

欢迎参加网络研讨会

—— QUV紫外老化箱操作维保培训及鞋材紫外老化测试标准解读

主办单位：安踏, 罗中科技, Q-Lab

Time	Items	Presenter
10:00-10:05	开场介绍	付永刚，罗中科技
10:05-10:30	鞋材紫外老化测试标准解读	瞿华盛，Q-Lab
10:30-10:50	QUV操作维保演示	孙泽东，Q-Lab
10:50-11:30	互动答疑	

[点击查看课程资料和视频回放](#)



QUV紫外老化箱操作维保培训及 鞋材紫外老化测试标准解读

Kobe Qu – Sr. Technical and Marketing Manager @Q-Lab

Andrew Sun – Repair Adviser @Q-Lab

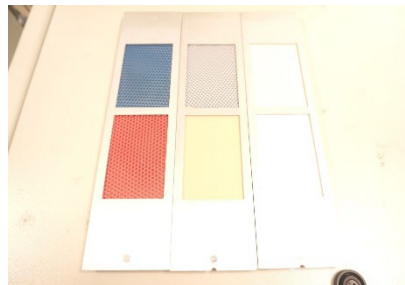
Daniel Zeng – General Manager @Roachelab

Flash Fu – CEO @Roachelab



Topics

- 鞋材常用紫外测试方法(耐黄变，日晒牢度)解读
- QUV紫外老化箱的功能模块介绍
- QUV设备维护保养视频直播



Colorfastness to Light 耐光色牢度

- Exposure to light radiation, temperature and humidity affects the fading / color change performance of a colored textile or other material

暴露于光，温度和湿度下，会影响纺织或其他有色材料的褪色/变色性能

- Changes are initiated due to photo-chemical processes of absorbed ultraviolet and visible radiation and the interactions with temperature and humidity.

变化是由吸收的紫外线和可见光的光化学过程，以及与温度和湿度的相互作用引起的

Standard 标准

Standard	Light Source	Duration	Reference	Wet?
Anta J507-37	UVA-340	24 hrs		NO
Nike G37	UVA-340	24 hrs	ASTM D1148	NO
Adidas FT-11	Xenon	2 hrs	ISO 105 B04	NO
ISO 105 B02 (GB/T 8427)	Xenon	--		NO
HG/T 3689	类UVB	--	ASTM D1148	NO

- Lightfastness/colorfastness usually has no much humid simulation

耐黄变/耐日晒牢度测试 通常不重点考虑潮湿的模拟

Anta J507-37

Step	Function	RH (%)	Irradiance (W/m ² /nm)	Black Panel Temp. (°C)	Chamber Air Temp (°C)	Step Time (hh:mm)
1	Light		0.78	45		24:00
2	Final Step - Go To Step 1					

- 使用QUV紫外老化箱，配置UVA-340灯管，辐照度 0.78 W/m²@340nm
- 黑板温度 45°C
- 测试时间24小时

Nike G37

Step	Function	RH (%)	Irradiance (W/m ² /nm)	Black Panel Temp. (°C)	Chamber Air Temp (°C)	Step Time (hh:mm)
1	Light		0.78	45		24:00
2	Final Step - Go To Step 1					

- 使用QUV紫外老化箱，配置UVA-340灯管，辐照度 0.78 W/m²@340nm
- 黑板温度 45°C
- 测试时间24小时

Adidas FT-11

Step	Function	RH (%)	Irradiance (W/m ² /nm)	Black Panel Temp. (°C)	Chamber Air Temp (°C)	Step Time (hh:mm)
1	Light		0.49	70		2:00
2	Final Step - Go To Step 1					

- 使用Q-SUN氙灯设备，配置 Extended UV-Quartz 过滤片，辐照度 0.49W/m²@340nm
- 黑板温度70°C
- 测试时间2小时

ISO 105 B02

Step	Function	RH (%)	Irradiance (W/m ² /nm)	Black Panel Temp. (°C)	Chamber Air Temp (°C)	Step Time (hh:mm)
1	Light	40	1.10	47	39*	24:00
2	Final Step - Go To Step 1					

