

Organic Electroluminescent Material Synthesis using Microreactors

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A light and thin display is an important component of portable devices like cellular phones, PDAs, laptop computers, etc. Conventional synthetic method of organic electroluminescent material has a problem with productivity because of low production efficiency, long reaction time and batch process system. Therefore, a new process is required for the production of organic EL to overcome those defects and a microreactor system can be a good alternative.

The microreactor can achieve higher productivity than the conventional industrial process. It is possible that the microreactor enhances conversion and reduces reaction time owing to the low linear dimension of channel in size.

In this study, we evaluated the potential of organic EL synthesis using microreactors with simulation. The design and the productivity of the microreactors are tested with computational fluid dynamics (CFD). We verified the productivity improvement with experiments and suggest a proper microreactor structure to produce organic EL using a iridium complex.