

# Multi-Sample UV Irradiator <UV-1048E>

Multi-Sample UV Irradiator (UV-1048E) is an option for Micro UV Irradiator (UV-1047Xe). This system can simultaneously irradiate a maximum of 18 polymer samples in the irradiation chamber for increased efficiency in accelerated deterioration tests of polymer samples using UV/Py-GC/MS system.

The sample cup holder is rotated under the irradiation of UV light for uniform irradiation. The temperature of polymer samples are controllable from 40 to 80 °C.

## Features

- **Simultaneous irradiation of multiple samples**

Up to 18 samples can be simultaneously irradiated by UV light .

- **Small size and easy handling**

This bench-top size system offers simple and easy handling.

- **EGA or flash pyrolysis of irradiated samples**

Using UV/Py-GC/MS system, the irradiated polymer samples can be analyzed by EGA (Evolved Gas Analysis) or Py-GC/MS analysis.



UV light source \*  
(UV-1047Xe with Xe lamp)

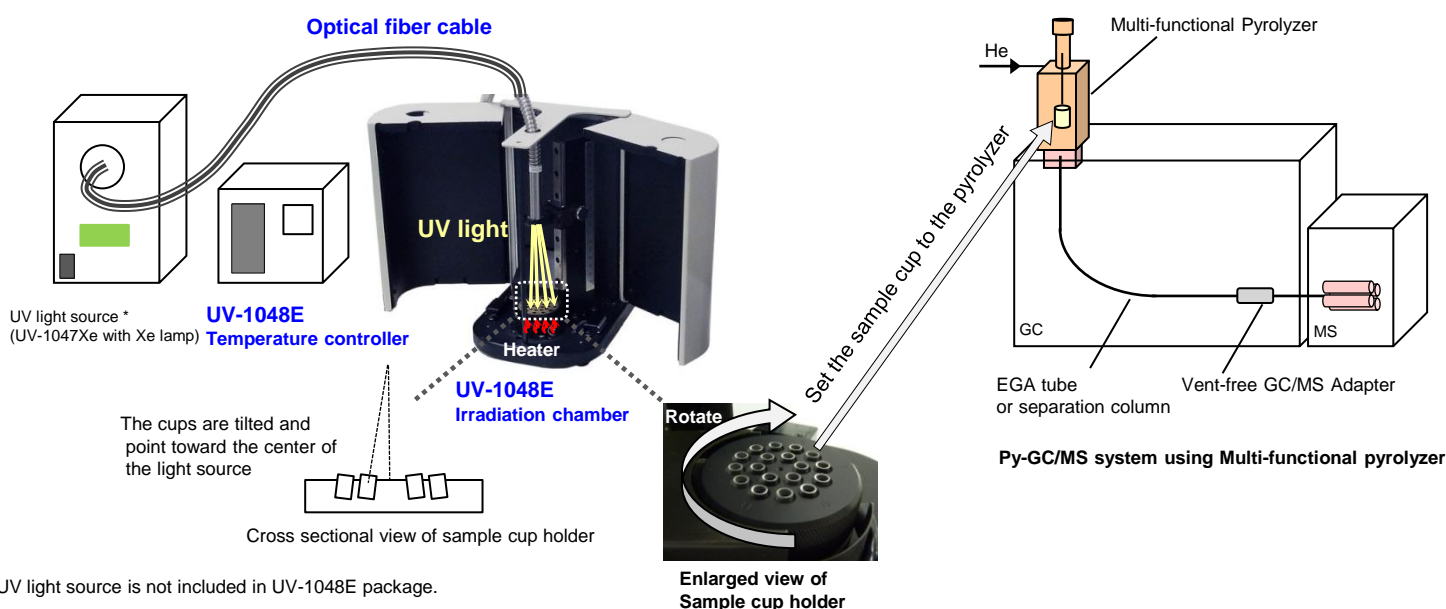
Multi-Sample UV Irradiator (UV-1048E) and  
UV light source\*