* Indicates no value specified in the test method but a value is programmed into the tester

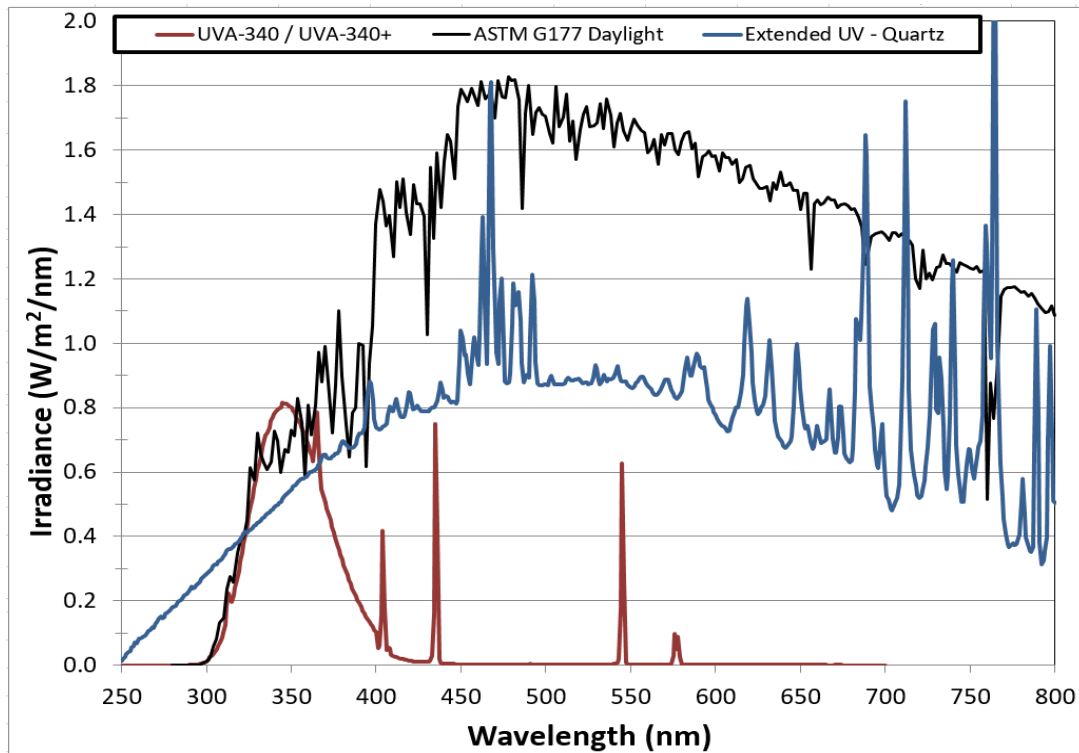
- 使用Q-SUN氙灯设备，配置 Window -IR 过滤片，辐照度 1.1W/m²@420nm
- 黑标温度47°C，空气温度39°C，有效湿度40%
- 测试时间--

