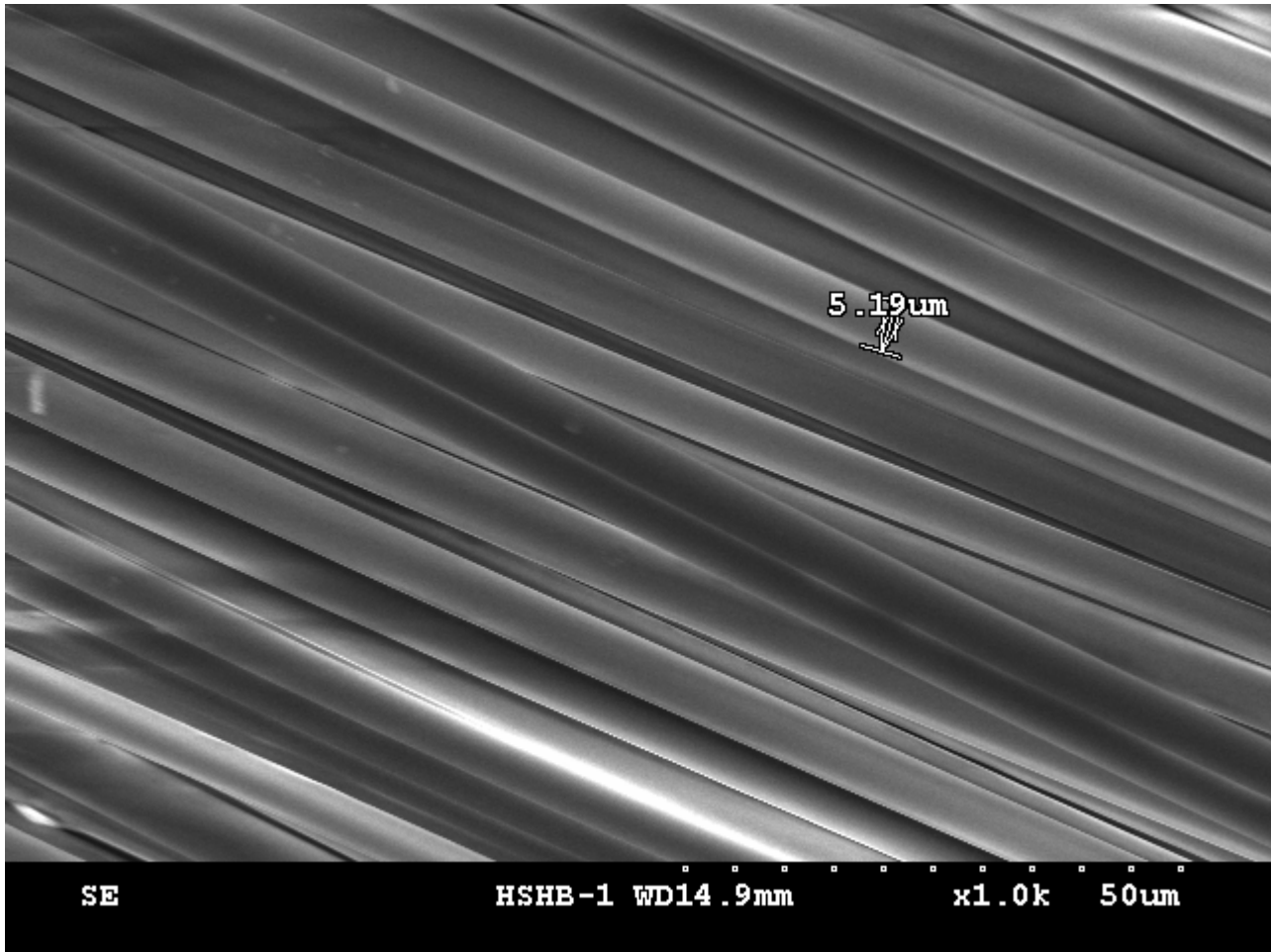
