



Phosphor Information Leaflet

GENERAL

Name	Calcium lutetium phosphate europium manganese neodymium
Chemical formula	$\text{Ca}_9\text{Lu}(\text{PO}_4)_7:\text{Eu}^{2+},\text{Mn}^{2+},\text{Nd}^{3+}$
Application areas	Optical marker
Optical transition	$\text{Eu}^{2+} [\text{Xe}]4f^7 ({}^8\text{S}_{7/2}) - [\text{Xe}]4f^65d^1$ $\text{Mn}^{2+} [\text{Ar}]3d^5 ({}^6\text{A}_1) - [\text{Ar}]3d^5 ({}^4\text{T}_1)$ $\text{Nd}^{3+}: [\text{Xe}]4f^3 ({}^4\text{F}_{3/2}) - [\text{Xe}]4f^3 ({}^4\text{I}_{9/2})$

OPTICAL PROPERTIES

Excitation maxima @ 630 nm	330 nm (3.76 eV), 525 nm (2.36 eV), 583 nm (2.13 eV), 745 nm (1.66 eV)
Emission maximum @ 470 nm exc.	484 nm (2.56 eV), 876 nm (1.42 eV)
Centroid wavelength	675 nm (1.84 eV)
Full width @ half emission maximum	lines
Lumen equivalent	196 lm/W _{opt.}
CIE1931 chromaticity coordinates (x, y)	0.213, 0.270
Band edge of host lattice	~ 8.0 eV
Reflection @ 330 nm	35%
Decay time $\tau_{1/e}$	

PHYSICAL PROPERTIES

Body colour	white
Density	3.4 g/cm ³
Refractive index (at λ)	~ 1.75
Mineral type	Whitlockite
Crystal system	Trigonal
Space group (#)	R3ch (161)