HG/T 3689

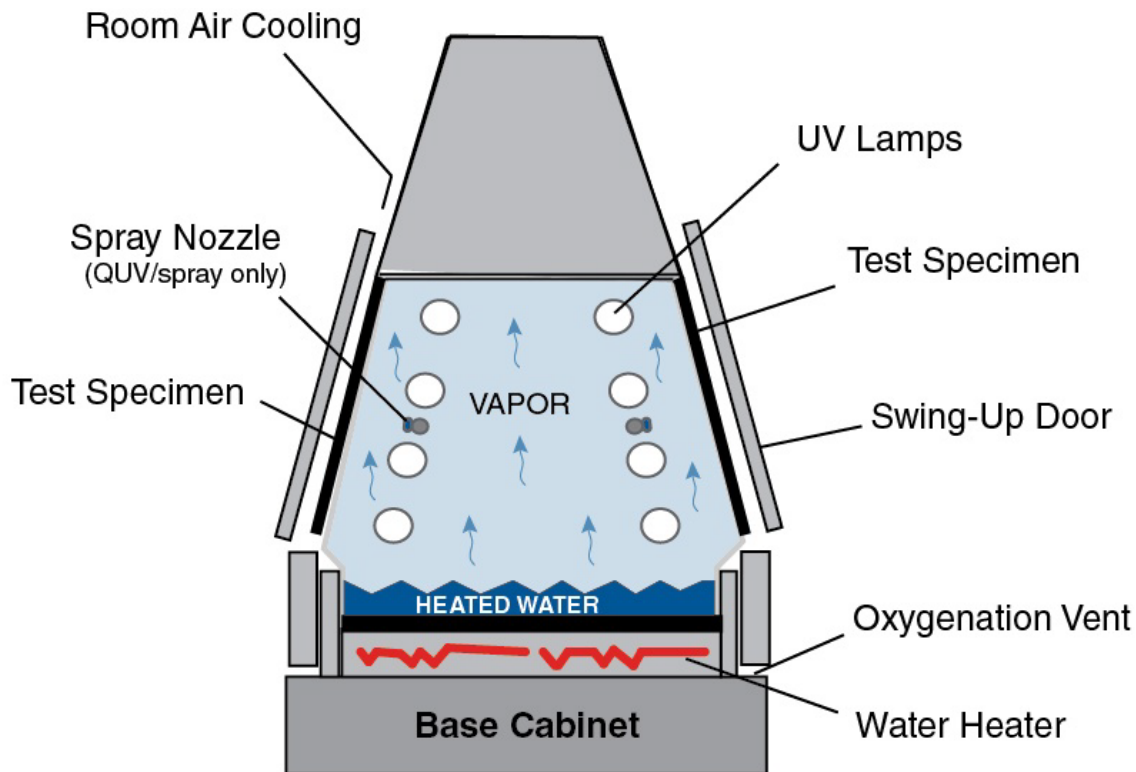
- A法-太阳灯法
 - 辐照度约为 $25\text{W}/\text{m}^2$ @ 280-400nm，辐照度无实时监控，辐照衰减，1000小时后更换
 - 空气温度 50°C
- B法-紫外线灯管法
 - 辐照度无实时监控，辐照衰减，500小时后更换
 - 测试温度为室温