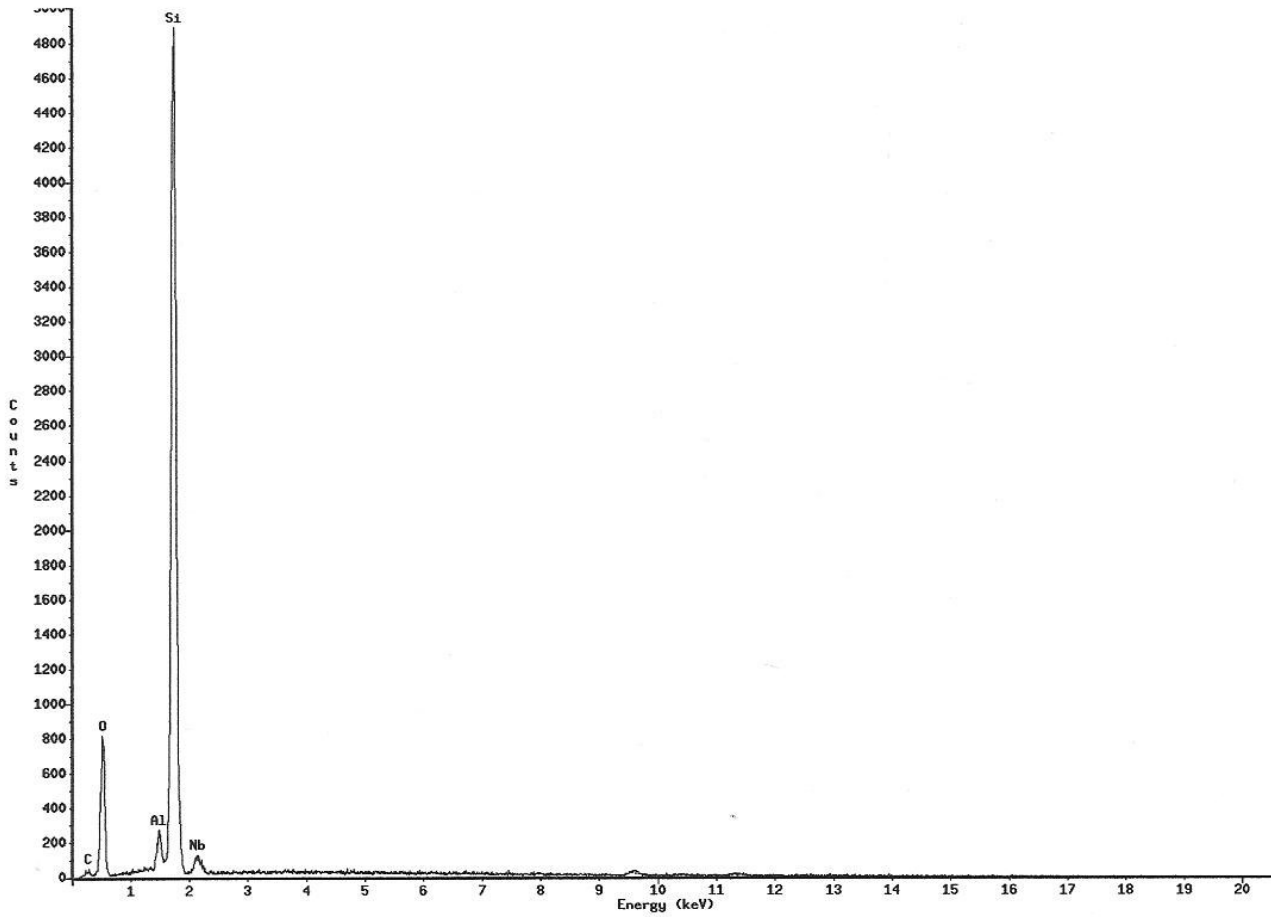


