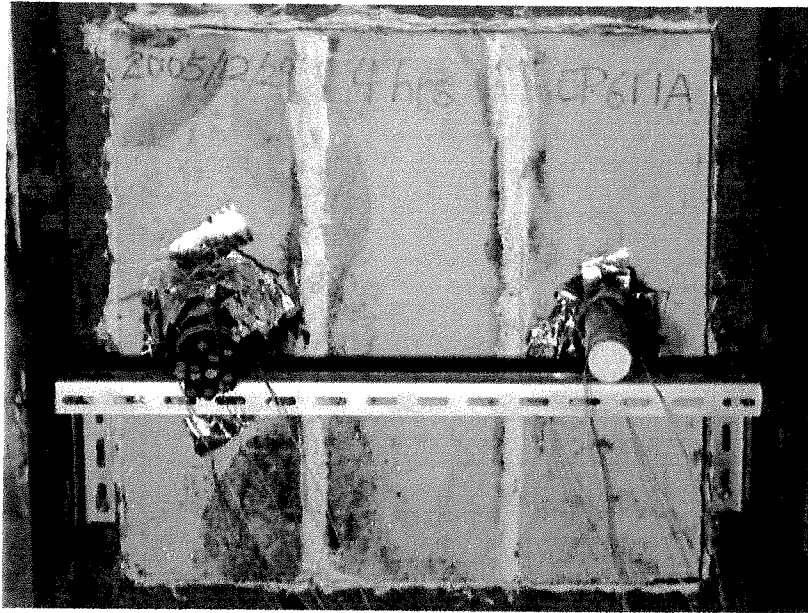


圖 17 測試 180min 時試件背火面

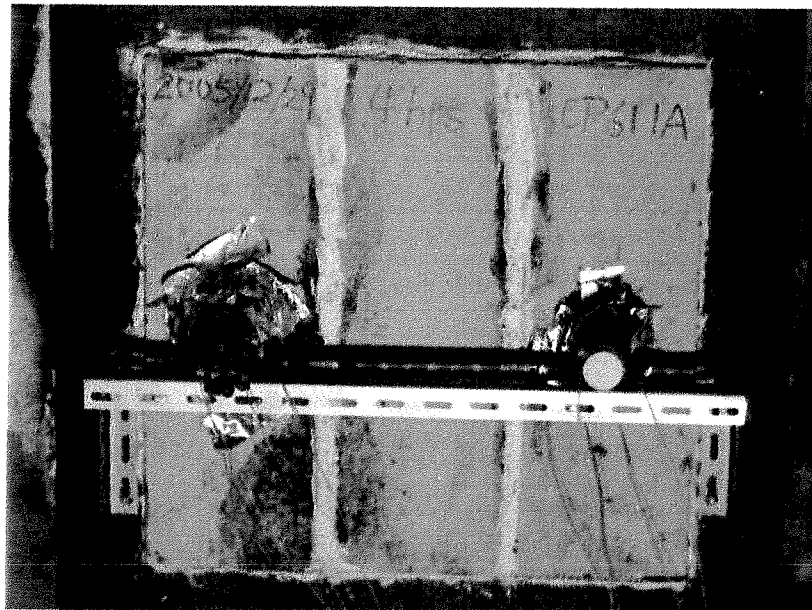


圖 18 測試 210min 時試件背火面

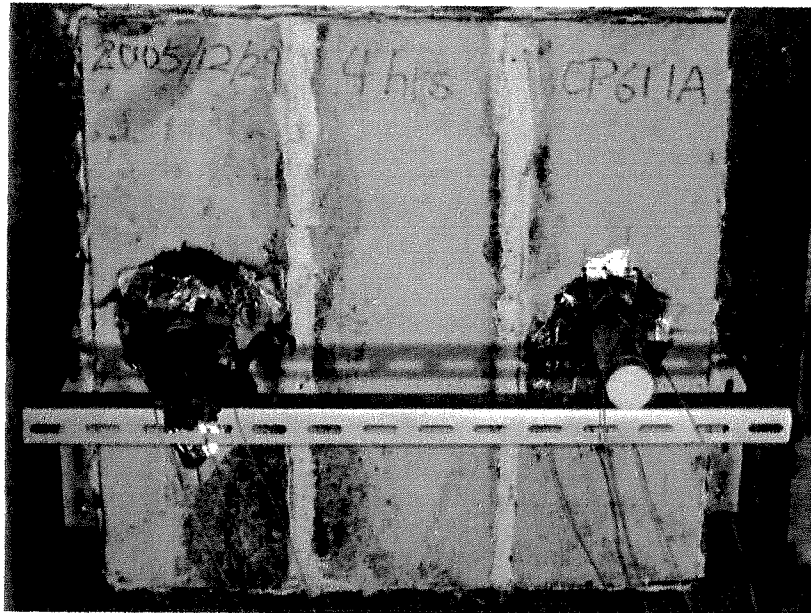


圖 19 測試 240min 時試件背火面

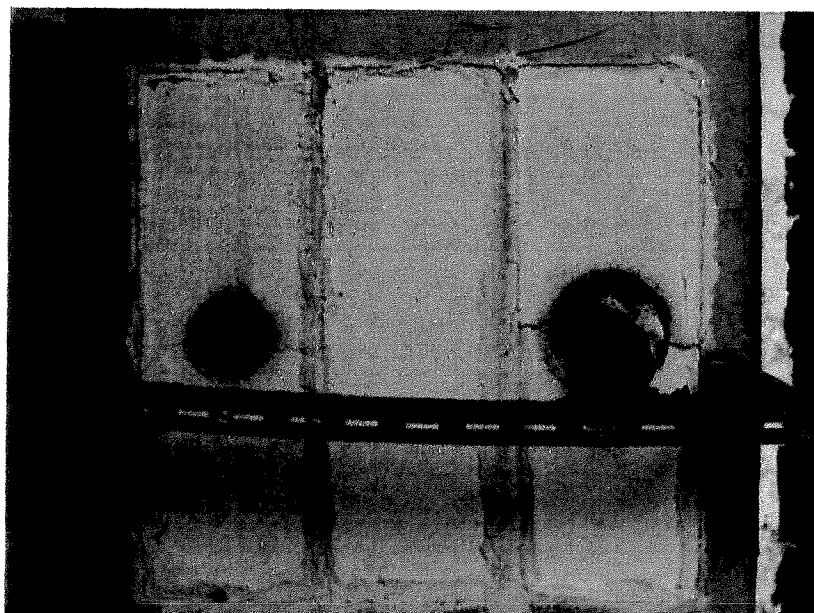


圖 20 測試後試件向火面

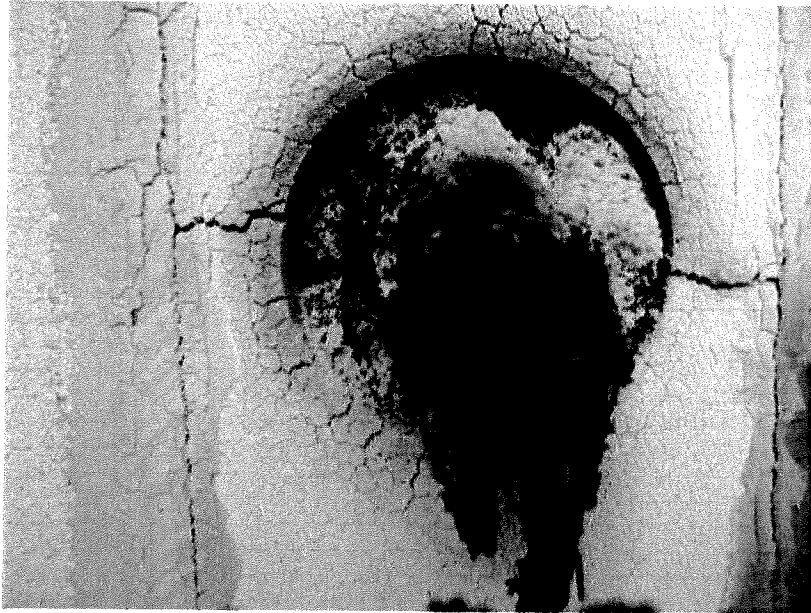


圖 21 測試後試件向火面大樣圖(一)

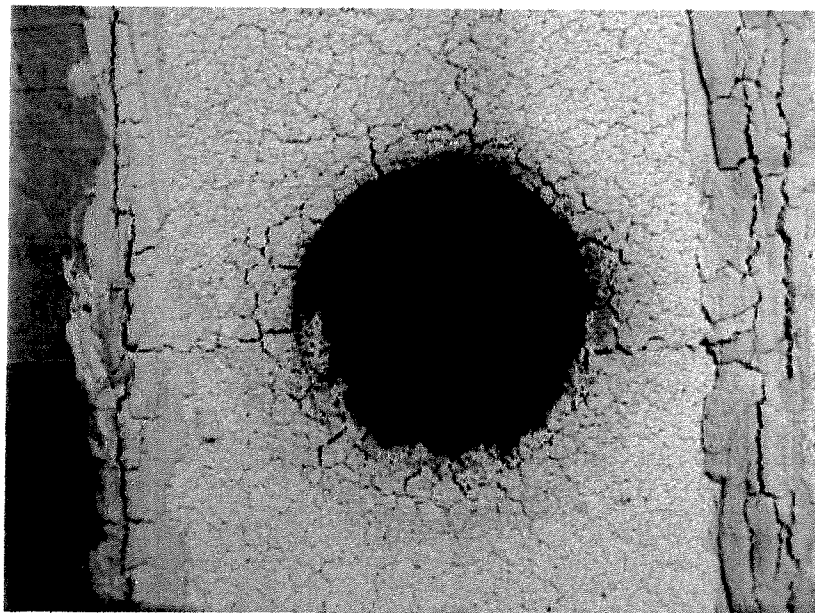


圖 22 測試後試件向火面大樣圖(二)

VOC Content Test Certificate

October 26, 2009

Supplier: Hilti Entwicklungsgesellschaft mbH
 BU Chemicals
 Hiltistrasse 6
 86916 Kaufering