Anta vs. Adidas

- 光谱差异
 - 紫外 vs. 全光谱
- 温度差异
 - BP45 vs. BP70
- 测试时长差异
 - 24hrs vs. 2hrs



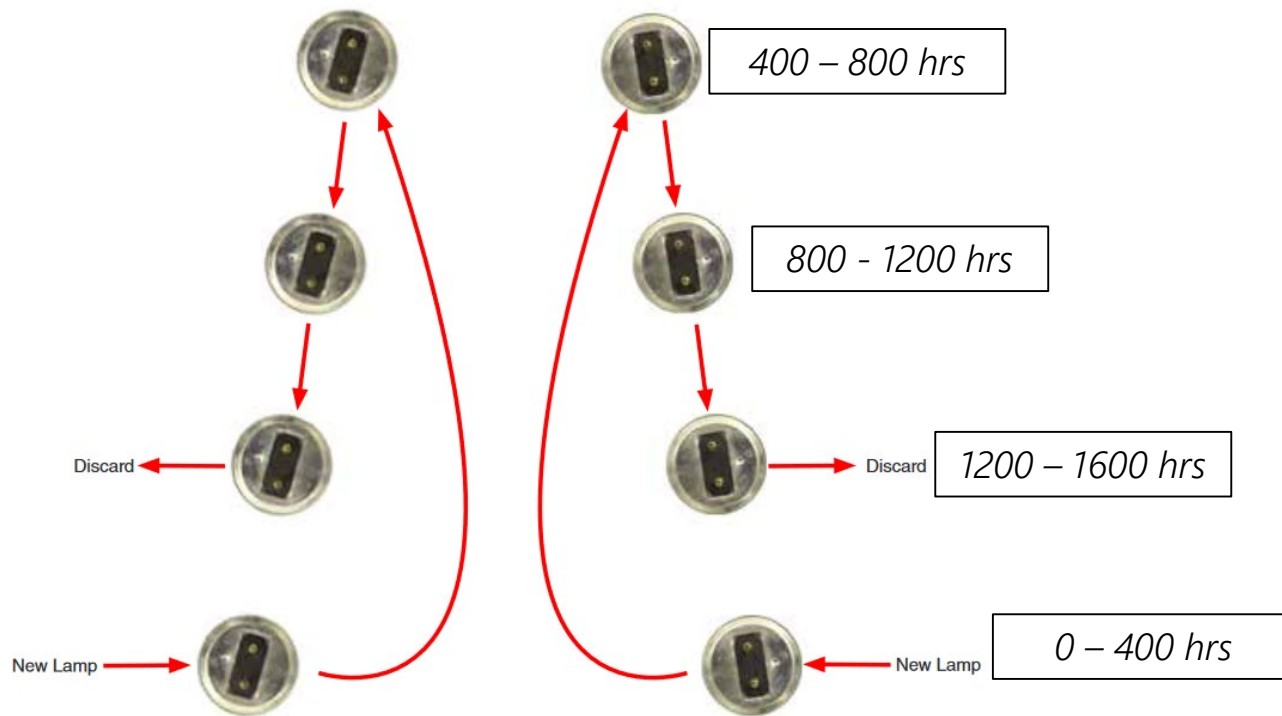
QUV Overview



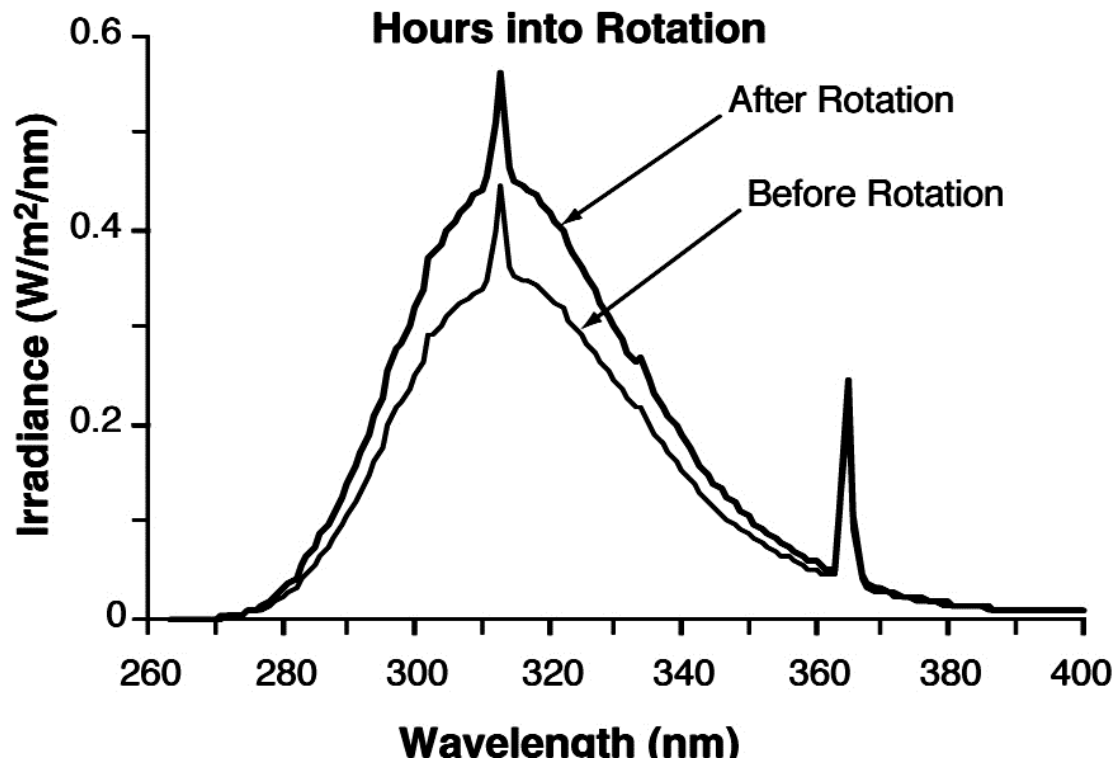
UV Light System 光照系统

- QUV/basic
 - No control of irradiance
无辐照度控制
 - 4 separate ballasts
4组独立整流器
- QUV/se, QUV/spray
 - Solar Eye Irradiance Control maintains the same irradiance at all times
SE太阳眼辐照控制系统实时控制辐照度水平
 - Single ballast controls 4 banks of lamps
一个整流器控制4组灯管

