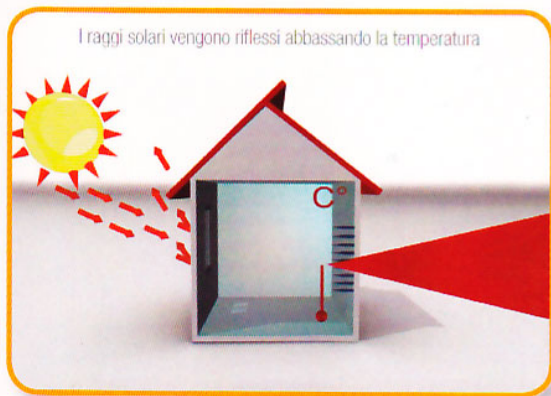




Microsfere di vetro cave

protagoniste nel mondo
delle costruzioni ecosostenibili



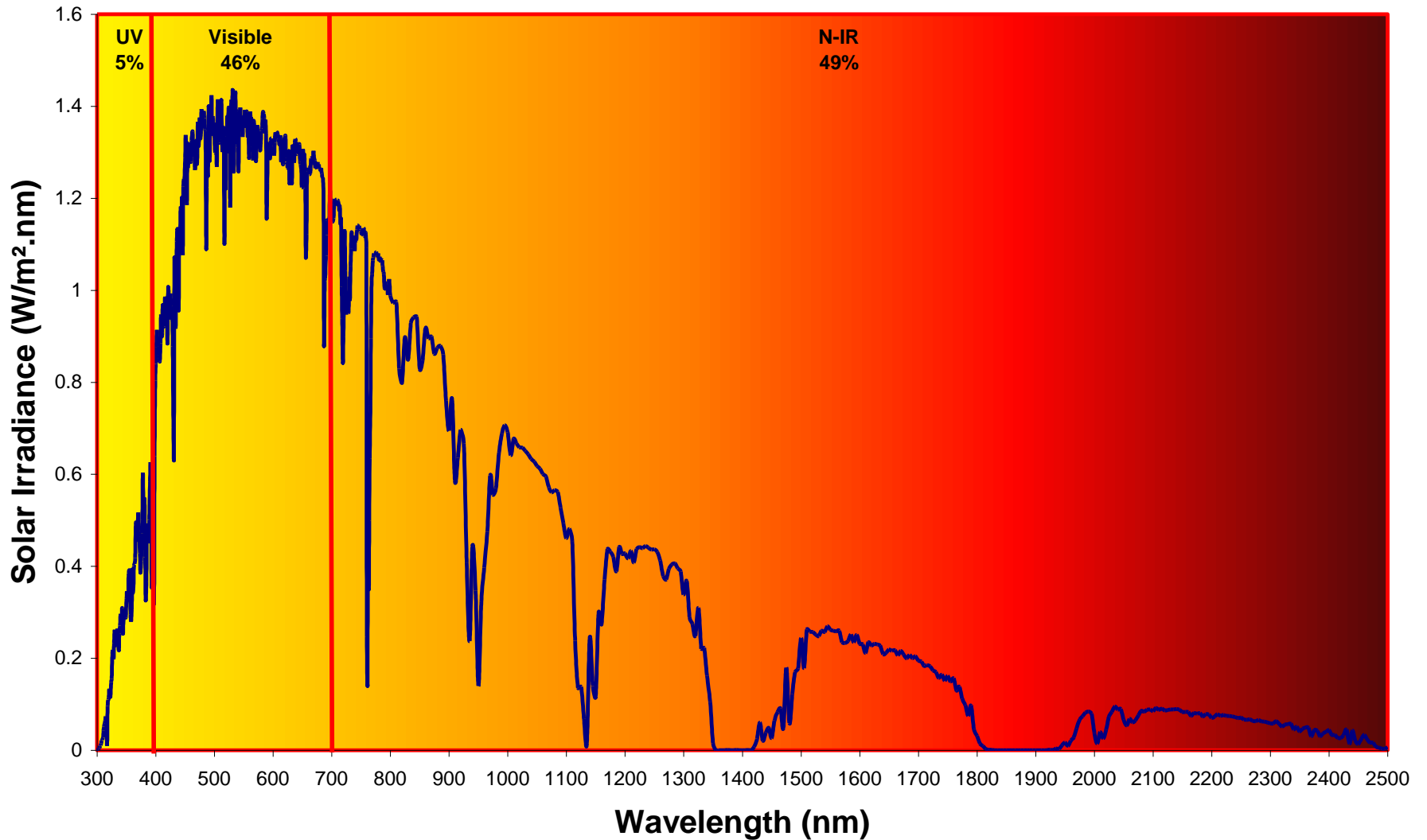
3M Glass Bubbles

Le Glass Bubbles 3M si arricchiscono di nuovi elementi per lo sviluppo di applicazioni innovative. Con le Glass Bubbles 3M è possibile formulare vernici per rivestimenti esterni che, riflettendo il calore solare, consentano di ottenere un efficace risparmio energetico.

Esempio di formulazione con 3M Glass Bubbles S22

Materie prime	Densità (G/CC)	Peso	Peso%	Volume	Vol%	Vol Secco	%Vol Secco
Acqua	1,000	69,57	29,08	69,57	31,31	0,00	0,00
Agente bagnante	1,16	0,80	0,33	0,69	0,31	0,21	0,21
TiO2	4,10	61,50	25,71	15,00	6,75	15,00	15,00
CaCO3	2,70	0,00	0,00	0,00	0,00	0,00	0,00
Dispersione acrilica	1,06	94,68	39,58	89,32	40,20	39,14	39,14
3M Glass Bubbles S22	0,22	9,90	4,14	45,00	20,25	45,00	45,00
