

## Reflectivity measurement - reference mirror

Equipment:	uscan reflectometer	
Mirror:	Reference mirror	
Person:	Neil O'Mahony, Tibor Agocs	
Date:	08/01/2007	
Lambda (micron):	0.67	
Incident angle (degree):	25	
BW (Bandwidth) limits:	1	0.1

### 1st measurement - before WHT primary CO2 cleaning

No#	BSDF - 0°,0° detector position	BSDF - 50°,180° detector position	reflectivity	rms (Ångstrom)	time	date
1	2.91E-03	1.65E-03	0.874	38.5	10:09:46	01/08/1907
2	3.45E-03	1.74E-03	0.856	42.6	10:09:58	01/08/1907
3	9.18E-03	2.57E-03	0.909	71.7	10:10:08	01/08/1907
<b>average</b>	<b>5.181E-03</b>	<b>1.986E-03</b>	<b>0.880</b>	<b>50.933</b>		
<b>standard dev</b>	<b>3.477E-03</b>	<b>5.067E-04</b>	<b>0.027</b>	<b>18.101</b>		

### 2nd measurement - after WHT primary CO2 cleaning

No#	BSDF - 0°,0° detector position	BSDF - 50°,180° detector position	reflectivity	rms (Ångstrom)	time	date
31	3.64E-03	1.60E-03	0.941	42	12:14:26	01/08/1907
32	2.53E-03	1.13E-03	0.96	34.7	12:14:42	01/08/1907
33	4.86E-03	2.35E-03	0.977	47.4	12:14:55	01/08/1907
34	2.47E-03	1.01E-03	0.992	33.9	12:15:08	01/08/1907
35	5.58E-03	1.94E-03	0.917	53.9	12:15:19	01/08/1907
36	1.02E-03	1.03E-03	0.889	22.6	12:15:31	01/08/1907
37	8.79E-03	2.63E-03	0.871	70.9	12:15:40	01/08/1907
38	1.77E-03	8.60E-04	0.944	29.1	12:15:50	01/08/1907
<b>average</b>	<b>3.831E-03</b>	<b>1.567E-03</b>	<b>0.936</b>	<b>41.813</b>		
<b>standard dev</b>	<b>2.521E-03</b>	<b>6.729E-04</b>	<b>0.042</b>	<b>15.434</b>		

### 3rd measurement - reflectivity meter head's orientation investigator

No#	BSDF - 0°,0° detector position	BSDF - 50°,180° detector position	reflectivity	rms (Ångstrom)	time	date
1	2.23E-03	1.59E-03	0.933	32.5	12:17:13	01/08/1907
2	2.22E-03	1.59E-03	0.928	32.5	12:17:21	01/08/1907
3	2.21E-03	1.58E-03	0.934	32.3	12:17:28	01/08/1907
4	2.19E-03	1.59E-03	0.939	32.1	12:17:35	01/08/1907
5	2.16E-03	1.60E-03	0.944	31.8	12:17:43	01/08/1907
6	2.14E-03	1.62E-03	0.963	31.3	12:17:49	01/08/1907
7	1.92E-03	1.65E-03	0.956	29.8	12:17:57	01/08/1907
8	2.19E-03	1.60E-03	0.96	31.7	12:18:03	01/08/1907
9	2.38E-03	1.45E-03	0.942	33.5	12:19:07	01/08/1907
10	2.38E-03	1.56E-03	1.007	32.3	12:19:16	01/08/1907
11	1.78E-03	1.21E-03	0.982	28.3	12:19:35	01/08/1907
12	1.77E-03	1.07E-03	0.973	28.4	12:19:43	01/08/1907
13	4.75E-03	1.47E-03	0.912	50.7	12:20:47	01/08/1907

14	4.61E-03	1.47E-03	0.914	49.7	12:20:56	01/08/1907
15	4.75E-03	1.49E-03	0.922	50.3	12:21:03	01/08/1907
16	2.58E-03	1.03E-03	0.931	35.9	12:21:11	01/08/1907
17	3.35E-03	1.48E-03	0.949	40.2	12:21:18	01/08/1907
18	1.44E-03	1.03E-03	0.929	26.1	12:22:01	01/08/1907
19	1.39E-03	1.15E-03	0.938	25.6	12:22:05	01/08/1907
20	1.62E-03	1.20E-03	0.931	27.7	12:22:10	01/08/1907
21	3.71E-03	1.38E-03	0.94	43.1	12:22:18	01/08/1907
22	3.62E-03	1.38E-03	0.938	42.5	12:22:24	01/08/1907
23	3.61E-03	1.37E-03	0.937	42.5	12:22:28	01/08/1907
24	1.54E-03	1.01E-03	0.946	26.8	12:23:06	01/08/1907
25	1.71E-03	1.04E-03	0.938	28.4	12:23:14	01/08/1907
26	1.75E-03	1.12E-03	0.935	28.8	12:23:20	01/08/1907
27	2.38E-03	1.35E-03	0.945	33.5	12:23:26	01/08/1907
28	5.55E-03	2.65E-03	0.945	51.6	12:23:38	01/08/1907
29	5.47E-03	2.63E-03	0.945	51.2	12:23:45	01/08/1907
30	1.13E-02	1.60E-02	0.959	73.3	12:24:40	01/08/1907
31	1.13E-02	1.60E-02	0.95	73.6	12:24:46	01/08/1907
32	1.14E-02	1.57E-02	0.955	73.6	12:24:58	01/08/1907
33	1.14E-02	1.57E-02	0.957	73.6	12:25:04	01/08/1907
34	1.14E-02	1.56E-02	0.959	73.6	12:25:10	01/08/1907
35	6.42E-03	3.59E-03	0.942	55.1	12:25:46	01/08/1907
36	5.58E-03	2.44E-03	0.933	52.3	12:25:53	01/08/1907
37	2.42E-03	9.51E-04	0.973	34	12:26:00	01/08/1907
38	2.95E-03	1.37E-03	0.925	38	12:26:07	01/08/1907
39	2.53E-03	1.24E-03	0.945	34.7	12:27:49	01/08/1907
40	2.52E-03	1.24E-03	0.937	34.8	12:27:55	01/08/1907
41	2.54E-03	1.26E-03	0.957	34.6	12:28:02	01/08/1907
42	2.61E-03	1.25E-03	0.952	35.2	12:28:09	01/08/1907
43	2.62E-03	1.27E-03	0.965	35	12:28:21	01/08/1907
44	2.60E-03	1.26E-03	0.965	34.9	12:28:27	01/08/1907
45	2.44E-03	1.23E-03	0.964	33.7	12:28:33	01/08/1907
<b>average</b>	<b>3.812E-03</b>	<b>3.077E-03</b>	<b>0.947</b>	<b>40.469</b>		
<b>standard dev</b>	<b>2.966E-03</b>	<b>4.576E-03</b>	<b>0.018</b>	<b>14.140</b>		

Notes:

RMS - Root Mean Square surface roughness in Angstrom,

BSDF - Bidirectional scatter distribution function, it is equal to the scattered power per unit solid angle normalized by the incident power and  $\cos\theta$