

# Solarization Resistant Fibers for Deep-UV applications

Most spectroscopic applications with fiber-optics have been restricted to wavelength ranges above 230 nm, because standard silica fibers with an undoped core and fluorine doped cladding are frequently damaged by exposure to deep-UV light (below 230 nm). This solarization effect is induced by the formation of "color centers" with an absorbance band of 214 nm. These color centers are formed when impurities (like Cl) exist in the core

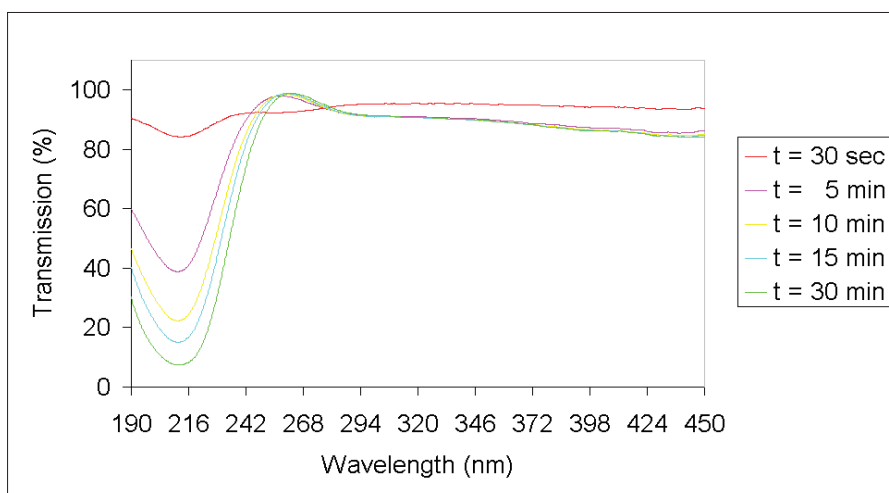
fiber material and form unbound electron pairs on the Si atom, which are affected by the deep-UV radiation.

For this purpose, solarization resistant fibers, which were hydrogen loaded, were developed. The broadband fibers Avantes uses are Solarization Resistant. This means that these fibers provide long-term stability at 30-40% transmission (for 215 nm). Small degradation of the transmis-

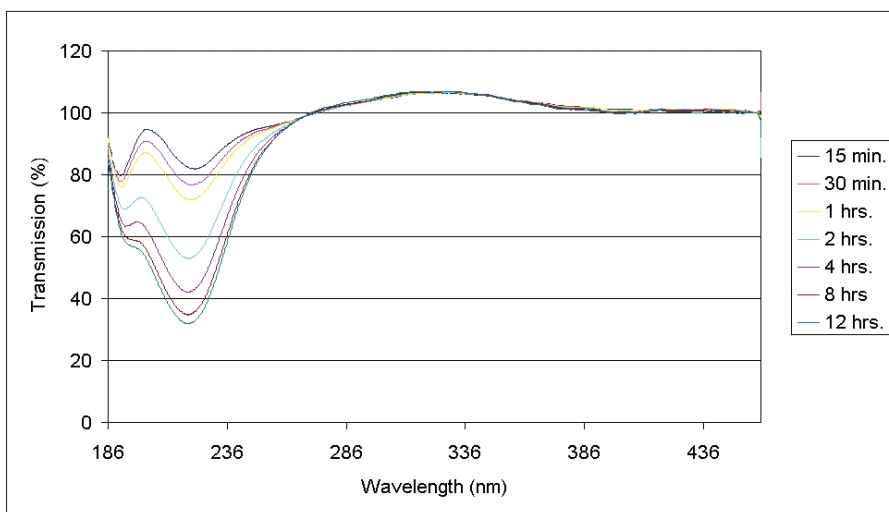
sion can still take place.

First couple of hours of these fibers show a high drop in transmission (100% to 40%). In order to have a stable transmission from the start one can order the PRESOL option. When PRESOL is ordered with a fiber or probe Avantes pre-solarized the product for an 10-hrs period, to have a constant transmission of 30-40% @ 215 nm.

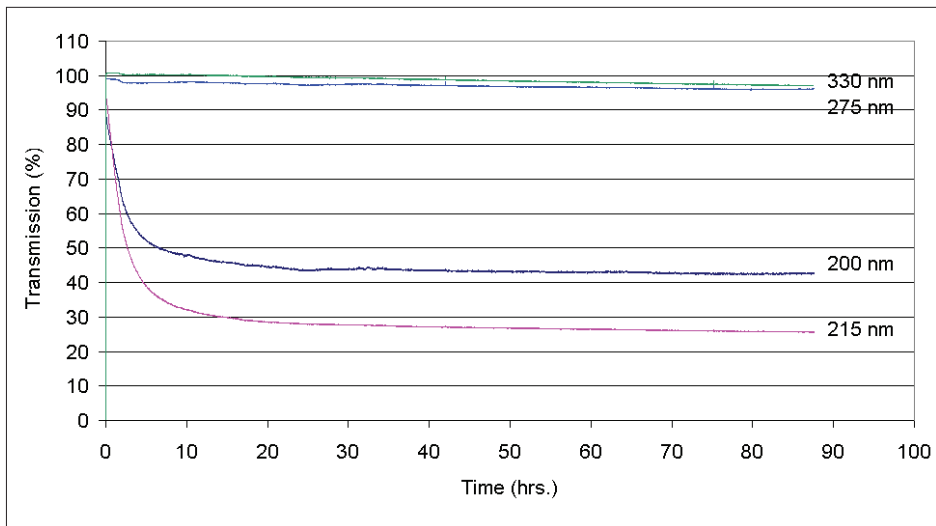
Solarization UV



Solarization UVIR



### Solarization UVIR



### Ordering Information

**PRESOL** • Presolarization of UVIR fiber

