Confidential

Irradiance of Sunshine carbon arc test

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Spectrum of Sunshine carbon arc and Sun light are as Fig.1.
This Sun light data was measured at Tokyo.

And the spectral irradiance is as Table.1

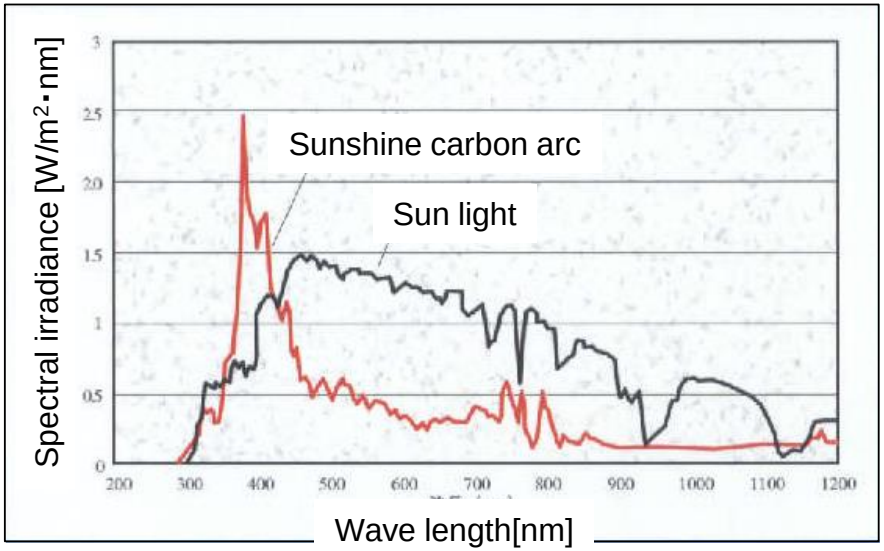

Fig.1 Spectrum of Sunshine carbon arc and Sun light

Table.1 Spectral irradiance of Sunshine carbon arc

	Ultraviolet region 300-400nm	Visible light region 400-700nm	Infra red region 700-3000nm	All wave length Region 300-3000nm
Irradiance (W/m^2)	78.5	176.5	311.1	566.6

Quote: Suga Test Instruments Co., Ltd. Technical news

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Irradiation energy of UV region about TDS of F20-54 becomes as Table2.
(MJ/m^2=3600sec/h X W/m^2)

Equivalent number of days can be calculated from the irradiation energy of Sun light at the location which F20-54 is used.

e.g.)If the total irradiation energy of UV at Arizona in US is around 330MJ for 1 year,

330MJ÷ (78.5W/m^2 X 3600sec/h) = 1167.7 hrs

Table 2. Relations between discoloration, time to start cracking and irradiation time

Grade and color		Discoloration (ΔE)				Time to start cracking (hrs)
	Irradiation time	600 hrs	900 hrs	1200 hrs	1500 hrs	
F20-54	Natural color	1.9	3.2	4.2	5.0	1000
	Black color E9901	0.5	0.7	1.0	1.2	1800
	Red color	0.0	4.8	5.4	5.7	900
	Brown color	0.2	0.8	1.4	2.2	900
	Blue color	0.8	0.9	1.2	2.5	900
	Gray color	0.4	0.8	1.3	2.4	900
	White color	1.5	1.6	1.5	2.6	900
F20-03	Natural color	20	24	26	27	60
	Black color E9001	9	15	17	18	200
Irradiation energy(MJ/m^2) (300-400nm)		169.6	254.3	339.1	423.9	