Lithium endohedral fullerene is a novel nanomaterial which has very high ionic conductivity unlike empty fullerene. From this feature, it is expected to be used widely including dye-sensitized and organic solar cells. Wako launched products made by Idea International Co. Ltd., which is the world’s first to succeed in their mass production.

Features
- World’s first mass production
- High ionic conductivity
- Performance report and TOF-MS chart attached
- Useful for novel functional materials

Product List

<table>
<thead>
<tr>
<th>Description</th>
<th>Pkg. Size</th>
<th>Wako Cat. No.</th>
<th>Idea’s Product No.</th>
<th>Storage Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li(^+)@C(_{60})(PF(_6))^- Salt</td>
<td>10 mg</td>
<td>386-02651</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 mg</td>
<td>382-02653</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 mg</td>
<td>380-02654</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 mg</td>
<td>386-02656</td>
<td>001D04</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 mg</td>
<td>388-02655</td>
<td></td>
<td>Keep at -20°C.</td>
</tr>
<tr>
<td>Li(^+)@C(<em>{60})/C(</em>{60}) (Cluster)</td>
<td>500 mg</td>
<td>389-02641</td>
<td>001B01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,000 mg</td>
<td>385-02643</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Li(^+)@C(<em>{60})/C(</em>{60}) /Li (Cluster)</td>
<td>500 mg</td>
<td>383-02661</td>
<td>TS001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,000 mg</td>
<td>389-02663</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⇒ Performance report and TOF-MS chart will be provided only for Li\(^+\)C\(_{60}\)(PF\(_6\))^- salt and Li\(^+\)@C\(_{60}\)/C\(_{60}\) cluster.

- Listed products are intended for laboratory research use only, and not to be used for drug, food or human.
- Please visit our online catalog to search for other products from Wako: [http://www.e-reagent.com](http://www.e-reagent.com)

Manufactured by: Idea International Co., Ltd
HQ & R&D center / Joint Research Lab.: Sendai, Miyagi, Japan
http://www.lic60.jp
**Application 1**

A new solution to highly efficient solar cells. Li$^+@C_{60}$ provides long lasting separation of electron charge.

**Reference:**
1. K. Ohkubo, Y. Kawashima and S. Fukuzumi, "Strong supramolecular binding of Li$^+@C_{60}$ with sulfonated meso-tetraphenylporphyrins and long-lived photoinduced charge separation", *Chem. Commun.*, **48**, 4314-6 (2012)

**Application 2**

Li$^+$ ion is encapsulated inside C$_{60}$ (Fullerene). Li$^+$ moves in response to electric field outside.

Li$^+@C_{60}$ has a property like cation. It reacts with various anions and forms such salt as SbCl$_6^-$ and PF$_6^-$. A location of Li$^+$ is dependent on its counterpart(s), i.e. types and locations of the anions. This property can be utilized for sensors and switches.

**Reference:**

**Application 3**

Li$^+$ ion is encapsulated inside C$_{60}$ (Fullerene). Li$^+$ moves in response to electric field outside.

Li$^+@C_{60}$ has a property like cation. It reacts with various anions and forms such salt as SbCl$_6^-$ and PF$_6^-$. A location of Li$^+$ is dependent on its counterpart(s), i.e. types and locations of the anions. This property can be utilized for sensors and switches.

**Reference:**
1. H. Ueno, K. Kokubo, Y. Nakamura, K. Ohkubo, et al., “Ionic conductivity of [Li$^+@C_{60}$](PF$_6^-$) in organic solvents and its electrochemical reduction to Li$^+@C_{60}$** - ”, *Chem. Commun.*, **49**, 7376-8 (2013)

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