

23 / 07 / 2009

NREL testing of MIRO-Sun

Attached you'll find actual data distributed from NREL / Golden / CO / USA from our samples MIRO-Sun in several varieties.

These data are collected from real outdoor exposure in Golden ("NREL"), Phoenix ("APS") and Florida ("FLA") and in comparison from accelerated weathering with different machines: Weatherometer ("WOM") and BlueM ("BlueM").

Everyone knows about the problem of non-scalability of accelerated weathering to real outdoor testing.

But to us it looks reasonable to use MIRO-Sun in real outdoor reflective solar applications according to these data.

Enclosure:

- 1 table
- 18 curves

Location	Quality	Test period/ month	Solar weighted value (SWV) of hemispherical reflectance Rho			Specular reflectance at 25mrad cone angle (1,4°)		
			Start	End	change Δ	Start	End	change Δ
NREL	MIRO-SUN backside lacquered 90	30,25	91,9	91,6	-0,3	83,3	82,3	-1,0
	MIRO-SUN PV backside lacquered 90	26,14	91,5	91,5	0,0	88,7	88,3	-0,4
APS	MIRO-SUN backside lacquered 90	34,72	91,9	91,3	-0,6	84,0	82,1	-1,8
	MIRO-SUN PV backside lacquered 90	24	91,5	90,8	-0,7	88,6	87,4	-1,2
FLA	MIRO-SUN backside lacquered 90	24,2	91,9	90,7	-1,2	83,9	83,8	-0,1
	MIRO-SUN PV backside lacquered 90	24,2	91,5	90,5	-0,9	88,7	88,1	-0,6
WOM	MIRO-SUN backside lacquered 90	15,75	91,5	90,0	-1,5	83,7	81,3	-2,3
	MIRO-SUN PV backside lacquered 90	11,2	91,4	89,7	-1,7	89,0	88,2	-0,8
BlueM	MIRO-SUN backside lacquered 90	35,27	91,5	89,7	-1,8	83,8	80,5	-3,3
	MIRO-SUN PV backside lacquered 90	28,85	91,4	91,0	-0,4	89,2	83,5	-5,8

values in %

NREL = Outdoor weathering at the NREL in Golden, Colorado

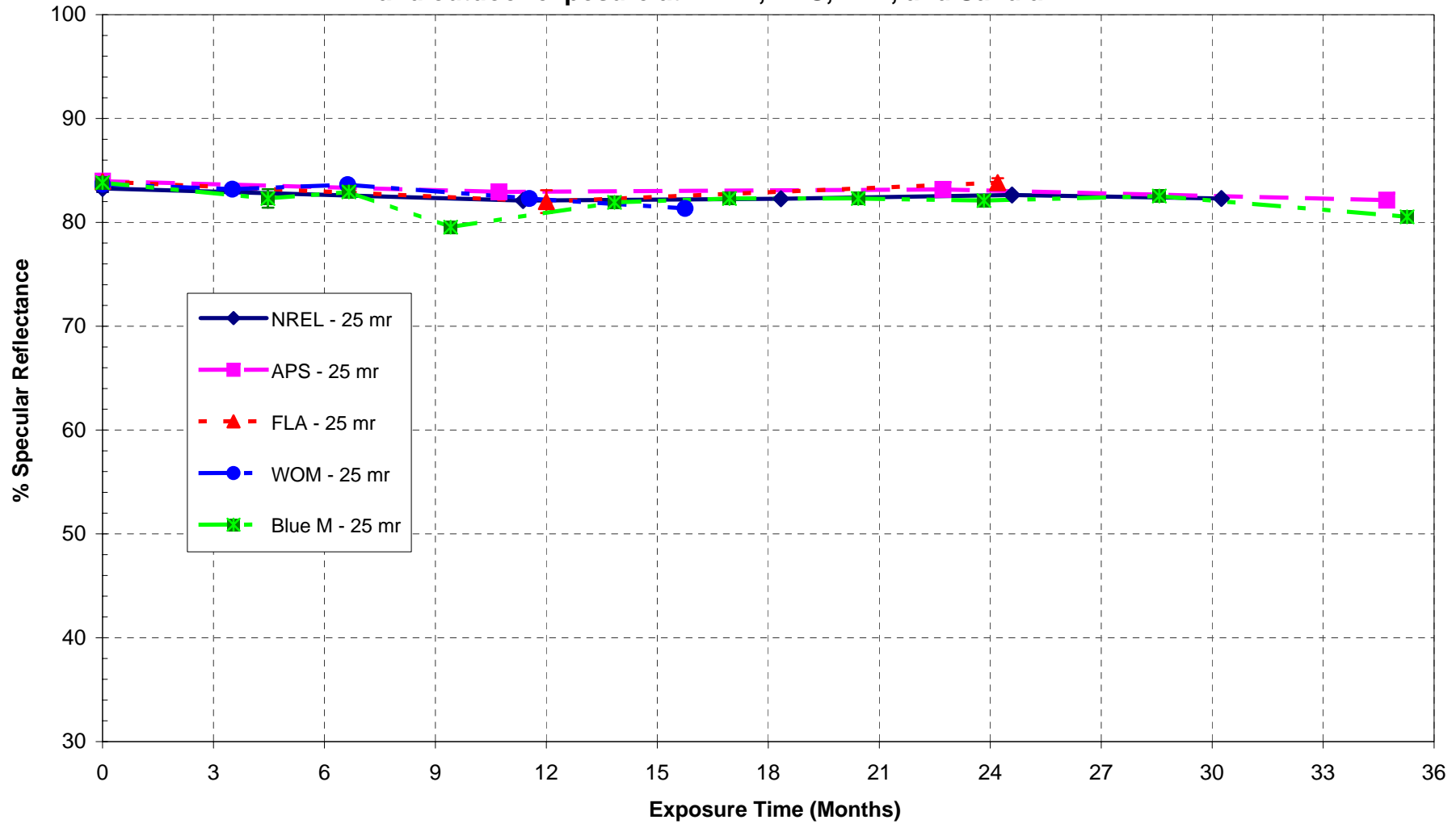
APS = Outdoor weathering in Phoenix, Arizona