 GERMANY

Sample Description: Hilti CP 611A

Date tested: July 20, 2009

Test Method: SCAQMD method 304-91 Determination of Volatile Organic Compounds (VOC) in various materials as referenced by South Coast Air Quality Management District (SCAQMD) rule 1168. The values also comply with the requirements of EPA test method #24.

Test Data: Legend Project Number 0903311

Specification	Product
LEED 2009 (LEED 3.0) LEED 2.2 IEQ-4.1: Low-Emitting Materials – Architectural Sealant	Hilti CP 611A
Green Building Council of Australia Green Star Office Design 3.0, IEQ-13 Green Star Office Design 2.0, IEQ-13 Green Star Office Interiors 1.1, IEQ-11	
Architectural Sealant; VOC Limit: 250 g/L	Product contains: 56 g/L of VOC



William Welbes
 Vice President of Laboratory Operations



Allen Noreen, Ph.D.
 Technical Director



澳門特別行政區政府
 Governo da Região Administrativa Especial de Macau
 消防局
 Corpo de Bombeiros

頁編號 1/1
 Pág. n.
 文件編號 271/DT/2006
 Inf. n.
 日期: 14 / 02 / 2006
 Data

審閱/Visto
 於 Em 14/02/2006
 技術廳廳長
 O Chefe do D.T.

