

Reflectivity measurements of WHT primary mirror with CT7 multi-wavelength reflectometer before and after cleaning with N48 CO2 15% humidity, snowflakes not sticking. After first cleaning with N48, Aligal-2 (lower purity CO2) was tested again. Snowflakes from Aligal were not as sticky as before, with 25% humidity and dusty mirror, but as time went on, flakes began to stick and dust-accumulation stains began to form.

Measurements before CO2 cleaning

		pos	Tempr. °C	wavelength of band (nm)							"Dust Indices"						
				365	404	464	522	624	760	970	365	404	464	522	624	760	970
786	16/08/2016 09:29	1 r1	21.2	90.7	89.2	88.7	88.7	87.6	85.1	90.6	4.1	4.2	4.8	4.0	5.1	4.9	5.4
787	16/08/2016 09:32	1 r1	21.2	90.9	89.2	88.7	88.6	87.7	84.9	90.7	4.0	4.2	4.7	4.1	5.1	4.9	5.3
788	16/08/2016 09:33	1 L1	21.2	91.0	89.4	88.8	88.9	87.9	85.2	90.8	4.0	4.0	4.7	3.9	4.8	4.5	4.8
average				90.9	89.3	88.7	88.7	87.7	85.1	90.7	4.0	4.1	4.7	4.0	5.0	4.8	5.2
range				0.3	0.2	0.1	0.3	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.3	0.4	0.6

After cleaning (minimum values highlighted)

789	16/08/2016 13:23	1 r1	26.3	92.3	90.7	90.2	90.2	89.3	86.8	92.9	2.7	2.6	2.8	2.2	2.5	2.2	2.2
790	16/08/2016 13:24	1 r2	26.3	92.0	90.4	89.9	89.9	89.1	86.5	92.5	3.4	3.0	3.2	2.6	3.1	2.6	2.8
791	16/08/2016 13:25	1 r3	26.3	92.1	90.5	90.0	90.1	89.2	86.6	92.6	3.2	3.0	3.0	2.5	2.8	2.3	2.5
792	16/08/2016 13:26	1 r4	26.4	92.5	90.8	90.4	90.5	89.5	86.9	93.0	2.8	2.5	2.6	2.0	2.2	1.7	1.7
793	16/08/2016 13:27	1 b1	26.4	92.4	90.7	90.2	90.4	89.4	86.8	92.9	2.9	2.9	2.9	2.4	2.4	2.0	2.0
794	16/08/2016 13:27	1 b2	26.4	92.1	90.4	89.9	90.1	89.1	86.5	92.4	3.0	3.1	3.1	2.5	2.7	2.3	2.5
795	16/08/2016 13:28	1 b3	26.4	91.6	90.0	89.5	89.5	88.7	86.0	91.7	3.3	3.2	3.4	2.9	3.3	3.0	3.4
796	16/08/2016 13:29	1 b4	26.4	91.7	90.1	89.5	89.6	88.6	85.8	91.9	3.4	3.4	3.8	3.1	3.7	3.4	3.4
797	16/08/2016 13:30	1 L1	26.3	92.5	90.9	90.4	90.5	89.6	86.9	92.9	3.0	2.5	2.5	1.8	2.0	1.6	1.7
798	16/08/2016 13:31	1 L2	26.3	92.4	90.8	90.2	90.4	89.4	86.7	92.7	2.7	2.6	2.7	2.1	2.3	2.0	2.0
799	16/08/2016 13:32	1 L3	26.3	92.5	90.9	90.4	90.5	89.6	86.9	92.8	2.7	2.5	2.5	1.9	2.0	1.6	1.7
800	16/08/2016 13:33	1 L4	26.3	92.5	90.8	90.3	90.5	89.5	86.8	92.8	2.8	2.7	2.8	2.1	2.2	1.8	1.8
801	16/08/2016 13:34	1 t1	26.3	92.4	90.7	90.2	90.3	89.4	86.8	92.6	3.0	2.8	2.9	2.2	2.5	1.9	2.1
802	16/08/2016 13:34	1 t2	26.3	92.4	90.8	90.3	90.4	89.5	86.8	92.7	2.8	2.7	2.6	2.1	2.2	1.7	1.8
803	16/08/2016 13:35	1 t3	26.3	92.5	90.9	90.4	90.5	89.6	86.8	92.7	2.8	2.6	2.5	1.9	2.1	1.7	1.8
804	16/08/2016 13:36	1 t4	26.3	92.1	90.4	89.9	90.1	89.0	86.4	92.2	3.6	3.4	3.6	2.6	3.3	2.6	2.8
805	16/08/2016 13:39	1 b5	26.1	91.8	90.1	89.6	89.6	88.7	86.0	91.8	3.4	3.4	3.7	3.0	3.6	3.2	3.4

806	16/08/2016 13:40	1 b6	26.1	91.7	90.2	89.6	89.9	88.6	86.1	91.9	3.9	3.6	4.0	2.9	4.0	3.2	3.4
	global average			92.2	90.6	90.1	90.2	89.2	86.6	92.5	3.1	2.9	3.0	2.4	2.7	2.3	2.4
	range			0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.1	1.5	1.3	2.0	1.8	1.7
	average change			1.3	1.3	1.3	1.4	1.5	1.5	1.8	-1.0	-1.2	-1.7	-1.6	-2.3	-2.5	-2.8
	minimum change			0.7	0.7	0.8	0.8	0.9	0.7	1.0	-0.1	-0.5	-0.7	-0.9	-1.0	-1.4	-1.8
	maximum change			1.6	1.6	1.7	1.8	1.9	1.8	2.3	-1.3	-1.6	-2.2	-2.2	-3.0	-3.2	-3.5
	fresh aluminium average			93.1	91.3	90.9	90.9	90.0	87.2	93.3							
	shortfall average			0.87	0.79	0.85	0.78	0.79	0.67	0.76							
	WAVEBANDS			365	404	464	522	624	760	970	365	404	464	522	624	760	970

Note the two pairs of minimum values are physically close to each other (bottom quadrant), therefore consistent.

The effective value of reflectivity over the whole mirror may be closer to halfway between minimum and maximum, rather than the average.