## 超高溫絕熱王材質報告

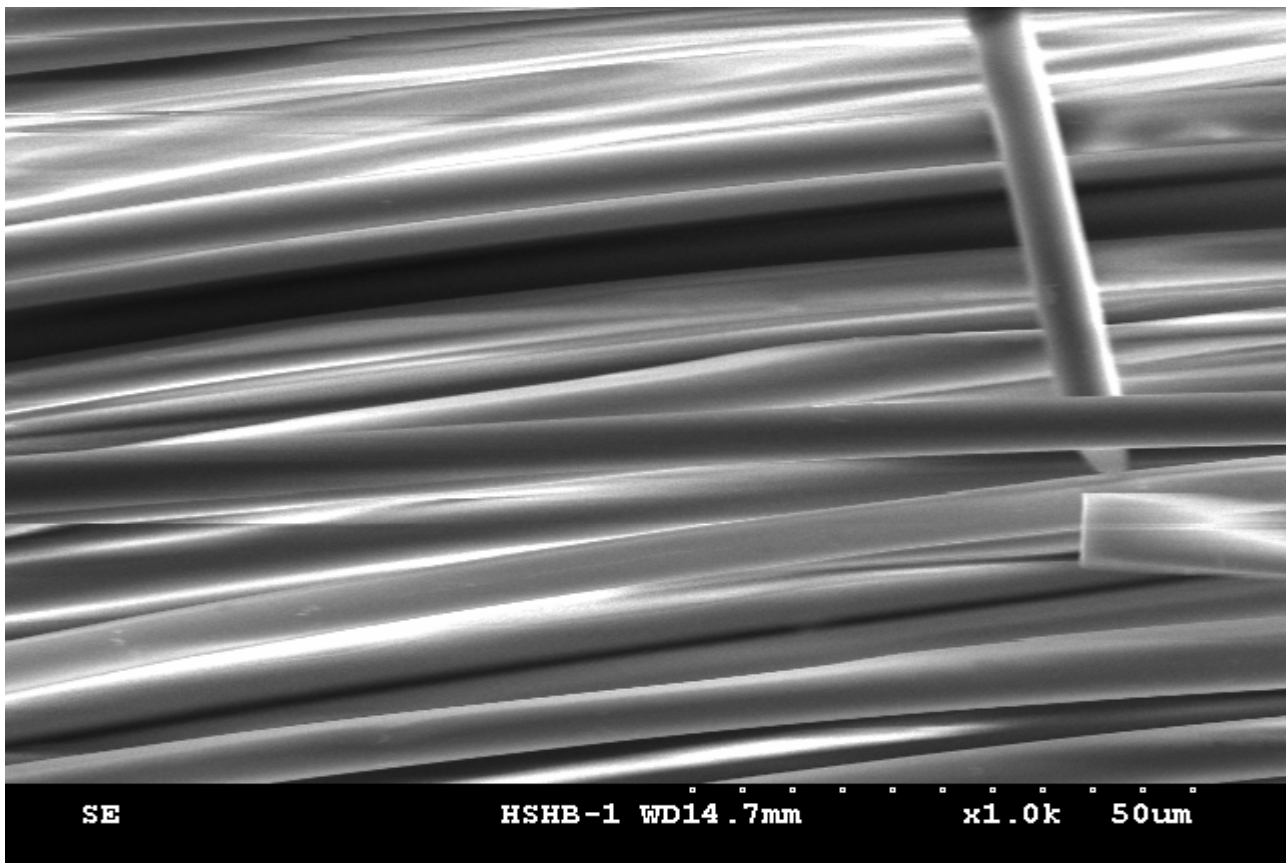
超高溫絕熱王的材質分析如下，圖一係使用 HITACHI S-3500N 掃描式電子顯微鏡拍攝超高溫絕熱王，可知本材質係由純二氧化矽所組成，纖維的粗細約在 5.16 $\mu\text{m}$  與 5.19 $\mu\text{m}$  之間，主成分是 Si(14) 與 O(8)，其他成分可由圖二之 EDS 圖譜得知，其他材質分別為 C(6),Al(13),Nb(41)，其原始量測資料數據如附錄一。而圖三燃燒過的超高溫絕熱王之 1000 倍電子顯微鏡照片，其材質圖譜如圖四，所含的成分比例並無太大變化，猶如不曾燃燒過，其原始量測資料數據如附錄二。