意見書

事由：要求審批“HILTI”喜利得防火延燒產品 – CP 611A Intumescent Firestop Mastic

參件： 進入編號 1100 (25/01/2006)
 喜利得(香港)有限公司來函編號：M-AL_LE03_06(18/01/2006)
 意見書編號 242/DT/2006 (09/02/2006)

- Ø1. 上述公司交來以下 CP 611A Intumescent Firestop Mastic 的資料：
 - a. 澳門大學按照 BS476 Part20:1987 檢驗依據測試標準發出的 CP 611A Intumescent Firestop Mastic(膨脹性防火膠)檢驗報告複印本 (No2005-FRT46)；
 - b. Warrington 防火研究中心發出的測試報告複印本，編號為 WARRES No.57312/A &62293/A；
- Ø2. 根據上述的資料分析後，CP 611A Intumescent Firestop Mastic(膨脹性防火膠)於試驗結果中顯示具 CRF245 能力。然而，如將此組件應用於不同組合形式使用時，應按照實際用途而作出相應評估；
- Ø3. 本局對 CP 611A Intumescent Firestop Mastic (膨脹性防火膠)使用於合符《防火安全規章》規範的標準時沒有異議。但最終決定仍須徵詢權限部門(土地工務運輸局)之意見。

二零零六年二月十三日，於技術廳研究暨試驗科

研究暨試驗科科長

黃勁松
 副一等消防區長



APPROVED

Certificate of Compliance

This certificate is issued for the following firestopping products:

- FS-ONE High Performance Intumescent Firestop Sealant
- CP680 Cast-In Firestop Device
- CP680-N Cast-In Firestop Device
- CP680-P Cast-In Firestop Device
- CP682 Cast-In Firestop Device
- CP 648E Wrap Strip
- CP617 Firestop Putty
- CP601 S Elastomeric Firestop Sealant
- CP636 Firestop Mortar
- CP 604 Self Leveling Firestop Sealant
- CP611A High Performance Intumescent Firestop Sealant
- CP 643N Firestop Collar
- CP606 Flexible Firestop Sealant
- CP-672 Firestop Joint Spray
- CP620 Firestop Foam
- CP680-M Cast-In Firestop Device
- CP 675T Firestop Board
- CP618 Firestop Putty
- CP619T Putty Roll
- CP670 Firestop Board
- CP673 Firestop Coating

Prepared for:

Hilti AG
Feldkircherstrasse 100
FL-9494 Schaan
Liechtenstein

FM Approvals Class: 4990

Approval Identification: 3051456

Approval Granted: June 4, 2014

To verify the availability of the Approved product, please refer to www.approvalguide.com.

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.

Cynthia E. Frank
AVP - Manager, Materials
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062



Member of the FM Global Group

Issued: June 30, 2016

Attn. : To whom it may concern

Date : 26 September 2023

Ref. : 103/FP/DY/23

Subject : Country of Origin- Hilti CP 611A Firestop Intumescent Sealant

Dear Sir / Madam,

Enclosed please find the information of Hilti CP 611A Firestop Intumescent Sealant.

Brand Name : Hilti

Model Name : Hilti CP 611A Firestop Intumescent Sealant

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Germany

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P



July 30, 2014

To Whom It May Concern:

Re: Hilti Intumescent Firestop Sealant CP 611A – LEED Info.

- The Hilti Intumescent Firestop Sealant CP 611A is manufactured in Germany.
- The package of Hilti Intumescent Firestop Sealant CP 611A can be completely recycled.
- There is no recycled content in Hilti Intumescent Firestop Sealant CP 611A and it cannot be recycled.
- The Hilti Intumescent Firestop Sealant CP 611A does not share any rapidly renewable materials.
- The VOC content of Hilti Intumescent Firestop Sealant CP 611A is 56 g/l.

If you would like to know more about Hilti solutions for LEED buildings or should you have any further question please feel free to contact me at my email or mobile number as shown below.