FLA = Outdoor weathering in Miami, Florida

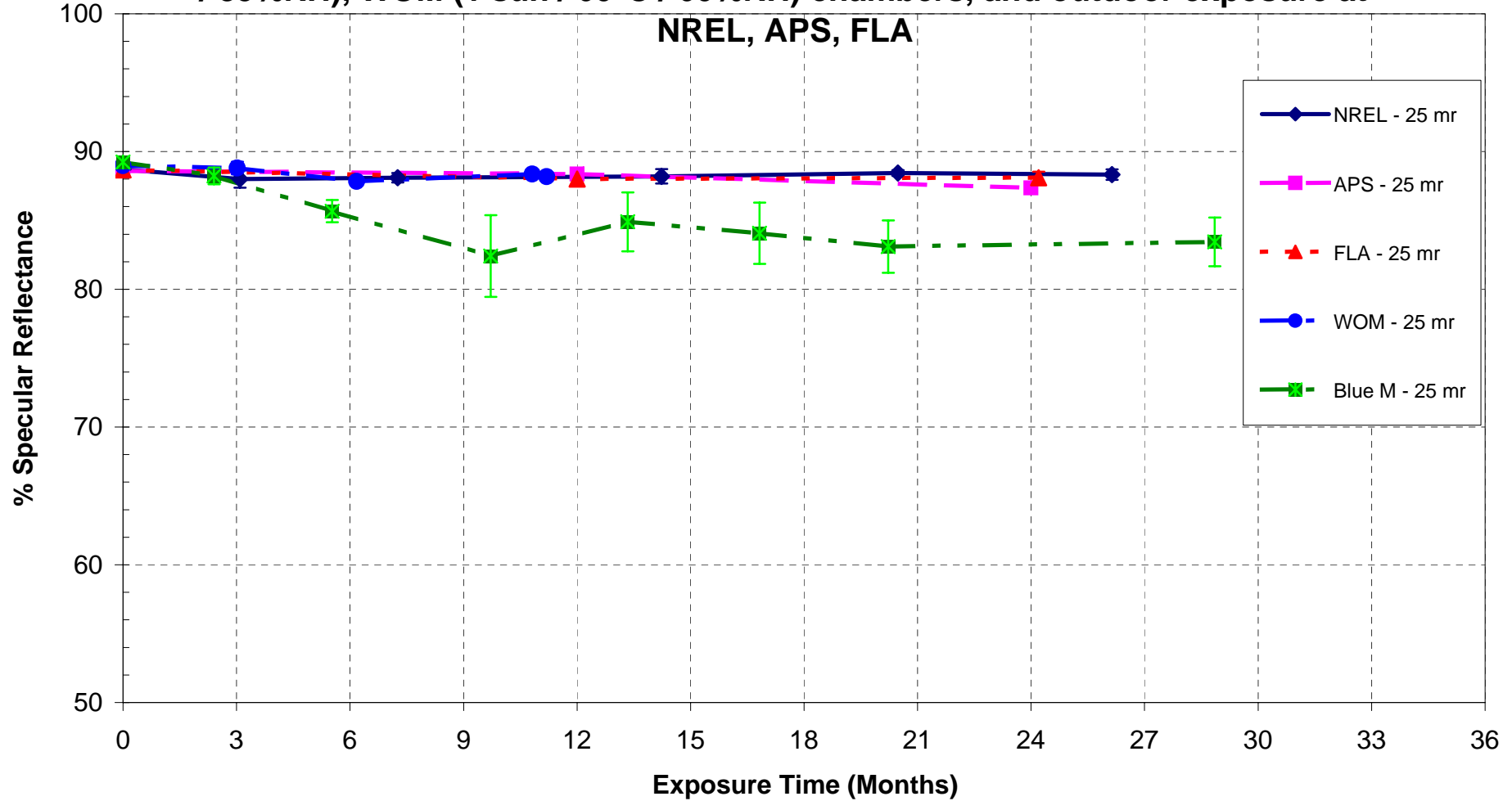
WOM = Accelerated weathering with the WOM (1 sun / 60°C / 60% relative humidity)

BlueM = Accelerated weathering with the BlueM (dark / 85°C / 85% relative humidity)