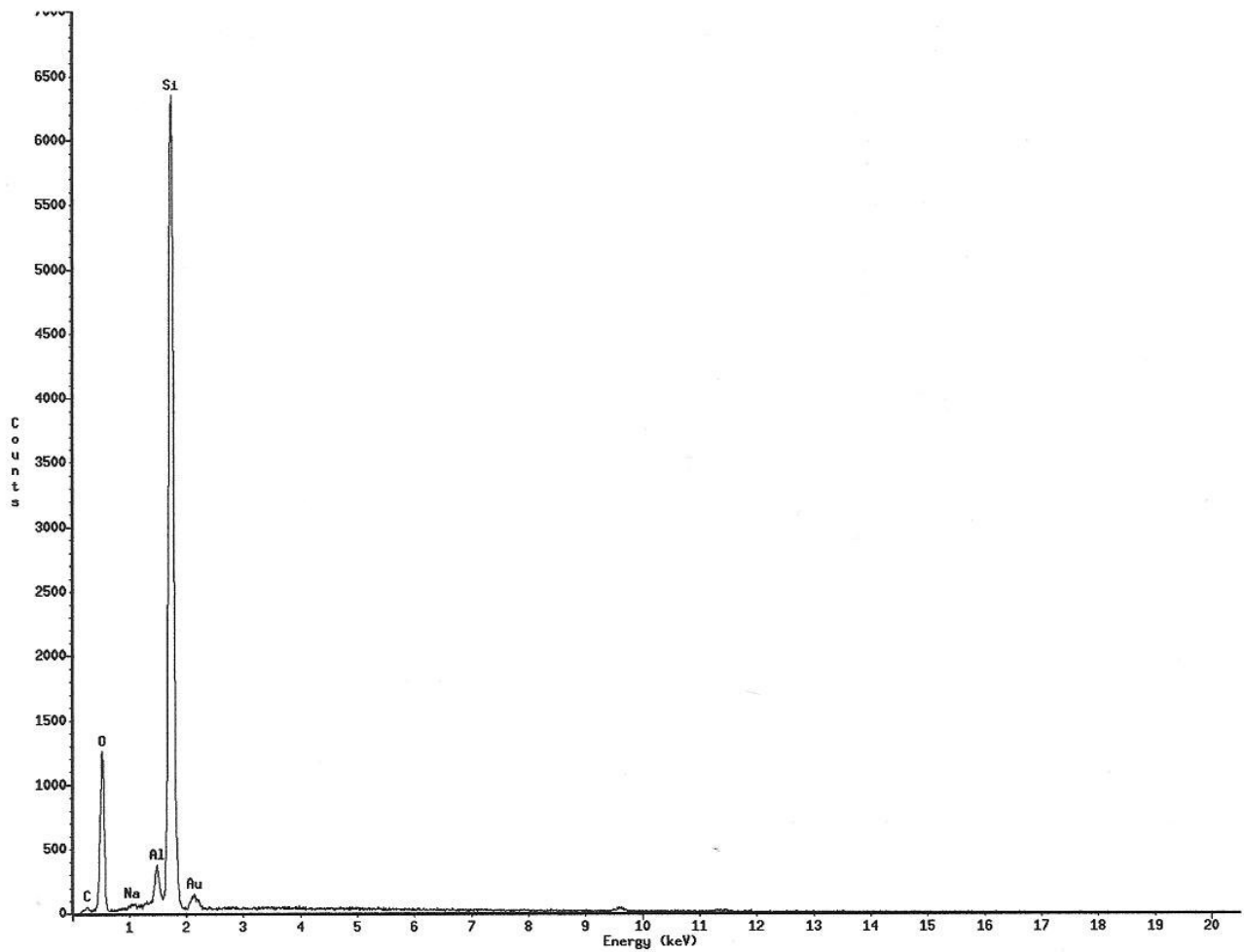
圖一 超高溫絕熱王二氧化矽纖維 電子顯微鏡(SEM) 1000 倍放大圖



圖二 超高溫絕熱王 SiO<sub>2</sub> 纖維 材質分析圖(EDS)