QUV/basic Lamp Rotation in Nike G37



QUV/basic UV Lamp Aging



QUV/basic Limitations

- Lamp-to-lamp and lot-to-lot variability

灯管批次差异

- Inconsistent lamp maintenance

不一致的灯管维护

- Variability in ballast cooling blower and ballast

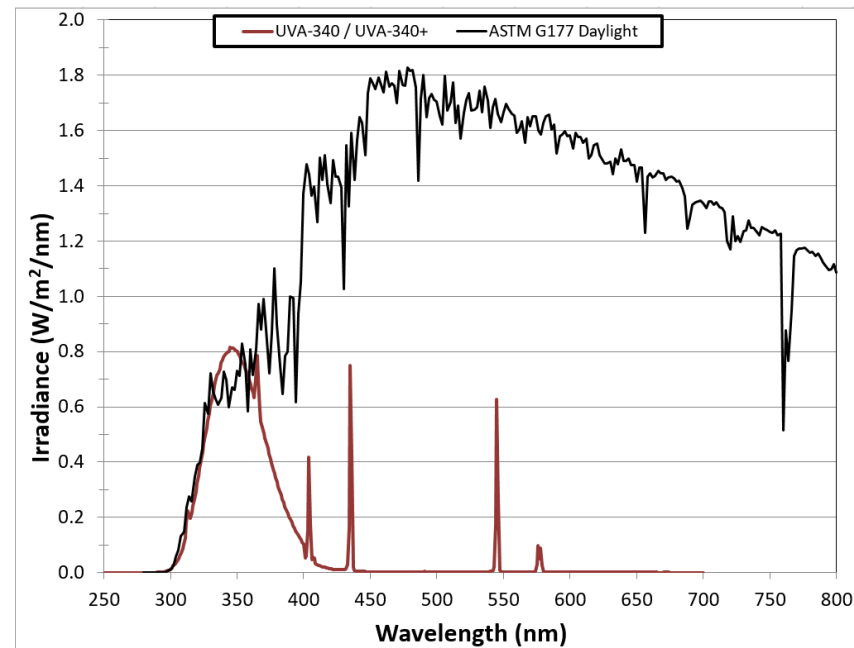
不同整流器及其散热风机

- Higher consumable cost due to frequent replacement of lamps