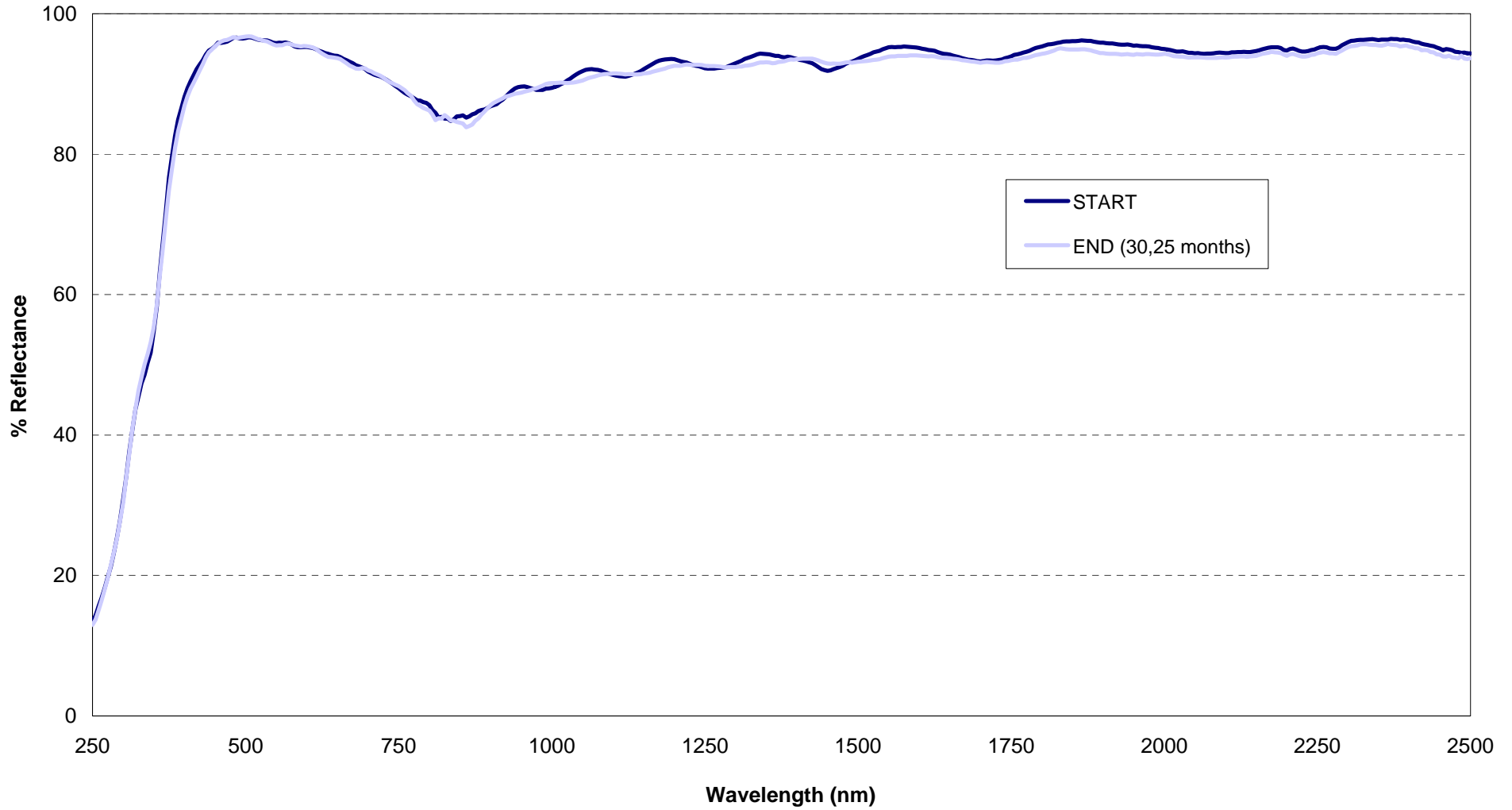
Specular Reflectance at 25-mradians at 660 nm of Alanod MIRO-SUN backside lacquered 90 mirrors after accelerated exposure in Blue M (dark / 85°C / 85%RH), WOM (1 sun / 60°C / 60%RH) chambers, and outdoor exposure at NREL, APS, FLA, and Sandia



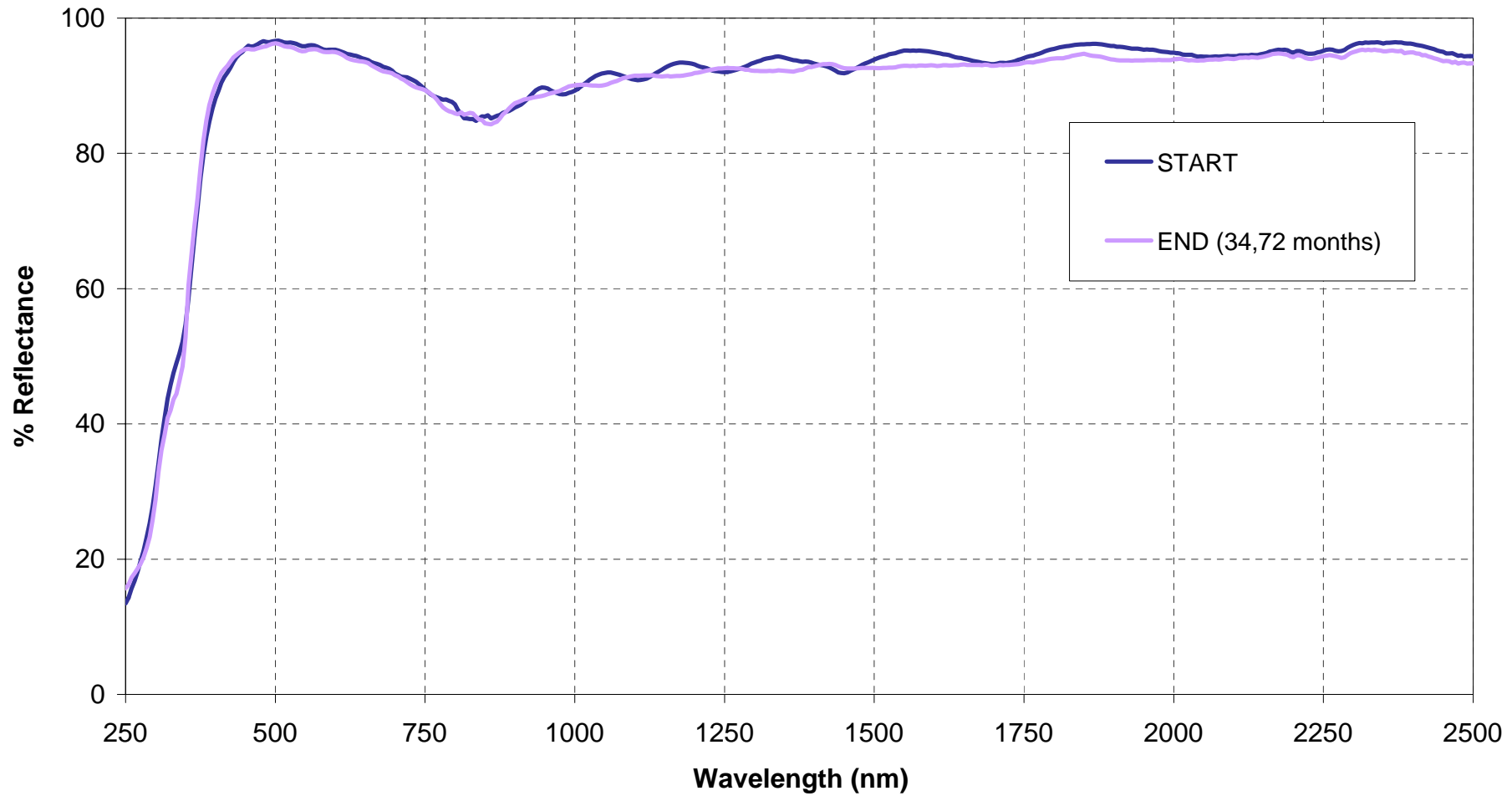
**Specular Reflectance at 25-mradians at 660 nm of Alanod MIRO-SUN PV
backside lacquered 90 mirrors after accelerated exposure in Blue M (dark / 85°C
/ 85%RH), WOM (1 sun / 60°C / 60%RH) chambers, and outdoor exposure at
NREL, APS, FLA**