圖三 超高溫絕熱王燃燒後之 電子顯微鏡放大圖 1000 倍



圖四 超高溫絕熱王燃燒後纖維 之材質分析(EDS)



附錄一 超高溫絕熱王未燃燒之原始量測資料數據

Wed Nov 16 15:12:49 2005

Livetime : 100.0 Sec.  
Technique: Least Squares Fit

Elements Present:  
C(6), O(8), Al(13), Si(14), Nb(41)

Energy (keV)	Intensity (counts)	Elements Present
0.270	188	C Ka
0.522	5823	O Ka
1.479	1929	Al Ka
1.736	58748	Si Ka
2.143	1119	Nb La1
9.593	291	unidentified

Wed Nov 16 15:14:11 2005

Filter Fit Method  
Chi-sqd = 18.84 Livetime = 100.0 Sec.  
Standardless Analysis

Element	Relative k-ratio	Error (1-Sigma)	Net Counts	Error (1-Sigma)
Si-K	0.97266 +/-	0.00554	50724 +/-	289
O -K	---	---	6277 +/-	73
Al-K	0.02734 +/-	0.00179	1529 +/-	100

Adjustment Factors	K	L	M
Z-Balance:	0.00000	0.00000	0.00000
Shell:	1.00000	1.00000	1.00000

PROZA Correction Acc.Volt.= 15 kV Take-off Angle=35.00 deg  
Number of Iterations = 7

Element	k-ratio (calc.)	ZAF	Atom %	Element Wt %	Wt % Err. (1-Sigma)	Compound Formula	Compound Wt %
Si-K	0.3817	1.207	32.98	46.08	+/- 0.26	SiO2	98.58
Al-K	0.0107	1.323	1.06	1.42	+/- 0.09	Al	1.42
O -K	---	2.328	65.96	52.50 S	---	---	---
Total			100.00	100.00			100.00

Table Symbols: S -- Wt.% calculated by Stoichiometry



附錄二 超高溫絕熱王燃燒後之原始量測資料數據

Wed Nov 16 15:01:50 2005

Livetime : 100.0 Sec.  
Technique: Least Squares Fit

Elements Present:  
C(6), O(8), Na(11), Al(13), Si(14),  
~~Au(79)~~

Energy (keV)	Intensity (counts)	Elements Present
0.255	234	C Ka
0.523	9085	O Ka
1.050	296	Na Ka
1.480	2892	Al Ka
1.736	78083	Si Ka
2.135	1163	Au Ma1
9.614	291	unidentified

Wed Nov 16 15:03:01 2005

Filter Fit Method  
Chi-sqd = 22.40 Livetime = 100.0 Sec.  
Standardless Analysis

Element	Relative k-ratio	Error (1-Sigma)	Net Counts	Error (1-Sigma)
Si-K	0.96982 +/-	0.00503	67815 +/-	352
O -K	---	---	9754 +/-	89
Al-K	0.03018 +/-	0.00159	2261 +/-	119

Adjustment Factors	K	L	M
Z-Balance:	0.00000	0.00000	0.00000
Shell:	1.00000	1.00000	1.00000

PROZA Correction Acc.Volt.= 15 kV Take-off Angle=35.00 deg  
Number of Iterations = 7

Element	k-ratio (calc.)	ZAF	Atom %	Element Wt %	Wt % Err. (1-Sigma)	Compound Formula	Compound Wt %
Si-K	0.3807	1.209	32.94	46.01	+/- 0.24	SiO2	98.43
Al-K	0.0118	1.323	1.17	1.57	+/- 0.08	Al	1.57
O -K	---	2.329	65.89	52.42 S	---	---	---
Total			100.00	100.00			100.00

Table Svmbols: S -- Wt.% calculated by Stoichiometry

※以上報告 特別感謝中央大學 超塑性實驗室 李雄老師 支持教導!!