Sincerely,

Andrew Lau

Product Manager - Firestop

Hilti (Hong Kong) Limited

Email: andrew.lau@hilti.com

Mobile: (852) 9843-6291

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong

Kowloon | Hong Kong

P +852-8228 8118 | **F** +852-2954 1751

www.hilti.com.hk

To whom it may concern

Date: 22nd April 2016

Dear Sir / Madam,

Subject: Hilti Firestop Products non-CFC and Ozone Confirmation

Referring to your enquiry about the captioned subject, please be advised that:

Hilti firestop products, CP611A Intumescent Mastic is free of CFC, HCFC nor other ozone depletion elements.

CFC, HCFC and ozone depletion elements were not used during the product process neither.

Should you have further questions, please do not hesitate to contact our Technical Representatives or Customer Service Hotline at 8228-8118.

Yours sincerely,



Andrew Lau
Product Manger

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

Date of issue: 14/02/2018

Version: 11.0

Revision date: 14/02/2018

Supersedes: 12/11/2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	Mixture
Product name	CFS-IS; CP 611A
Product code	BU Fire Protection



Product group	Trade product
---------------	---------------

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	Firestop intumescent sealant
------------------------------	------------------------------

1.3. Details of the supplier of the safety data sheet

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Supplier

Hilti (Hong Kong) Ltd.
701-704, 7/F, Tower A, Manulife Financial Centre
223 Wai Yip Street, Kwun Tong
Kowloon - Hong Kong
T +852 27734 700
hksales@hilti.com

Department issuing data specification sheet

Hilti AG
Feldkircherstraße 100
9494 Schaan - Liechtenstein
T +423 234 2111
chemicals.hse@hilti.com

1.4. Emergency telephone number

Emergency number	Schweizerisches Toxikologisches Informationszentrum – 24h Service +41 44 251 51 51 (international) +852 27734 700
------------------	---

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS (Rev. 4, 2011)

Skin Sens. 1	H317
Repr. 2	H361
Aquatic Acute 2	H401
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

2.2. Label elements

Labelling according to the United Nations GHS (Rev. 4, 2011)

Hazard pictograms (GHS-UN)



GHS07

GHS08

Signal word (GHS-UN)

Warning

Hazardous ingredients

polypropylene glycol alkyl phenyl ether; Zinc borate

Hazard statements (GHS-UN)

H317 - May cause an allergic skin reaction.
 H361 - Suspected of damaging fertility or the unborn child.
 H401 - Toxic to aquatic life
 H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (GHS-UN)

P280 - Wear eye protection, protective clothing, protective gloves.
 P308+P313 - IF exposed or concerned: Get medical advice, medical attention.
 P333+P313 - If skin irritation or rash occurs: Get medical advice, medical attention.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to the United Nations GHS
Zinc borate	(CAS-No.) 138265-88-0	5 - 10	Repr. 2, H361 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
polypropylene glycol alkyl phenyl ether	(CAS-No.) 9064-13-5	2.5 - 5	Skin Sens. 1B, H317

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact	May cause an allergic skin reaction.
-------------------------------------	--------------------------------------

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Protection during firefighting Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

Protective equipment For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Mechanically recover the product.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling Wear personal protective equipment.
Hygiene measures Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.
Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions Keep cool. Store in a dry place.
Storage temperature 5 - 25 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional information The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product.