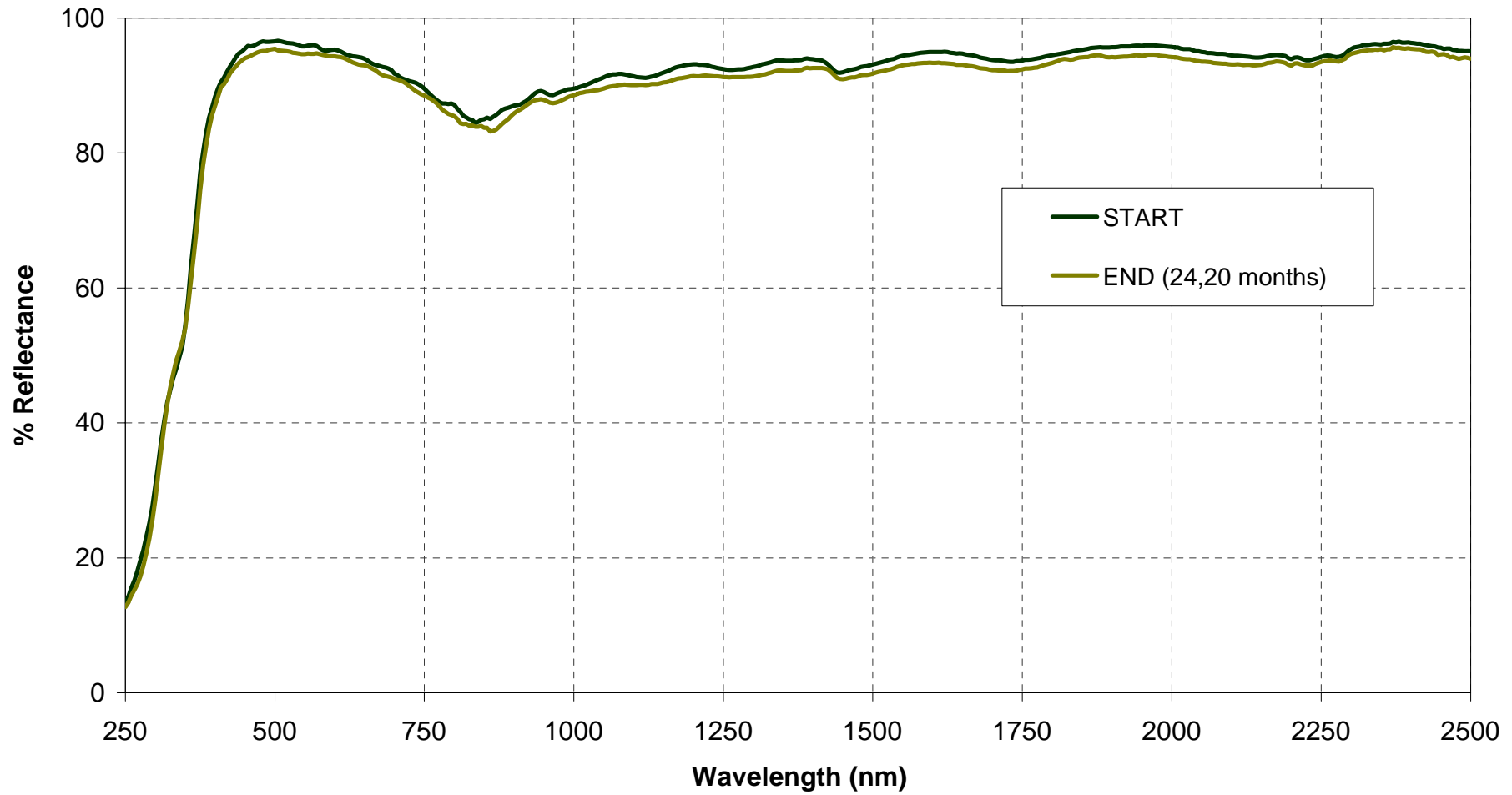
Spectral Reflectance of Alanod MIRO-SUN backside lacquered 90 mirrors after outdoor exposure in Golden, CO at NREL



