

**Scientific Poster Session**

Friday, January 16, 2009, 08:30 - 18:30

Exhibition Hall

Chair: D-Tan

Moderators: VR Muthukkaruppan, P Padmanabhan

**Scientific Poster Session POS07(POS07.01 - POS07.18)**

**Refractive Error**

**Poster Board Numbers 1-18**

**Discussion Time: 08:30 - 10:00**

POS07.01

**Absorbing Harmful Wavelengths Of Visible Light Emitted By A Welding Torch Through The Use Of A Yellow Filter: Experimental Evidence.**

C. Sanchez-Ramos, C. Bonnin-Arias, C. Torets, A. Fernandez-Balbuena, A. Langa-Moraga, A. Forlán, G. Ramirez, Univ Complutense de Madrid, Madrid, Spain.

**Purpose:** This study was designed to determine the emission spectrum of a professional welding torch and quantify the absorption of several wavelengths of visible light by yellow filters of different optical densities.

**Methods:** Three measurements of the emission spectrum of a welding torch were made at 3 distances between 20 to 40 cm. Subsequent to this, 6 layers of e-colour-10 yellow filters supplied by Rosco were placed in front of the torch and the transmittances determined of all the light bands emitted by the torch crossing the filter.

**Results:** The measurements obtained were: for 370 nm, the torch emitted 680 relative units (RU) of which the filter absorbed 640 RU (94%); for 415 nm, emission was 350 RU and absorption by the filter was 100%; for 430 nm, emission was 700 RU and absorption 670 RU (96%); for 450 nm, emission was 270 RU and absorption 100%; for 450-480 nm, emission was 350 RU and absorption 300 RU (85%); and for 490 nm, emission dropped from 200 RU to 60 RU (70%).

**Conclusions:** In relative units, the emission of short wavelengths (violet-blue light) by a welding torch is high. A yellow filter practically eliminates all the harmful bands of the visible spectrum. The use of these filters to protect the retina is recommended for professional welders.

C. Sanchez-Ramos, None; C. Bonnin-Arias, None; C. Torets, None; A. Fernandez-Balbuena, None; A. Langa-Moraga, None; A. Forlán, None; G. Ramirez, None.