Addensante	1,06	2,47	1,03	2,33	1,05	0,06	0,06
Anti-schiuma	1,00	0,29	0,12	0,29	0,13	0,05	0,05
Totale	1,08	239,21	100,00	222,20	100,00	100,00	100,00

Solar Irradiance



Solar paint STD formulation (with CaCO₃)

raw material	Density(g/cc)	Weight	W %	Volume	V %	Vol Dry	% Vol Dry
Water	1.00	69.57	19.83	69.57	31.31	0	0
Wetting agent	1.16	0.80	0.23	0.69	0.31	0.21	0.21
TiO ₂	4.10	61.50	17.53	15.00	6.75	15.00	15.00
CaCO ₃	2.70	121.50	34.63	45.00	20.25	45.00	45.00
Acrylic dispersion	1.06	94.68	26.99	89.32	40.20	39.14	39.14
Thickener	1.06	2.47	0.70	2.33	1.05	0.60	0.60
Anti-foam	1.00	0.29	0.08	0.29	0.13	0.05	0.05
Totals	1.58	350.81	100.00	222.20	100.00	100.00	100.00

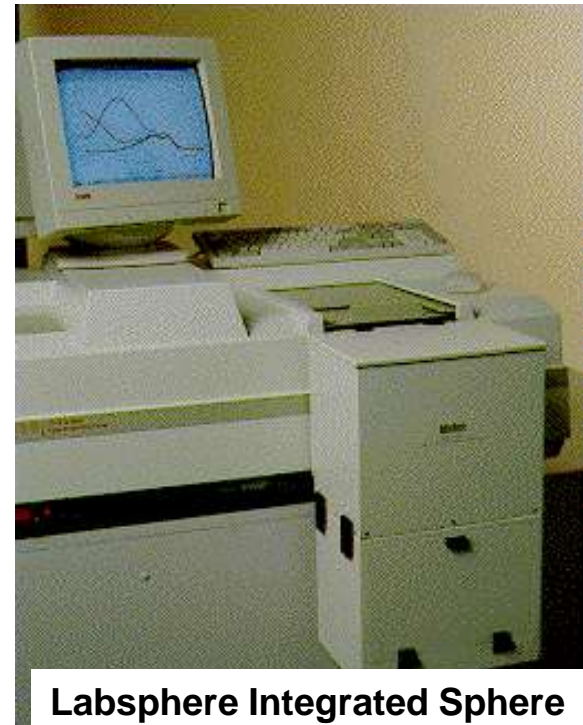
Solids by weight %	65.17%	Filler Vol =	60.00
Solids by volume %	45.00%	Binder Vol=	40.00
Density wet	1.58	PVC =	60.00
Density dry	2.29	CPVC =	62.23
		CPVC/PVC =	1.04