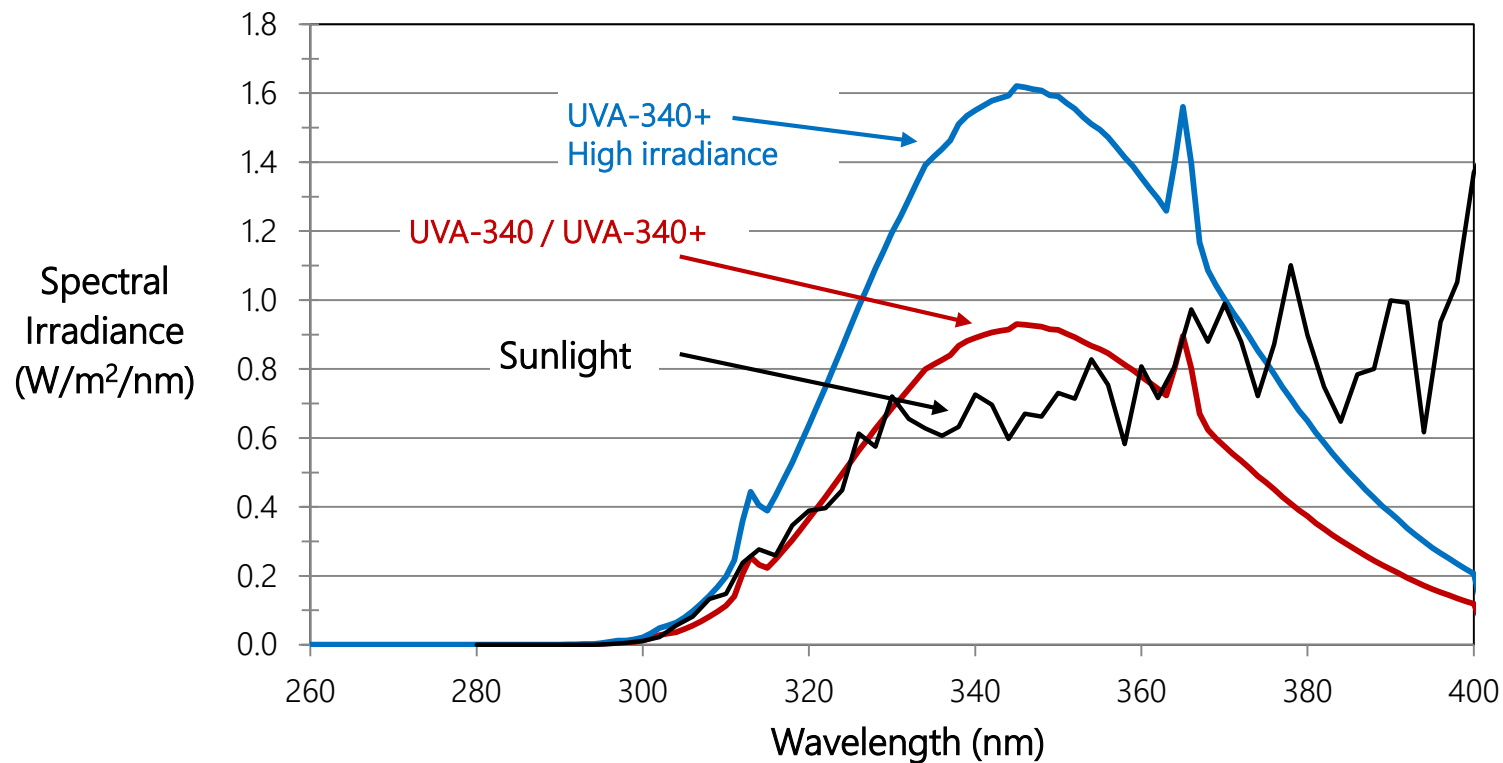
- 频繁的换灯管导致耗材费用上升

Typical Irradiance

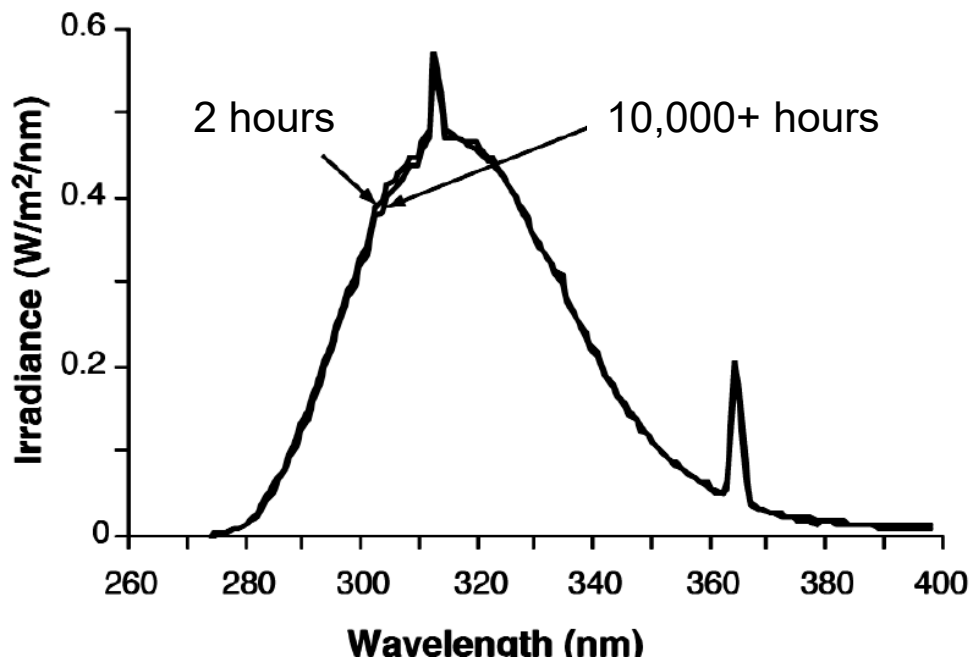
	UVA-340	UVA-340+
QUV/basic Typical Irradiance	0.89	Not Recommended
QUV with SOLAR EYE Minimum Irradiance	0.20	0.35
QUV with SOLAR EYE Typical Irradiance	0.68-0.89	0.76-0.95
QUV with SOLAR EYE Maximum Irradiance	1.55	1.85



