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Molecular structure–intrinsic photostability relationships for thiophene-benzothiadiazole alternating type conjugated polymers

Petr M. Kuznetsov, Ekaterina A. Komissarova, Sergei A. Kuklin and Pavel A. Troshin

Experimental procedure

Samples of conjugated polymers were dissolved in anhydrous chlorobenzene or 1,2-dichlorobenzene under well-controlled anoxic conditions inside the nitrogen-filled glove box (O_2 and H_2O levels below 0.1 ppm) to obtain solutions with the concentration of 10-15 mg ml^{-1} (depending on the material solubility). The polymer films were coated on precleaned glass substrates (25x25 mm^2, soda lime glass, ISOLAB) by spin-coating inside the glove box and optimizing the rotation frequency to achieve maximum absorbance of 0.45-0.50. Afterwards, the films were transferred to the specially dedicated glove box with the UV weathering chamber (Figure S1), where the films were exposed to light provided by a bactericidal mercury lamp (main line 254 nm). The setup is organized in a way that results in the homogeneous light distribution across the sample stage with the incident light power of ca. 35 mW cm^{-2} at the sample surface. The sample temperature during the test stays within 43-45 ºC.

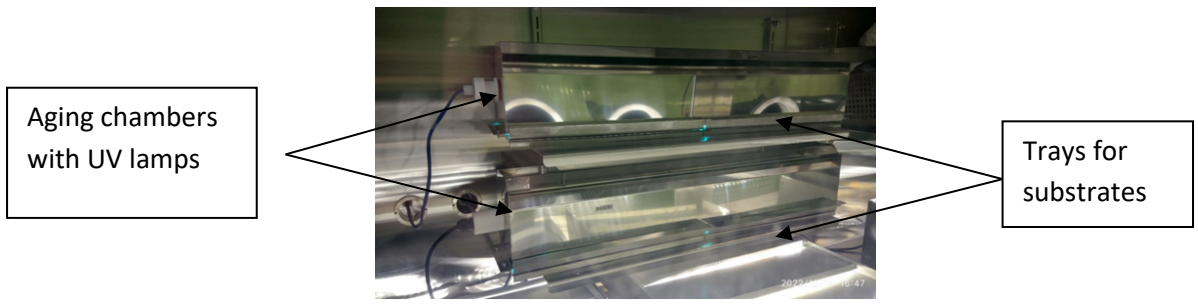

Figure S1 The photograph of the UV weathering chambers installed inside the glove box