

WACKER

CREATING TOMORROW'S SOLUTIONS

LUMISIL 245 UV固化程度检测

瓦克化学（中国）有限公司

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硬度测试法

LUMISIL® UV Series

Properties	Unit	LUMISIL® 202 UV	LUMISIL® 203 UV	LUMISIL® 205 UV	LUMISIL® 245 UV
Description		Low-viscosity soft gel	Low-viscosity soft tough gel	Middle-viscosity tough gel	High-viscosity tough gel
Applicable dispensing system		Dispensing	Dispensing/slit coating	Dispensing/slit coating/screen printing	Stencil printing
Product Data, Uncured					
Color		Optically clear, colorless			
Viscosity	[mPa·s]	A: 2,100 B: 1,000	A: 3,800 B: 1,000	A: 7,500 B: 1,000	A: 65,000 B: 1,000
Product Data, A+B Part					
Mixing ratio		10 : 1	10 : 1	10 : 1	10 : 1
Pot life at 23 °C	[h]	> 24	> 24	> 24	> 24
Viscosity of mix	[mPa·s]	2,000	3,500	5,500	45,000
Product Data, Fully Cured					
Density at 23 °C	[g/cm³]	0.97	0.97	0.97	0.97
Volume shrinkage	[%]	< 0.1	< 0.1	< 0.1	< 0.1
Hardness (Shore 00)		10 ± 5	37 ± 5	48 ± 5	45 ± 5
Pull strength	[Kgf/cm²]	3.5	4.0	4.5	5.0
Transmittance*, Minolta CM-5	[%]	> 99.0	> 99.0	> 99.0	> 99.0

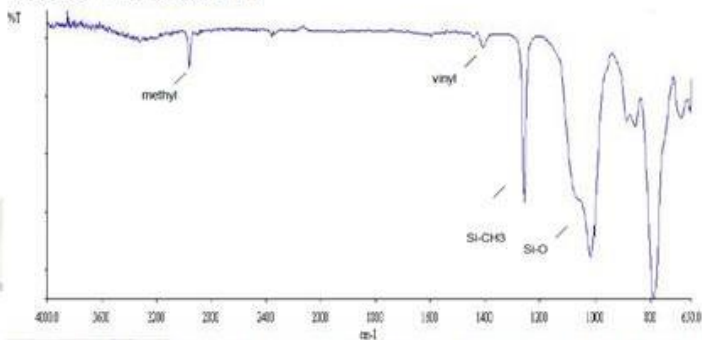


- ▶ 硬度是反映交联密度的直观指标；
- ▶ 固化完全时，交联网络构建完成，硬度达到稳定的最大值；
- ▶ LUMISIL 245 UV固化完全后硬度稳定于 Shore 00 40~50；
- ▶ 可以根据硬度测试结果判断是否固化完全

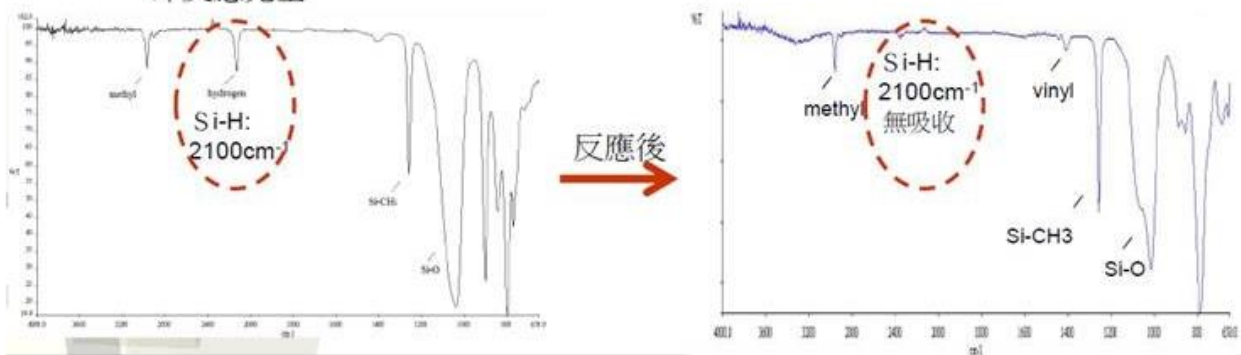
红外测试法

傅立葉轉換紅外線光譜儀(FTIR)