## Operational procedure and system configuration

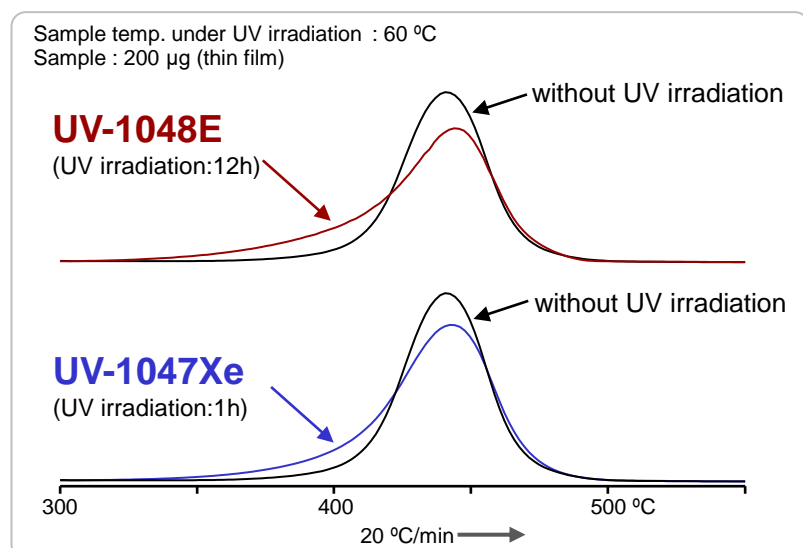
### < Operational procedure >

- 1) Place a polymer sample in a sample cup and put it on the sample cup holder.
- 2) Set the irradiation intensity, time and the temperature. Start UV light irradiation.
- 3) Analyze the irradiated polymer samples using UV/Py-GC/MS system by EGA or Py-GC/MS analysis.

### < Multi-Sample UV Irradiator and Py-GC/MS system>



# Comparison of deterioration rate between UV-1048E and UV-1047Xe by UV irradiation



The figure on the left compares EGA thermograms of high impact polystyrene (HIPS) in the deterioration rate between UV-1048E and UV-1047E with and without UV irradiation.

Upon UV irradiation, the thermal property of HIPS changes as the peak shape of EGA thermograms becomes broader by UV irradiation than that without UV irradiation.

The peak shape of HIPS under 12 hours UV irradiation using UV-1048E is the same as that under 1 hour UV irradiation using UV-1047Xe. This indicates that the rate of deterioration by UV-1048E is about 1/10 of that by UV-1047Xe.

## Specifications of Multi-Sample UV Irradiator “UV-1048E”

Temperature controller		
Power requirements	100 – 240 VAC, 25 W	
Irradiation chamber		
Temperature range of sample cup holder	40 ~ 80 °C	
Rotation speed of sample cup holder	from 0 to 80 rpm / min	
Optical fiber cable (UV fiber bundle)		
Heat resistance (Edge)	150 °C	
Heat resistance (Side)	80 °C	
Allowable bending radius	R100 mm	
Sample cup holder (Sample holder 18)		
Number of sample cups	Maximum 18	
Sample cup	Eco-Cup LF , Side Hole Eco-Cup UV (80 μL each), Eco-Cup G, Eco-Cup GQ (50 μL each)	
Requirement		
UV light source	Micro-UV Irradiator UV-1047Xe	
Weight and Dimensions		
	Weight (Kg)	Dimensions (W x H x D mm)
Temperature controller	5.2	190 x 145 x 280
Irradiation chamber	5.2	150 x 245 x 230
Optical fiber cable	0.2	diameter 14 x Length 1000 (mm)
Standard accessories		
AC power cable, Optical fiber cable, Sample cup holder, Optical fiber cable connector,		

※Refer to the brochure of UV-1047Xe for the specifications of UV light source.



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