Solar paint S22 formulation

raw material	Density(g/cc)	Weight	W %	Volume	V %	Vol Dry	% Vol Dry
Water	1.00	69.57	29.08	69.57	31.31	0.00	0.00
Wetting agent	1.16	0.80	0.33	0.69	0.31	0.21	0.21
TiO2	4.10	61.50	25.71	15.00	6.75	15.00	15.00
CaCO3	2.70	0.00	0.00	0.00	0.00	0.00	0.00
Acrylic dispersion	1.06	94.68	39.58	89.32	40.20	39.14	39.14
3M Glass Bubbles S22	0.22	9.90	4.14	45.00	20.25	45.00	45.00
Thickener	1.06	2.47	1.03	2.33	1.05	0.60	0.60
Anti-foam	1.00	0.29	0.12	0.29	0.13	0.05	0.05
Totals	1.08	239.21	100.00	222.20	100.00	100.00	100.00

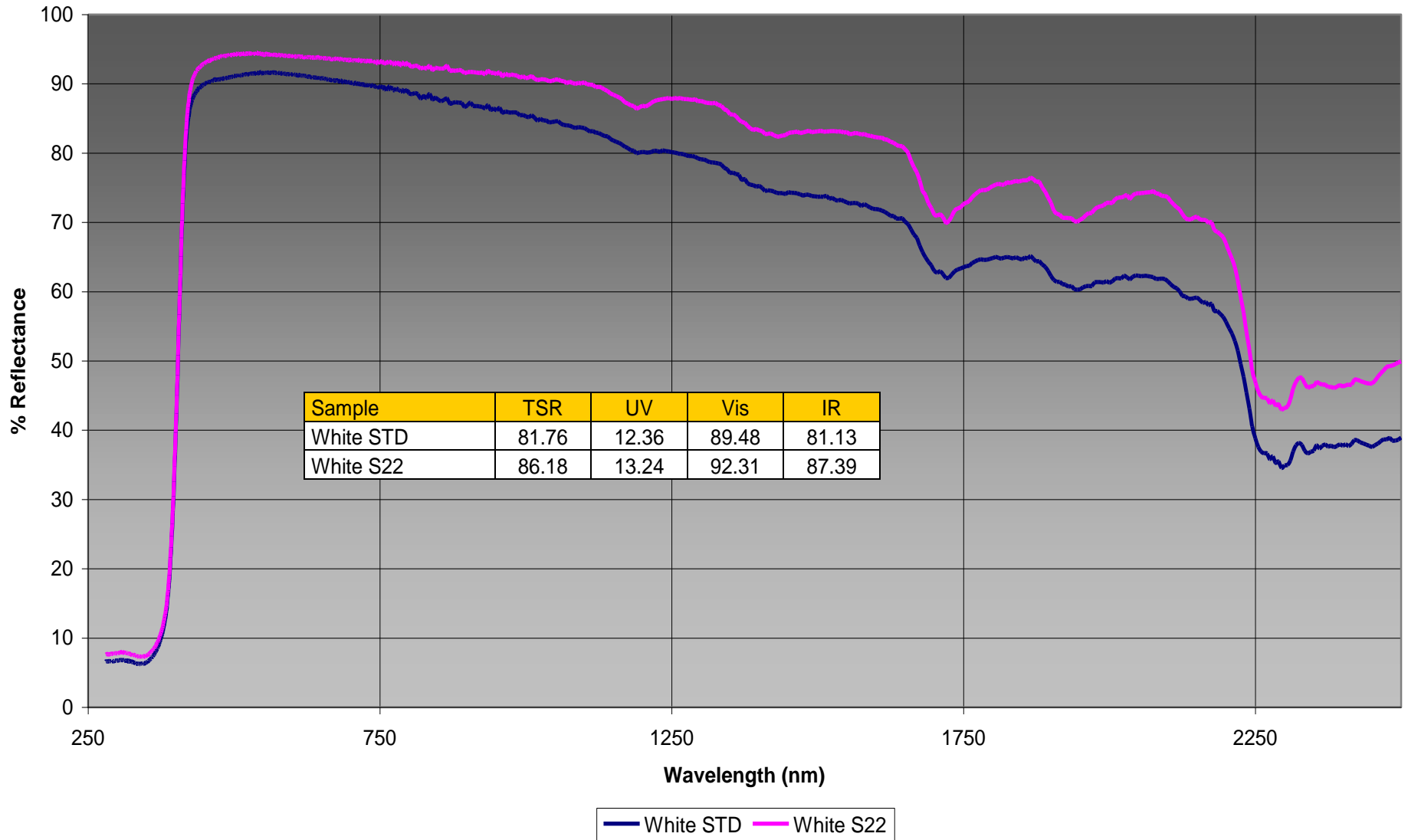
Solids by weight %	48.92%	Filler Vol =	60.00
Solids by volume %	45.00%	Binder Vol=	40.00
Density wet	1.08	PVC =	60.00
Density dry	1.17	CPVC =	67.52
		CPVC/PVC =	1.13