測試儀器：Perkin Elmer FTIR
測試目的：8/8,2016 返回品之特性官能基驗證
測試結果：特性官能基熟化正常



測試結果：矽氫鍵 (Si-H) 波長 2100 cm⁻¹ 陡峭吸收峰 完全消失不見,代表架橋劑完全消耗
即反應完全



- ▶ Si-H峰面积的相对大小可以表征反应程度，反应程度增加，Si-H峰逐渐减小直至消失；
- ▶ -CH₃不参与反应，可以将C-H峰作为基准来比较Si-H峰大小；

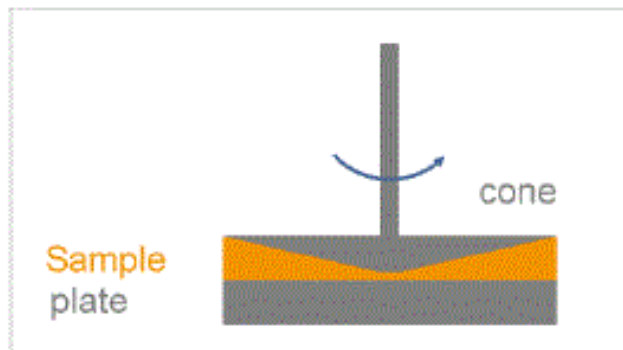
DSC-反应热法



测试原理

- ▶ 利用DSC（差示扫描量热法）对标准样（未固化）和被测样（已固化）进行平行测定反应热
- ▶ 未固化标准样完全固化时的反应热 ΔH_0
- ▶ 已固化被测样的固化后剩余反应热 ΔH_R
- ▶ 被测样固化率： $(\Delta H_0 - \Delta H_R) / \Delta H_0$

模量曲线法：安东帕流变仪



Parameters

- ▶ Viscosity in different conditions, loss modulus, storage modulus, damping factor