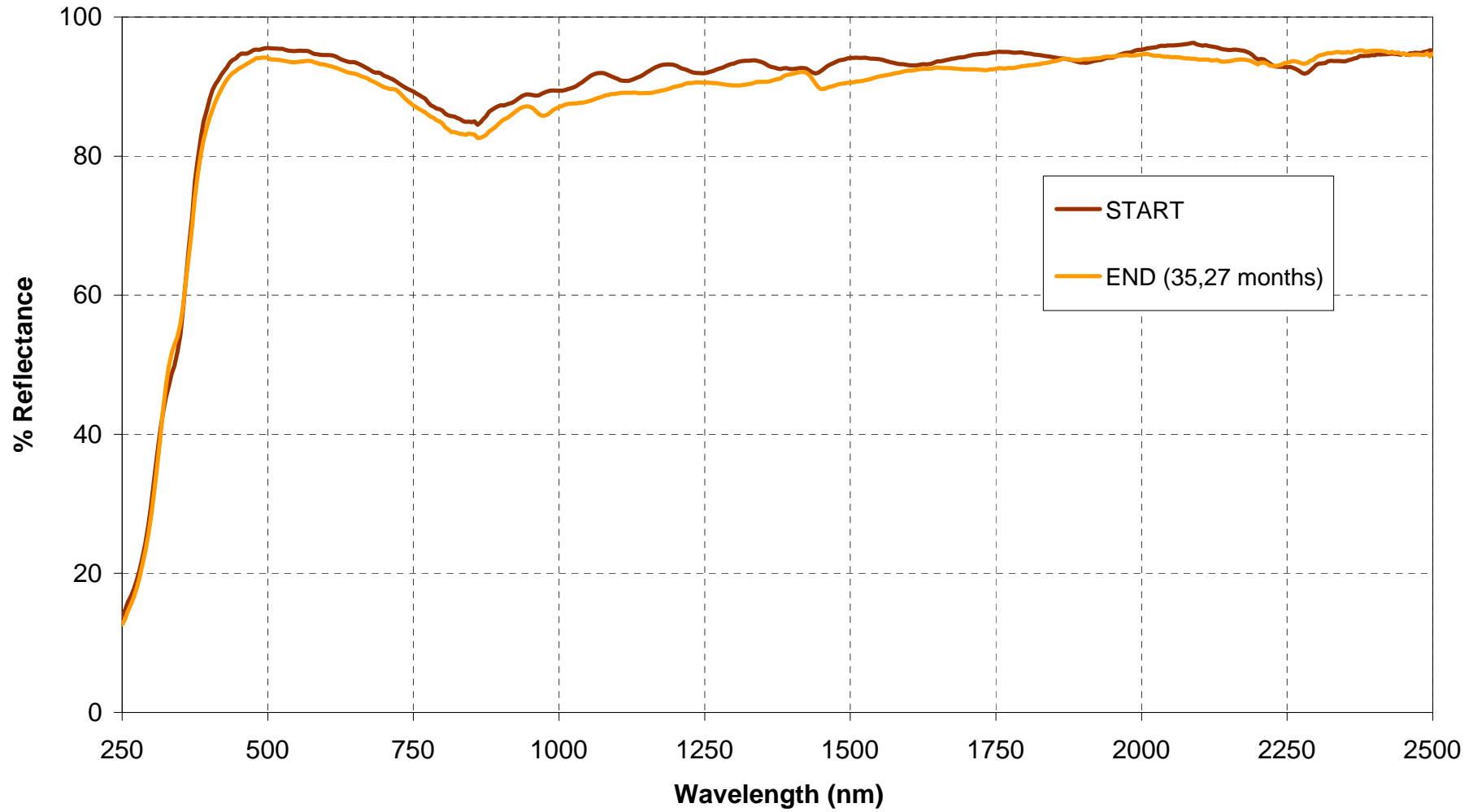
Spectral Reflectance of Alanod MIRO-SUN backside lacquered 90 mirrors after outdoor exposure in Phoenix, AZ at APS



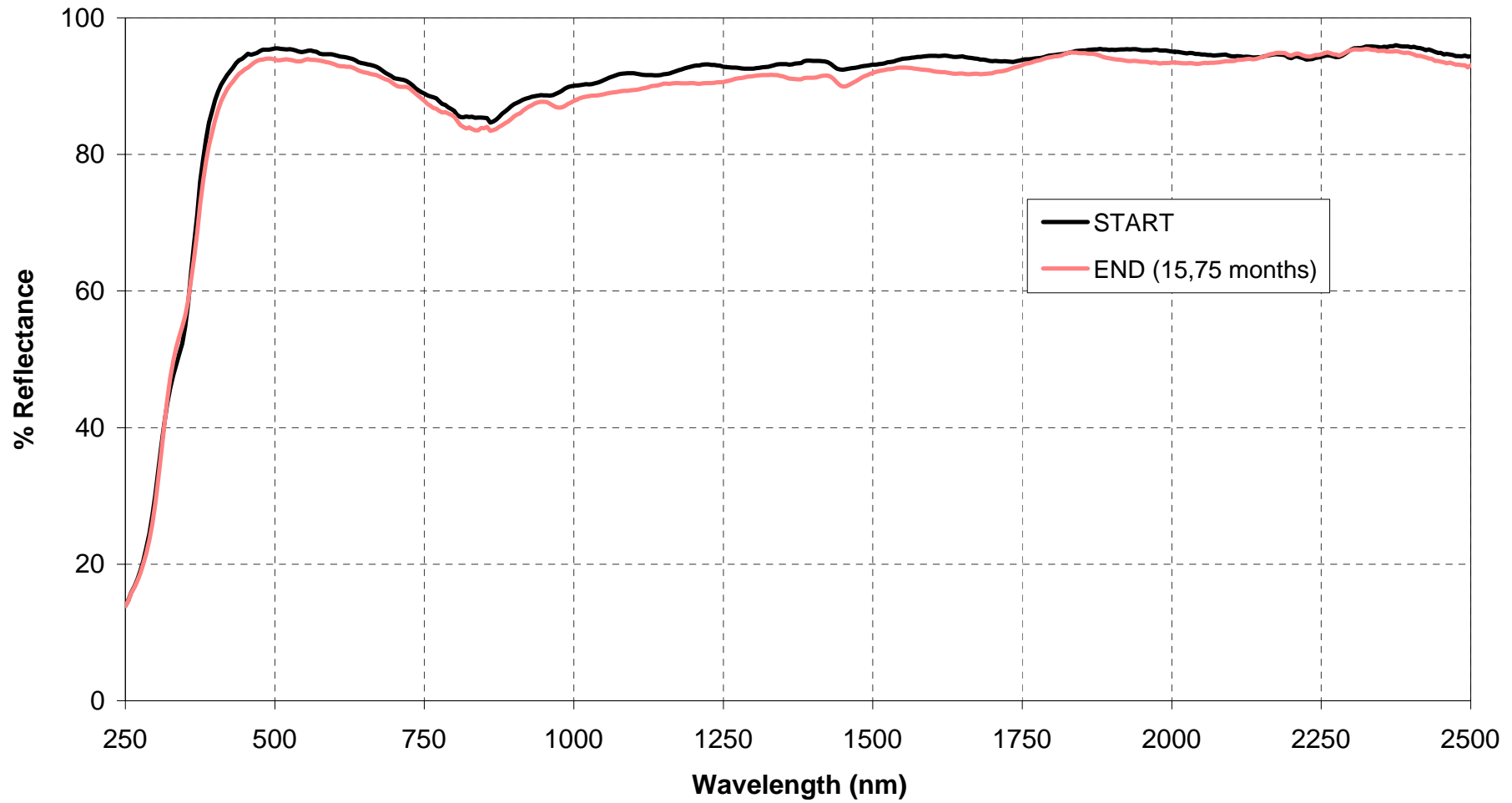
Spectral Reflectance of Alanod MIRO-SUN backside lacquered 90 mirrors after outdoor exposure in Miami, FL at FLA