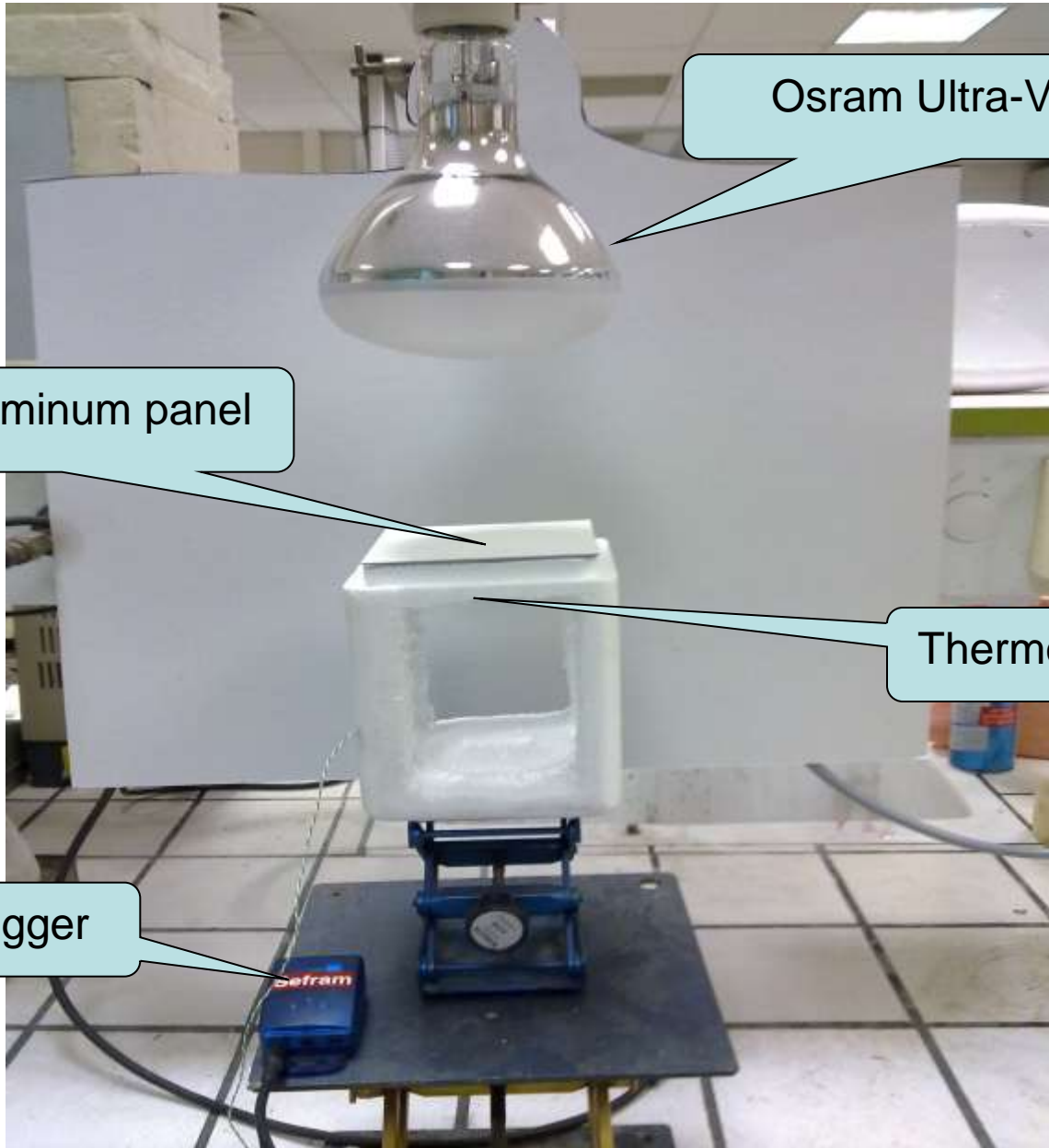
Testing Equipment: Spectrophotometer Cary 500 UV – Visible - N-IR + Integrated Sphere