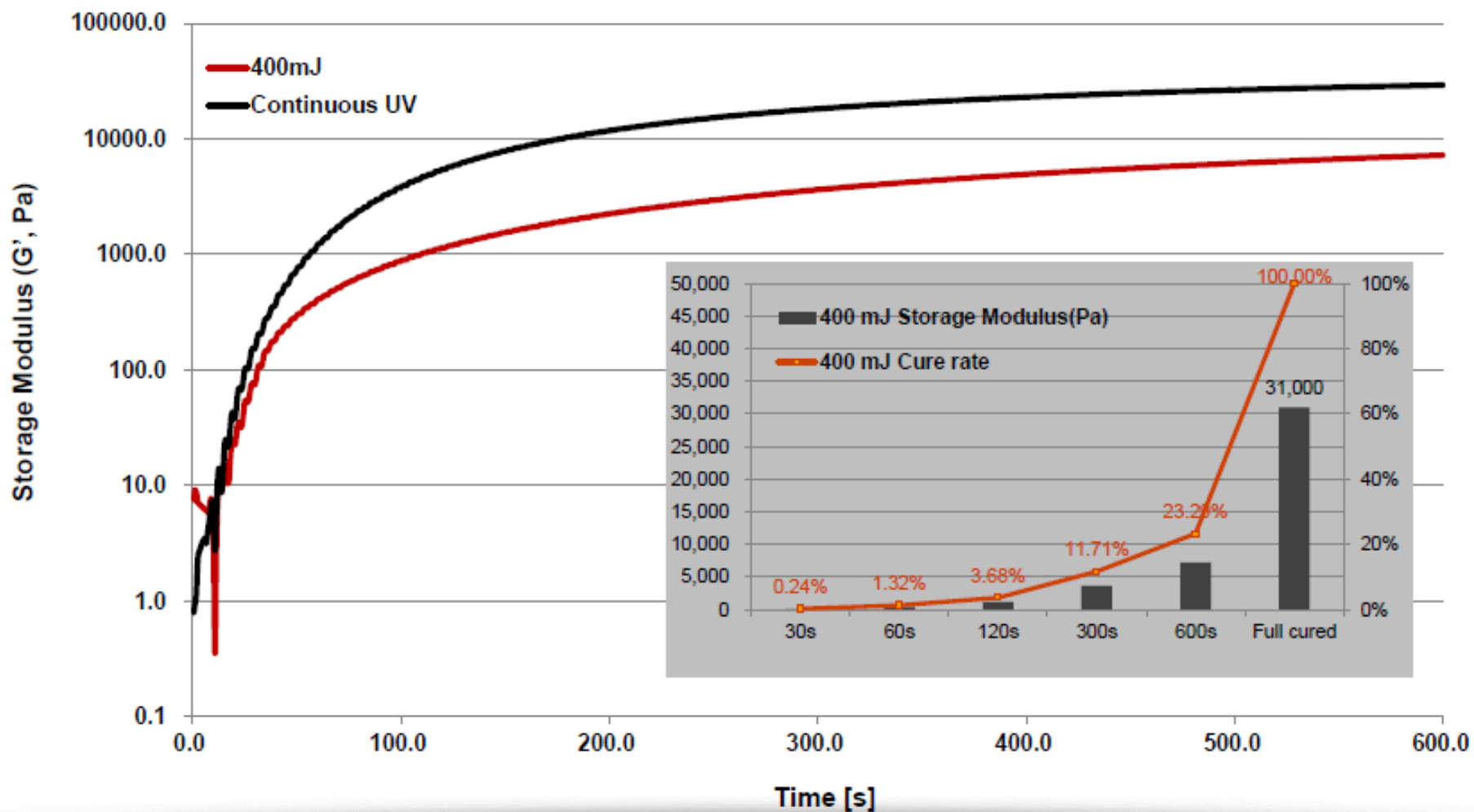
Principle

- ▶ Rotational and oscillational viscosity measurement using “Cone-Plate” or “Plate-Plate” geometry.

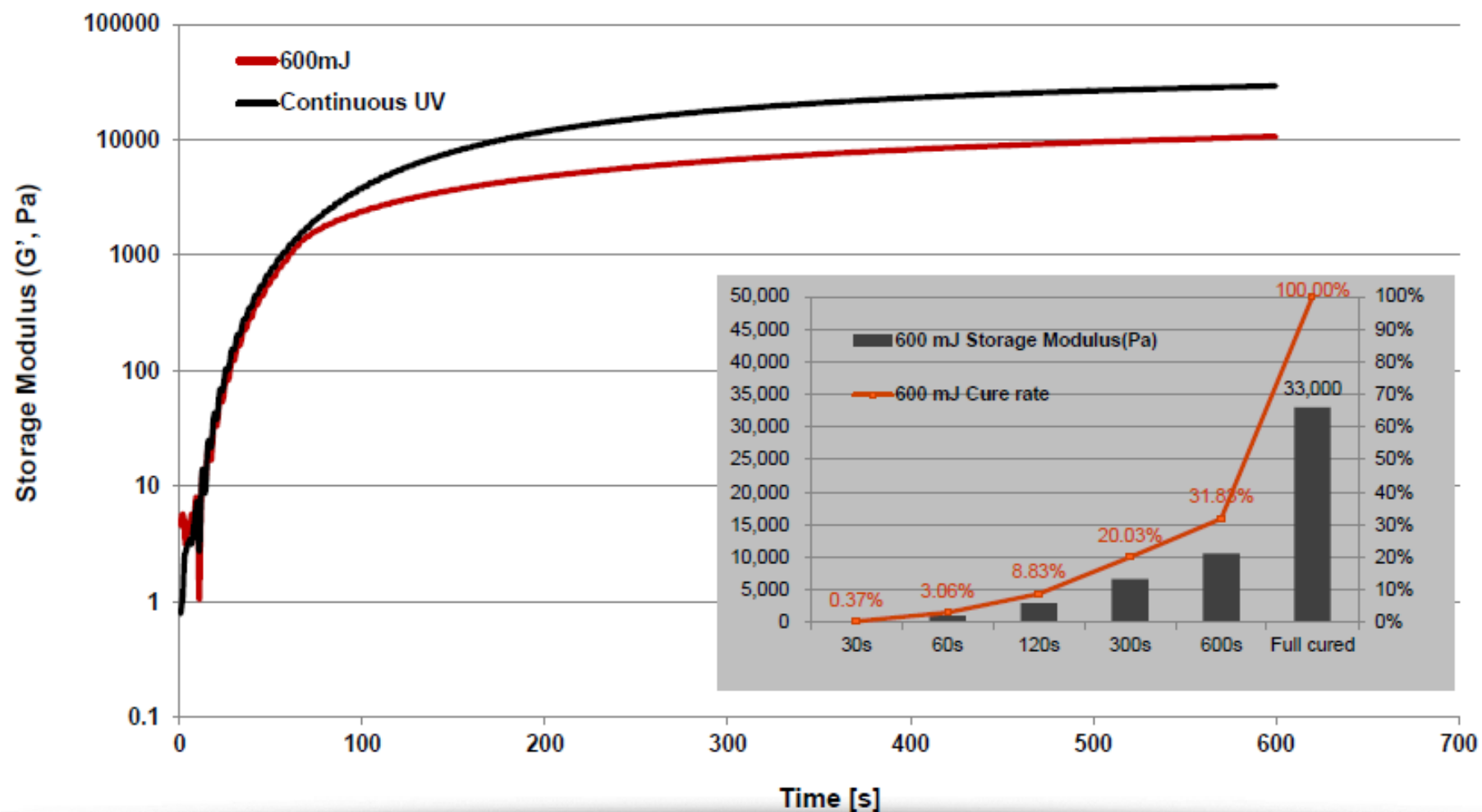
Typical Application

- ▶ Viscosity in mPas with 0.89 S-1 at 25°C
- ▶ Yielding stress for sealant
- ▶ Stress relaxation, thixotropic, creep, modulus, phase transformation