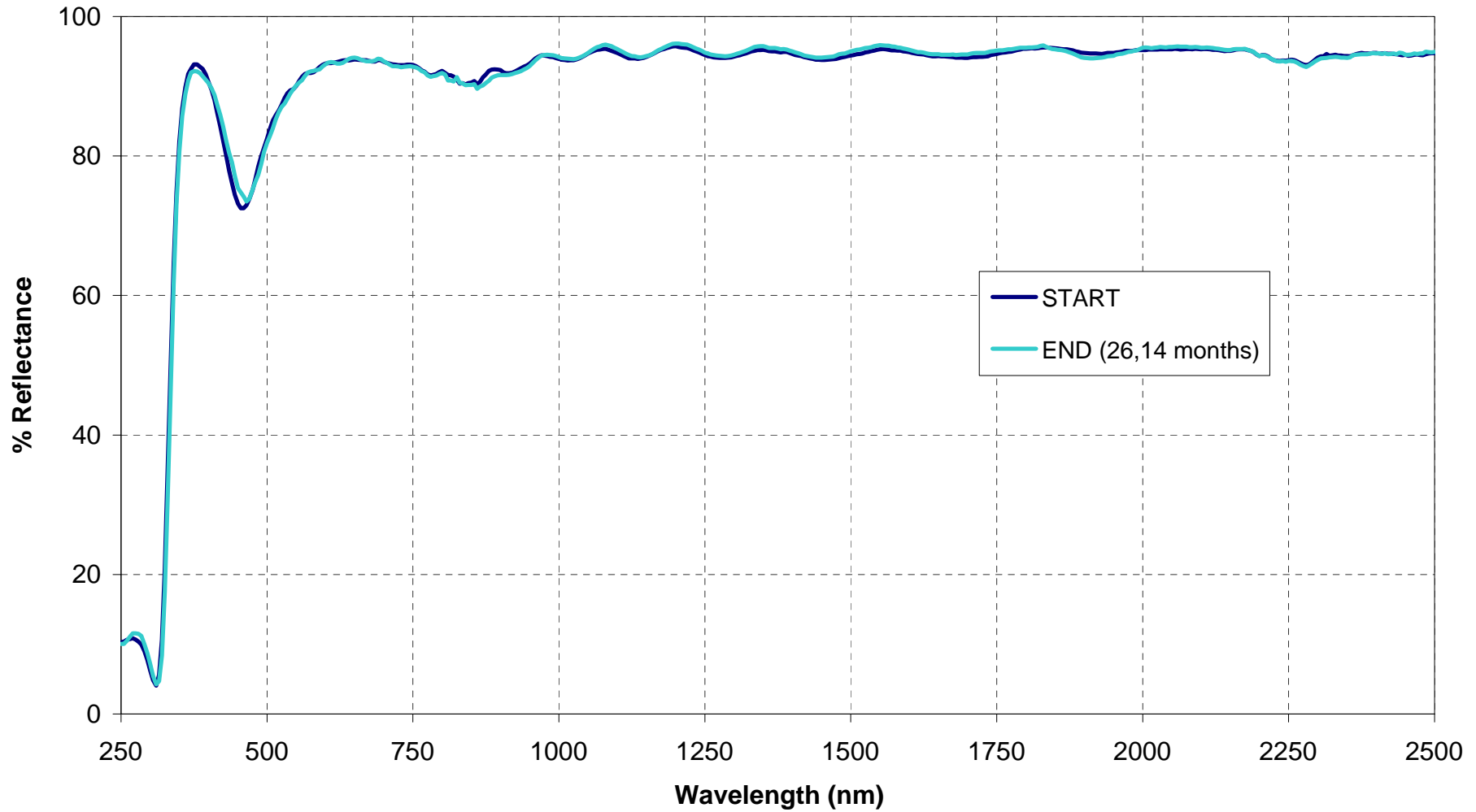
Spectral Reflectance of Alanod MIRO-SUN backside lacquered 90 mirrors after accelerated exposure in Blue M (dark / 85°C / 85%RH) chamber