Measurement: Hemispherical Reflectance properties

Solar reflectance, white paint





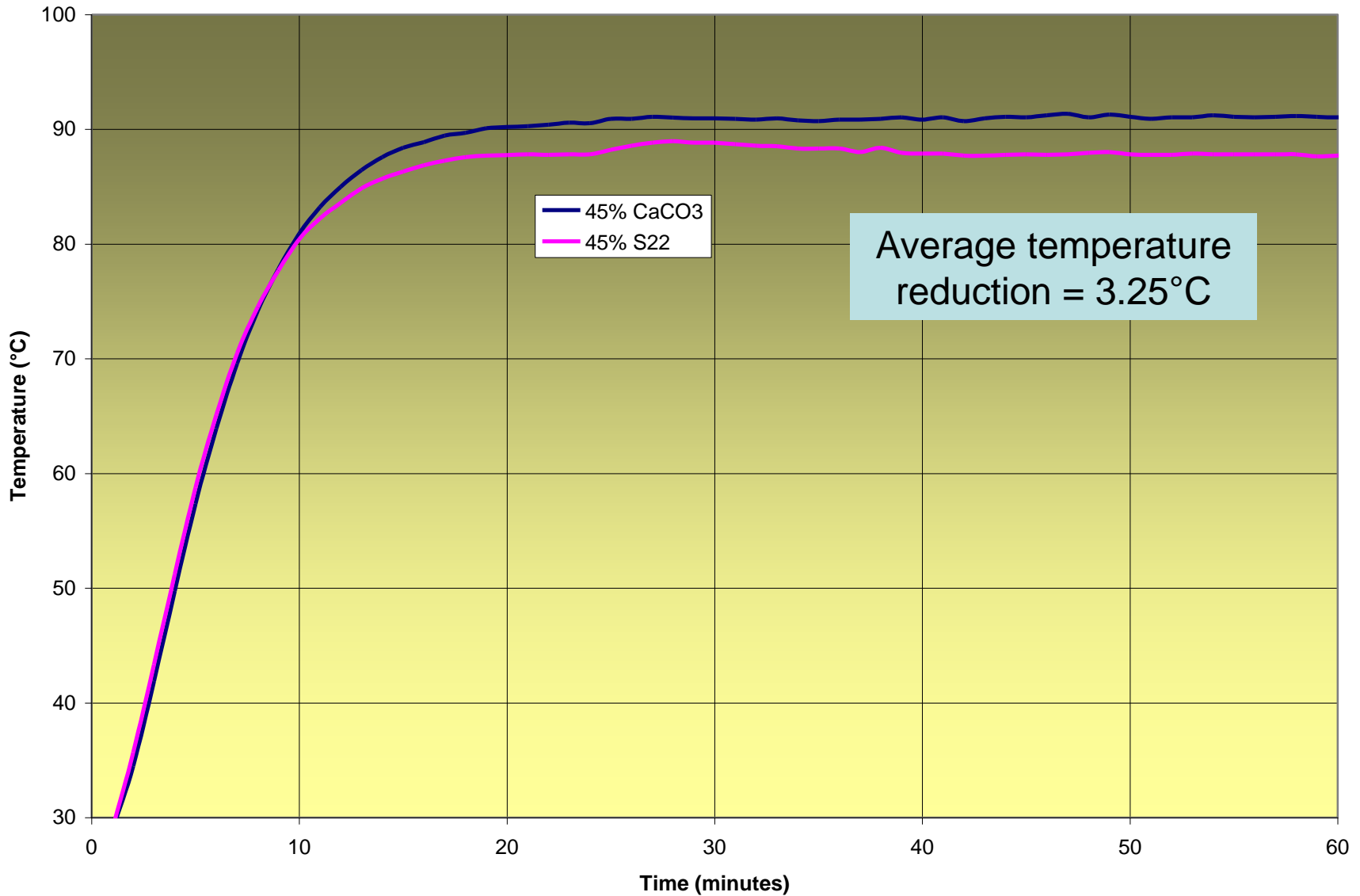
Osram Ultra-Vitalux lamp

Thermocouple

Painted aluminum panel

Data logger

Back side temperature versus Time



Demo Kit



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