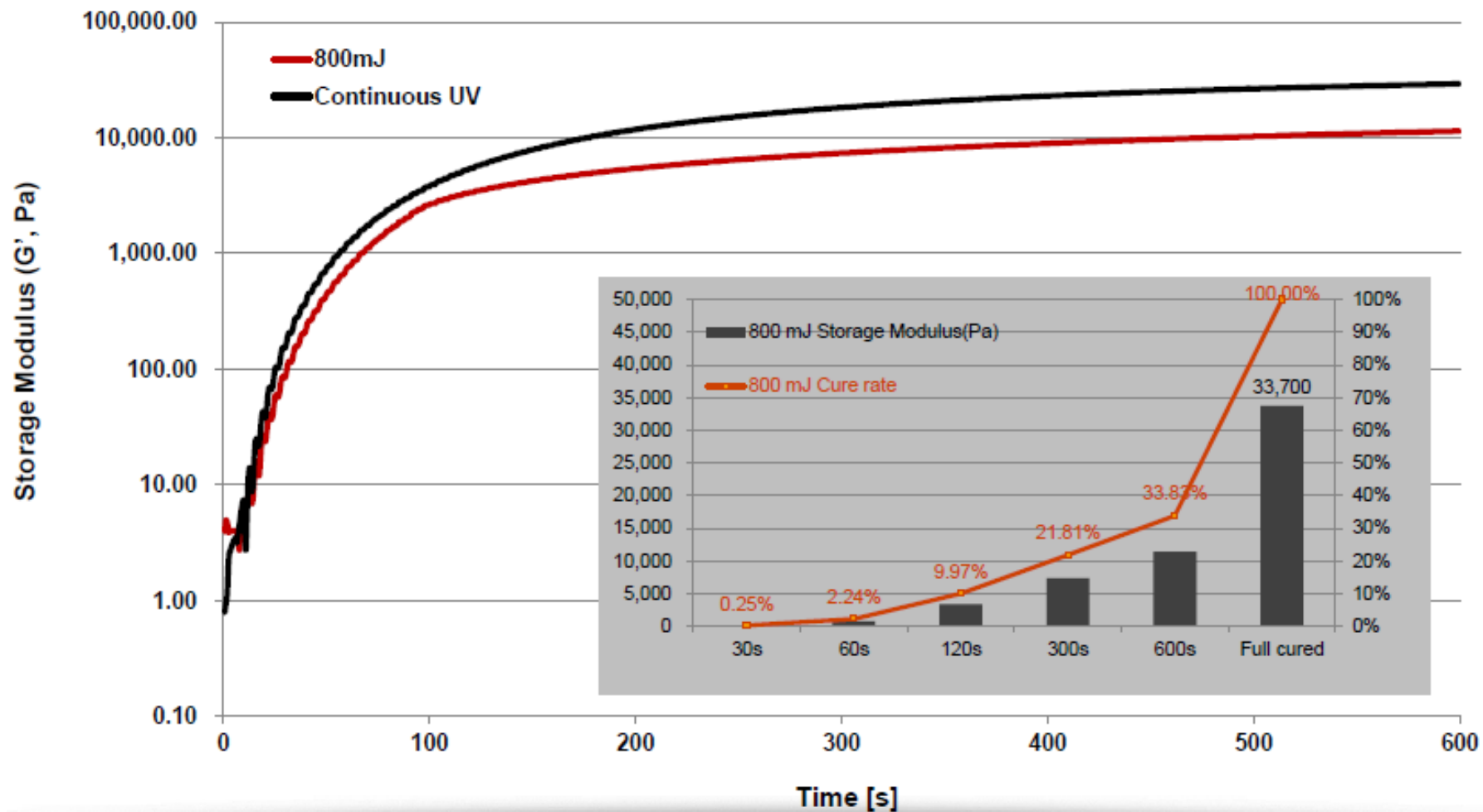
245在400mJ/cm² UVA曝光条件下的固化曲线



245在600mJ/cm² UVA曝光条件下的固化曲线



245在800mJ/cm² UVA曝光条件下的固化曲线



Thanks for your attention!