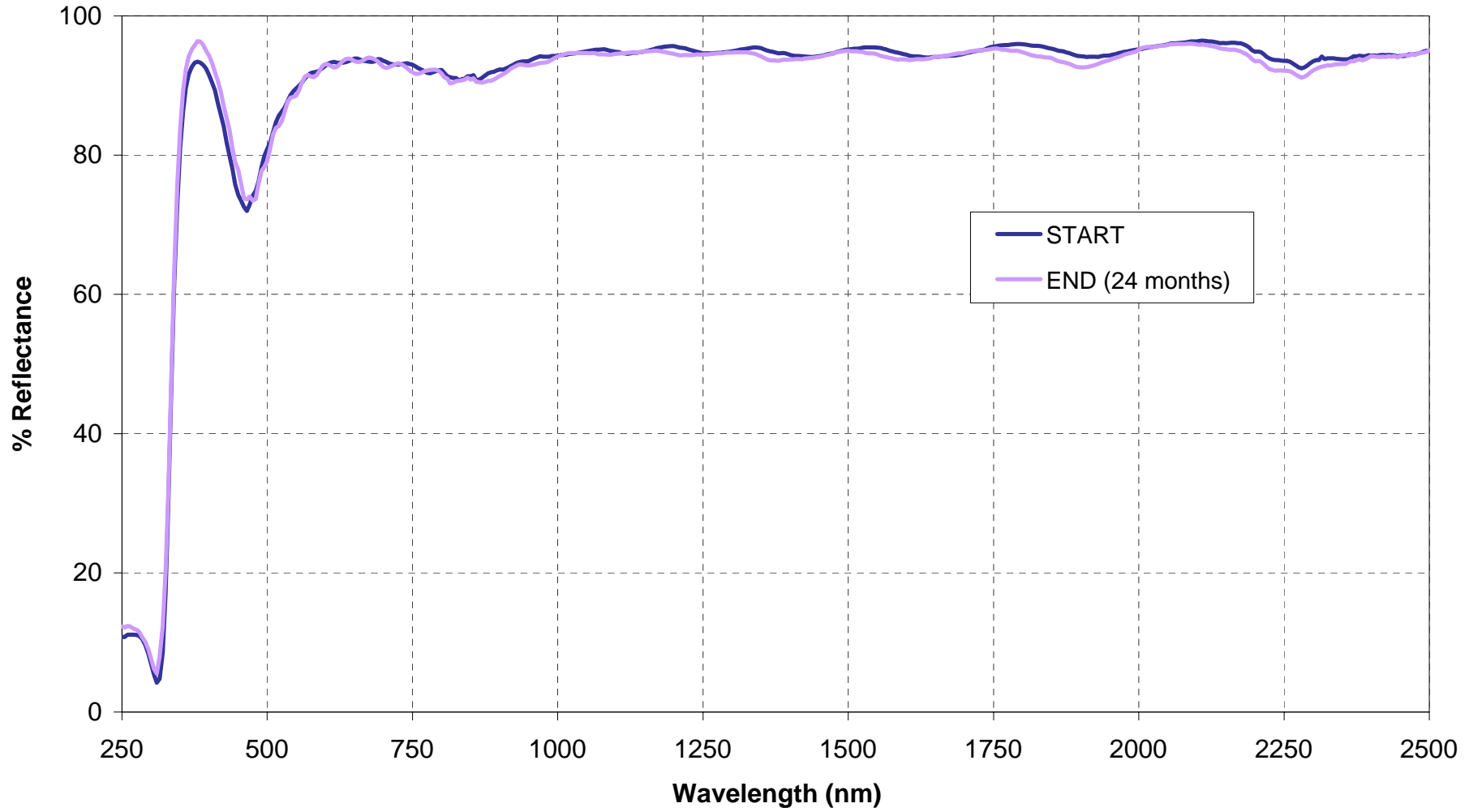
Spectral Reflectance of Alanod MIRO-SUN backside lacquered 90 mirrors after accelerated exposure in Ci65 WOM (1 sun / 60°C / 60%RH) chamber



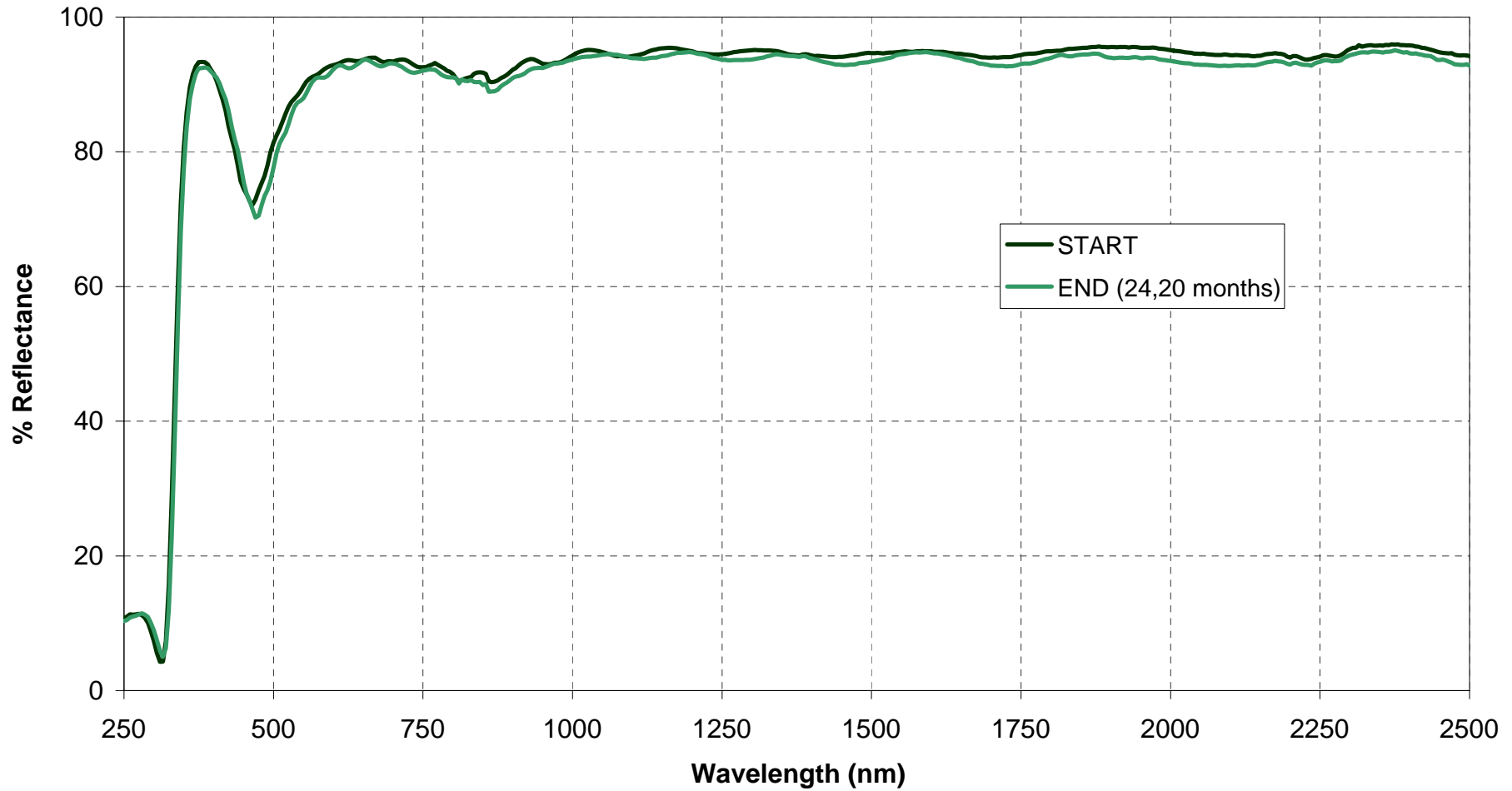
**Spectral Reflectance of Alanod MIRO-SUN PV backside lacquered 90 mirrors
after outdoor exposure in Golden, CO at NREL**