UVA-340 / UVA-340+ Lamps SPD



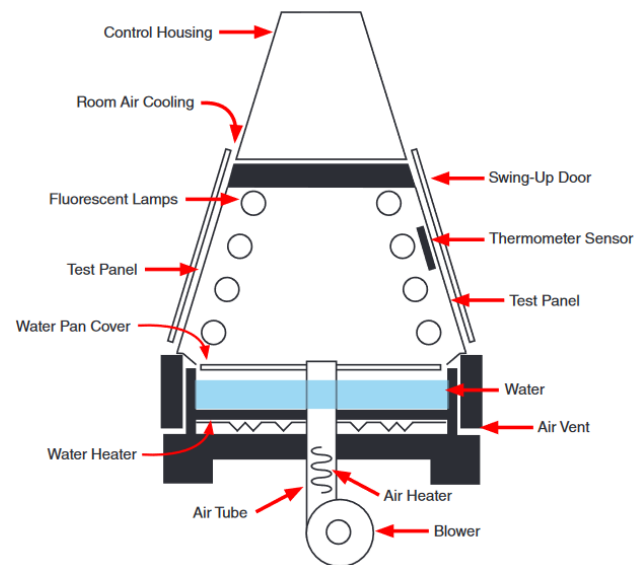
SOLAR EYE Lamp Aging



Minimal to no spectral change after 10,000 hours in SOLAR EYE models.

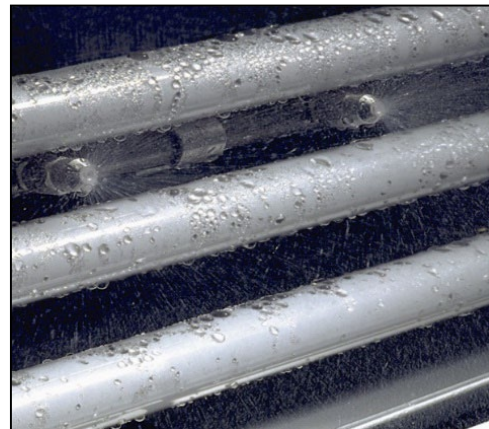
Temperature Control in UV Function

- Controlled by panel temperature sensor
控制（黑）板温度
 - Uninsulated 非绝缘
 - Insulated 绝缘
- Blower 风机
- Air Heater 空气加热器
- Both Blower and Air Heater are on during UV Cycle
在紫外光照时候风机和空气加热器都工作



QUV Moisture

- Condensing Humidity 冷凝
 - Hot condensation 热冷凝
 - Maximum water uptake 最大水吸收
- Water Spray 水喷淋
 - Thermal Shock 热冲击
 - Erosion 侵蚀



QUV Condensation

- Standard in most QUV's

QUV标配冷凝功能

- Requires tap water connection, but distilled water reduces maintenance, do not soften water.