8.2. Appropriate engineering controls

No additional information available

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

8.3. Individual protection measures, such as personal protective equipment (PPE)

Hand protection Protective gloves. EN 374

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	1 (> 10 minutes)	>0.4		EN 374

Eye protection

Type	Use	Characteristics	Standard
Safety glasses			EN 166, EN 170

Skin and body protection Wear suitable protective clothing



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Pasty.
Molecular mass	Not determined
Colour	dark grey.
Odour	characteristic.
Odour threshold	Not determined
pH	8.5
Relative evaporation rate (butylacetate=1)	No data available
Melting point	Not applicable
Freezing point	No data available
Boiling point	No data available
Flash point	Not applicable
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Not applicable
Vapour pressure	No data available
Relative vapour density at 20 °C	No data available
Relative density	No data available
Density	1.4 g/cm ³
Solubility	No data available
Log Pow	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	No data available
Oxidising properties	No data available
Explosive limits	No data available

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) Not classified

Acute toxicity (dermal) Not classified

Acute toxicity (inhalation) Not classified

Zinc borate (138265-88-0)	
LD50 oral rat	10000 mg/kg (Rat)
LD50 dermal rabbit	10000 mg/kg (Rabbit)

Skin corrosion/irritation Not classified

pH: 8.5

Serious eye damage/irritation Not classified

pH: 8.5

Respiratory or skin sensitisation May cause an allergic skin reaction.

Germ cell mutagenicity Not classified

Carcinogenicity Not classified

Reproductive toxicity Suspected of damaging fertility or the unborn child.

STOT-single exposure Not classified

STOT-repeated exposure Not classified

Aspiration hazard Not classified

CFS-IS; CP 611A

Safety Data Sheet

according to the United Nations GHS (Rev. 4, 2011)

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity Toxic to aquatic life.
 Chronic aquatic toxicity Harmful to aquatic life with long lasting effects.

Zinc borate (138265-88-0)	
LC50 fish 1	2.4 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss)

12.2. Persistence and degradability

Zinc borate (138265-88-0)	
Persistence and degradability	Biodegradability: not applicable. Adsorbs into the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone Not classified
 Other adverse effects No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods Dispose of contents/container in accordance with licensed collector's sorting instructions.
 Product/Packaging disposal recommendations Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	RID
14.1. UN number			
Not regulated for transport			
14.2. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards			
Dangerous for the environment :	Dangerous for the environment :	Dangerous for the environment :	Dangerous for the environment :

CFS-IS; CP 611A

Safety Data Sheet

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ADR	IMDG	IATA	RID
No	No Marine pollutant : No	No	No
No supplementary information available			

14.6. Special precautions for user

- Overland transport

- Transport by sea

No data available

- Air transport

No data available

- Rail transport

Carriage prohibited (RID) No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

No additional information available

SECTION 16: Other information

SDS Major/Minor	None
Date of issue	14/02/2018
Revision date	14/02/2018
Supersedes	12/11/2015

Indication of changes:

Section	Changed item	Change	Comments
2.1		Modified	
12.		Modified	

Full text of H-statements:

H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility or the unborn child.
H400	Very toxic to aquatic life.
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SDS_UN_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product



Hilti CP 611A Firestop Intumescent Sealant Job Reference

Year	Project Name	Customer Name	Project type
2020	SCL 1112 HUNG HOM STATION	LEIGHTON CONTRACTORS (ASIA) LTD	Transport
2020	Extension - Office - (Tai Po Town Lot 204) 17-19 Science P.	ATAL ENGINEERING LIMITED	Office
2020	HKIA P583 T1 ANNEX BLDG & CP4 EXT	KW ENGINEERING (HONG KONG) LIMITED	Infrastructure
2020	TIN SHUI WAI LOT 34 SHK RES	GOLDEN HUGO ENGINEERING LTD	Residential
2020	HKIA AIRPORT SKYCITY REGAL HOTEL	FEI LUNG ENGINEERING CO LTD	Hospitality
2020	Avenida da Nave Desportiva, Cotai Reclaimed Land	FOUR DIN ELECTRICAL	Retail
2021	98 HOW MING ST	RIDGID PLUMBING LIMITED	Office
2021	New - Residential - 8A-30A Fuk Chak Street & 8-30 Ka Shir	GRANBO CONSTRUCTION CO LTD	Residential
2022	98 HOW MING ST	RIDGID PLUMBING LIMITED	Office