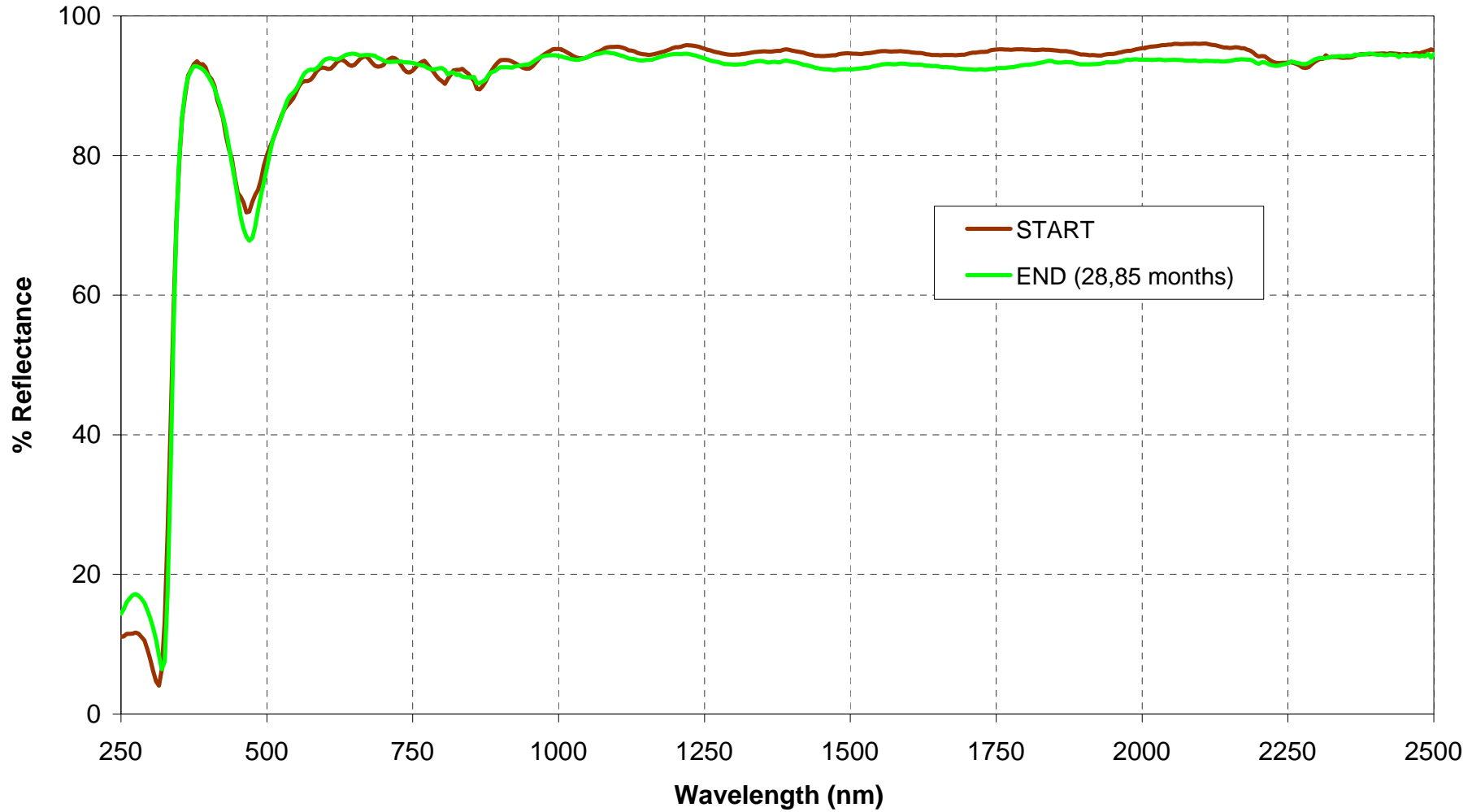
**Spectral Reflectance of Alanod MIRO-SUN PV backside lacquered 90 mirrors
after outdoor exposure in Phoenix, AZ at APS**



**Spectral Reflectance of Alanod MIRO-SUN PV backside lacquered 90 mirrors
after outdoor exposure in Miami, FL at FLA**



**Spectral Reflectance of Alanod MIRO-SUN PV backside lacquered 90 mirrors
after accelerated exposure in Blue M (dark / 85°C / 85%RH) chamber**



**Spectral Reflectance of Alanod MIRO-SUN PV backside lacquered 90 mirrors
after accelerated exposure in WOM (1sun / 60°C / 60%RH) chamber**

