Oxidized SPIRO-MEOTAD stability investigation

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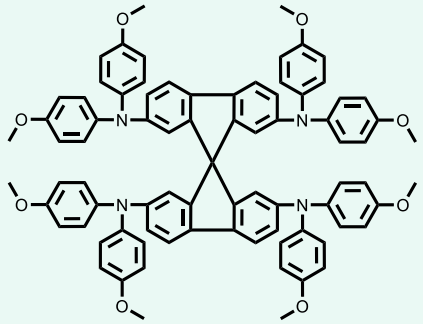
Population growth and ever-increasing energy consumption prompts new search for cleaner and safer alternatives to fossil fuels and nuclear energy. One of the most attractive alternatives is photovoltaic systems. Because of simple manufacturing and good performance prospects perovskite solar cells received growing interest from research community. As a result of rapid development in this field, perovskite photovoltaic systems have reached 23.7% [1] efficiency.

Despite relatively high performance of perovskite solar cell (PSC), the current conditions still do not meet the requirement for commercialization. There are three main stability issues with PSCs: environmental (moisture and oxygen), photo and thermal stability. In addition, selective contacts and additives in HTM can also have influence on stability [2,3] .



Spiro-MeO-TAD

In this work the hole-transporting materials, like spiro-OMeTAD, have been investigated under various conditions, such as thermal stress, in order to estimate overall lifetime and influence of different additives and on perovskite surface. Overall morphological stability of the amorphous state of spiro-OMeTAD has deteriorated rapidly under elevated temperature at 100 °C, and a material's change from amorphous to crystalline aggregate state. This is one of the main factors leading to a rapid decline of device performance.

REFERNCES

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