



## Phosphor Information Leaflet

### GENERAL

Name	Calcium scandium silicium garnet cerium manganese
Chemical formula	$\text{Ca}_3\text{Sc}_2\text{Si}_3\text{O}_{12}:\text{Ce}^{3+},\text{Mn}^{2+}$
Application areas	Phosphor converted LEDs, optical marker
Optical transition	$\text{Ce}^{3+} [\text{Xe}]4f^1 ({}^2F_{5/2}) - [\text{Xe}]5d^1$ $\text{Mn}^{2+} [\text{Ar}]3d^5 ({}^6A_1) - [\text{Ar}]3d^5 ({}^2T_2)$

### OPTICAL PROPERTIES

Excitation maxima @ 630 nm	444 nm (2.79 eV)
Emission maximum @ 470 nm exc.	567 nm (2.19 eV), 700 nm (1.77 eV)
Centroid wavelength	651 nm (1.90 eV)
Full width @ half emission maximum	71 nm and 108 nm
Lumen equivalent	233 lm/W <sub>opt.</sub>
CIE1931 chromaticity coordinates (x, y)	0.412, 0.523
Band edge of host lattice	-
Reflection @ 450 nm	31%
Decay time $\tau_{1/e}$	~ 50 ns ( $\text{Ce}^{3+}$ )

### PHYSICAL PROPERTIES

Body colour	
Density	3.5 g/cm <sup>3</sup>
Refractive index (at $\lambda$ )	~ 1.9
Mineral type	Garnet
Crystal system	Cubic
Space group (#)	Ia-3d (230)



