$Co^{2+}:MgAl_2O_4$ $Cr^{4+}:YAG$

PASSIVE Q-SWITCHING CRYSTALS

EKSMA OPTICS offers a wide choice of solid-state saturable absorbers such as: **$Co^{2+}:MgAl_2O_4$**, **$Cr^{4+}:YAG$**.

$Co^{2+}:MgAl_2O_4$ is a relatively new material for passive Q-switching in lasers emitting from 1.2 to 1.6 μm, in particular, for eye-safe 1.54 μm Er:glass laser, but also works at 1.44 μm and 1.34 μm wavelengths. High absorption cross section (3.5×10^{-19} cm^2) permits Q-switching of Er:glass laser without intracavity focusing both with flash-lamp and diode-laser pumping. Negligible excited-state absorption results in high contrast of Q-switch, i.e. the ratio of initial (small signal) to saturated absorption is higher than 10 (Fig. 1).

$Cr^{4+}:YAG$ is one of the best passive Q-switch for high power lasers emitting at ~1 μm wavelength. Standard diameter apertures – 5, 8, 9.5 mm and various initial transmission (or optical density) are available upon request. Also Cr^{4+}:YAG laser rods for ultra-short pulse solid-state lasers are available.

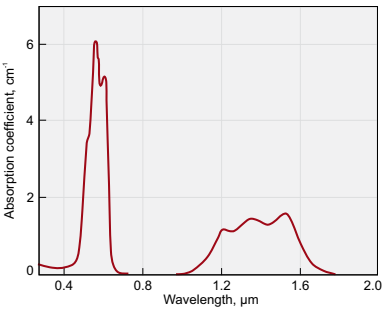

Fig. 1. *Absorption spectra of the $Co^{2+}:MgAl_2O_4$ crystal*

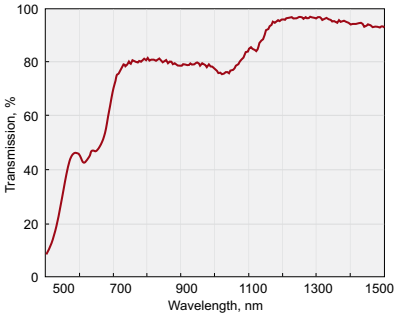

Fig. 2. *Transmission of AR coated at 1064 nm Cr:YAG Q-switch with initial transmission of 80% at 1064 nm*

SPECIFICATIONS

	$Co:MgAl_2O_4$	$Cr^{4+}:YAG$
Working wavelength range, μm	1.2 – 1.6	0.8 – 1.2
Absorption cross-section, cm^2	3.5×10^{-19} (at 1.54 μm)	5×10^{-18} (at 1.06 μm)
Initial transmittance, %	30–99	20–99
Aperture, mm	5–12	5, 8, 9.5
Thickness, mm	1–5	1–5
Coatings*	AR @ 1.54 μm, R<0.2%	AR @ 1.06 μm, R<0.15%

Fe:ZnSe, Cr:ZnSe, Co:ZnS solid-state saturable absorbers also are available upon request

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