需要自来水连接，但去离子水减少维护，不要用软化水

- Uses approximately 8 liters/day

8升每天的用水量

- Water Heater is on, warming the water and filling the chamber with warm water vapor

水盘加热器加热水，使得箱内充满热蒸汽

- Water Temperature Sensor ensures safety and that the water pan is full

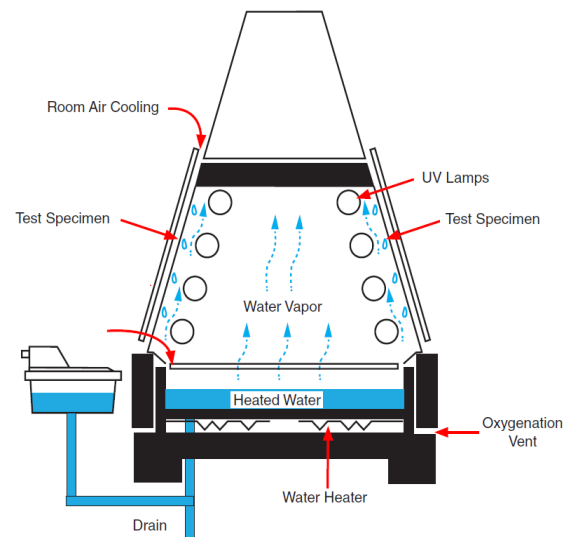
水温传感器确保安全，水盘满水状态

- Blower is on until the panel temperature is met

风机运行直到黑板温度达到设定值

- Lamps and Air Heater are off

灯管和空气加热器不工作



QUV/spray and QUV/spray-RP

- Purified water required (> 200 kΩ resistivity)

水质要求(> 200 kΩ 电阻率)

- 12× nozzles total, 6× on each side

12个喷头，每边6个

- 7 liters/minute

流量7升/分钟

- Panel temperature is displayed but not controlled

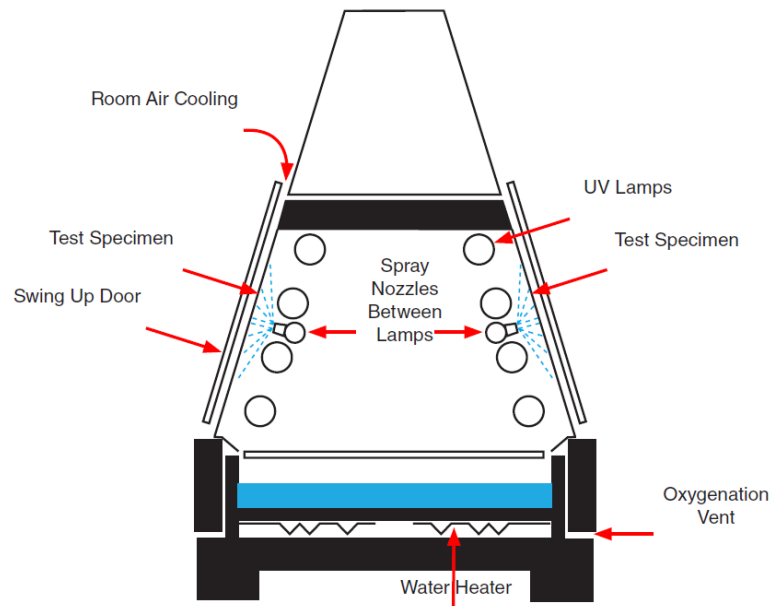
温度有显示但不控制

- Lamps, Water Heater, Air Heater, and Blower are off

灯管、水热水器、空气加热器和风机关闭

- QUV/spray-RP is an optional system that re-circulates and re-purifies water (purified water connection still required)

QUV/spray-RP可以实现水回收再净化（仍然使用去离子水）



Thank you for your attention!
Questions?



请扫描微信公众二维码，获取最新标准动态，新产品发布，行业会议等信息。也可发送问题至微信公众号，我们将及时与您取得联系！



罗中科技



Q-Lab