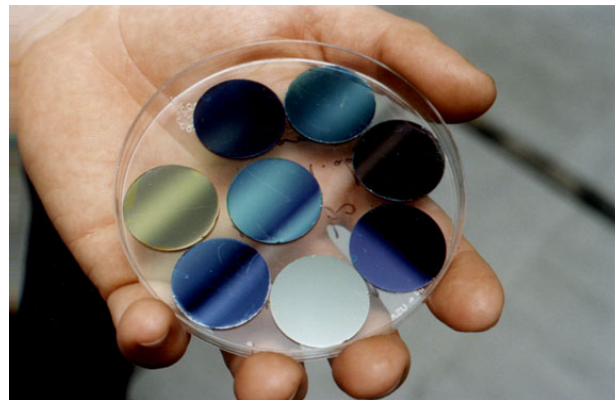


Colors for SiO₂ films observed perpendicularly under daylight fluorescent lighting

Due to interference effects, the color of SiO₂ on Si depends on the thickness of the SiO₂ layer. The following chart gives film thickness and color of thermally oxidized SiO₂ films on Si (after S. K. Ghandhi “VLSI Fabrication principles” John Wiley & Sons, New York, 1983)

0.05 μm	Tan	0.80 μm	Orange (rather broad for orange)
0.07 μm	Brown	0.82 μm	Salmon
0.10 μm	Dark violet to red violet	0.85 μm	Dull light red violet
0.12 μm	Royal blue	0.86 μm	Violet
0.15 μm	Light blue to metallic blue	0.87 μm	Blue violet
0.17 μm	Metallic to very light yellow green	0.89 μm	Blue
0.20 μm	Light gold or yellow – slightly metallic	0.92 μm	Blue green
0.22 μm	Gold with slight yellow orange	0.95 μm	Dull yellow green
0.25 μm	Orange to melon	0.97 μm	Yellow to “yellowish”
0.27 μm	Red violet	0.99 μm	Orange
0.30 μm	Blue to violet blue	1.00 μm	Carnation pink
0.31 μm	Blue	1.02 μm	Violet red
0.32 μm	Blue to blue green	1.05 μm	Red violet
0.34 μm	Light green	1.06 μm	Violet
0.35 μm	Green to yellow green	1.07 μm	Blue violet
0.36 μm	Yellow green	1.10 μm	Green
0.37 μm	Green yellow	1.11 μm	Yellow green
0.39 μm	Yellow	1.12 μm	Green
0.41 μm	Light orange	1.18 μm	Violet
0.42 μm	Carnation pink	1.19 μm	Red violet
0.44 μm	Violet red	1.21 μm	Violet red
0.46 μm	Red violet	1.24 μm	Carnation pink to salmon
0.47 μm	Violet	1.25 μm	Orange
0.48 μm	Blue violet	1.28 μm	“Yellowish”
0.49 μm	Blue	1.32 μm	Sky blue to green blue
0.50 μm	Blue green	1.40 μm	Orange
0.52 μm	Green (broad)	1.45 μm	Violet
0.54 μm	Yellow green	1.46 μm	Blue violet
0.56 μm	Green yellow	1.50 μm	Blue
0.57 μm	Yellow to “yellowish” (Not yellow but is in the position where yellow is to be expected. At times it appears to be light creamy gray or metallic)	1.54 μm	Dull yellow green
0.58 μm	Light orange or yellow to pink borderline		
0.60 μm	Carnation pink		
0.63 μm	Violet red		
0.68 μm	“Bluish” (Not blue but borderline between violet and blue green. It appears more like a mixture between violet red and blue green and looks grayish)		
0.72 μm	Blue green to green (quite broad)		
0.77 μm	“Yellowish”		



Different colors of SiO₂ films on Si wafers.