

## **EXHIBIT D-1**

The following chart sets forth where in the prior art references each element of the asserted claims of U.S. Patent No. 9,166,251 is found.

One of ordinary skill in the art, as of the priority date of the '251 patent, would have known to combine the prior art elements disclosed by the above references using known methods, and to use these elements according to their established functions in order to achieve a known and predictable result. Because these prior art references are within a common field of endeavor, and/or are directed to a related set of problems, it would have been obvious for one of ordinary skill in the art to look from one of the identified references to another in order to find any missing functionality. One of ordinary skill in the art would have been motivated to do so for the reasons identified by the above references, because there were only a finite number of predictable solutions and/or because known work in a common field of endeavor often prompts variations based on predictable design incentives and/or market forces in the same or a related field. Moreover, one of ordinary skill in the art would have found the combination obvious to try, due at least to the similarity and interrelatedness of the technical teachings of the art. As another example, one of ordinary skill in the art would have found that the teachings may have been predictably interchanged by, for example, simple substitution of parts, at least because of the predictability of the art and the known interchangeability of the various elements or process steps. In addition, combining the references identified above would have been obvious because the combinations represent known potential options with a reasonable expectation of success.

The chart below is preliminary and Defendants reserve the right to provide additional theories, disclosures, and analysis, particularly in light of the fact that discovery in this case has not yet begun, there has been no claim construction, and Plaintiff's preliminary infringement contentions are vague, imprecise, and otherwise deficient.

The chart below is based on Defendants current understanding of MAXELL's positions concerning the scope and construction of the claims of the asserted patents, and is not, and should in no way be seen as, adoption or admission of any particular claim scope or construction for any term or limitation.

**U.S. Patent No. 9,166,251**

#	Claim Language	Prior Art
1a	A battery separator comprising:	<ul style="list-style-type: none"><li>• Ko at Abstract</li><li>• Ko at claim 3</li><li>• Shinohara at Abstract</li><li>• Shinohara at para. [0009]</li><li>• Kasamatsu-US at Abstract</li><li>• Kasamatsu-PCT at Abstract</li><li>• Katayama-US at Abstract</li><li>• Katayama-PCT at Abstract</li><li>• Yoshida at para. [0001]</li><li>• Nagayama-US at Abstract</li><li>• Nagayama-US at para. [0013]</li><li>• Nagayama-PCT at Abstract</li><li>• Nagayama-PCT at para. [0008]</li><li>• Yamaguchi at para. [0080]</li><li>• Yamaguchi at para. [0087]</li><li>• Igaki at para. [0001]</li><li>• Igaki at para. [0014]</li><li>• Kikuchi at para. [0002]</li><li>• Kikuchi at para. [0012]</li><li>• Kikuchi at para. [0018]</li></ul>

1b	heat-resistant fine particles; and	<ul style="list-style-type: none"> <li>• Ko at Abstract</li> <li>• Ko at p. 4, ll. 7-19</li> <li>• Ko at p. 4, ll. 27-34</li> <li>• Ko at p. 6, ll. 4-8</li> <li>• Shinohara at para. [0009]</li> <li>• Shinohara at para. [0011]</li> <li>• Shinohara at para. [0023]</li> <li>• Shinohara at para. [0027]</li> <li>• Shinohara at para. [0040]</li> <li>• Kasamatsu-US at para. [0015]</li> <li>• Kasamatsu-US at para. [0022]</li> <li>• Kasamatsu-US at para. [0024]</li> <li>• Kasamatsu-US at Fig. 1</li> <li>• Kasamatsu-US at para. [0038]</li> <li>• Kasamatsu-US at para. [0048]</li> <li>• Kasamatsu-PCT at para. [0008]</li> <li>• Kasamatsu-PCT at para. [0015]</li> <li>• Kasamatsu-PCT at para. [0016]</li> <li>• Kasamatsu-PCT at Fig. 1</li> <li>• Kasamatsu-PCT at para. [0023]</li> <li>• Kasamatsu-PCT at para. [0027]</li> <li>• Katayama-US at 11:49-12:14</li> <li>• Katayama-PCT at para. [0053]-[0054]</li> <li>• Yoshida at para. [0011]</li> <li>• Yoshida at para. [0025]</li> <li>• Nagayama-US at para. [0031]</li> <li>• Nagayama-US at para. [0041]</li> <li>• Nagayama-PCT at para. [0021]</li> <li>• Nagayama-PCT at para. [0028]</li> <li>• Igaki at para. [0022]-[0023]</li> <li>• Igaki at Fig. 2</li> <li>• Kikuchi at para. [0014]</li> </ul>
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#	Claim Language	Prior Art
		<ul style="list-style-type: none"> <li>• Kikuchi at para. [0031]</li> </ul>

1c	a thermoplastic resin,	<ul style="list-style-type: none"> <li>• Ko at Abstract</li> <li>• Ko at p. 3, ll. 2-6</li> <li>• Ko at p. 4, ll. 3-6</li> <li>• Ko at p. 4, l. 35 – p. 5, l. 2</li> <li>• Shinohara at para. [0012]</li> <li>• Shinohara at para. [0016]</li> <li>• Shinohara at para. [0024]</li> <li>• Kasamatsu-US at para. [0029]</li> <li>• Kasamatsu-US at Fig. 1</li> <li>• Kasamatsu-US at para. [0038]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-PCT at para. [0020]</li> <li>• Kasamatsu-PCT at Fig. 1</li> <li>• Kasamatsu-PCT at para. [0023]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Katayama-US at 1:47-59</li> <li>• Katayama-US at 2:15-20</li> <li>• Katayama-US at 6:33-50</li> <li>• Katayama-PCT at para. [0005]</li> <li>• Katayama-PCT at para. [0008]</li> <li>• Katayama-PCT at para. [0027]</li> <li>• Yoshida at Abstract</li> <li>• Yoshida at para. [0007]</li> <li>• Yoshida at para. [0013]</li> <li>• Yoshida at para. [0020]-[0021]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Yamaguchi at para. [0087]</li> <li>• Igaki at para. [0009]-[0010]</li> <li>• Igaki at para. [0018]</li> <li>• Kikuchi at para. [0010]</li> <li>• Kikuchi at para. [0020]</li> </ul>
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#	Claim Language	Prior Art
1d	wherein the heat-resistant fine particles along with a binder constitute a heat-resistant layer,	<ul style="list-style-type: none"> <li>• Ko at Abstract</li> <li>• Ko at p. 3, l. 33 – p. 4, l. 6</li> <li>• Ko at p. 4, ll. 27-34</li> <li>• Shinohara at para. [0027]</li> <li>• Shinohara at para. [0033]</li> <li>• Kasamatsu-US at para. [0015]</li> <li>• Kasamatsu-US at para. [0022]</li> <li>• Kasamatsu-US at para. [0024]</li> <li>• Kasamatsu-US at para. [0048]</li> <li>• Kasamatsu-PCT at para. [0008]</li> <li>• Kasamatsu-PCT at para. [0015]</li> <li>• Kasamatsu-PCT at para. [0016]</li> <li>• Kasamatsu-PCT at para. [0027]</li> <li>• Katayama-US at 4:66-5:13</li> <li>• Katayama-US at 5:42-65</li> <li>• Katayama-US at 13:38-43</li> <li>• Katayama-PCT at para. [0014]</li> <li>• Katayama-PCT at para. [0023]</li> <li>• Katayama-PCT at para. [0065]</li> <li>• Yoshida at para. [0011]</li> <li>• Yoshida at para. [0017]</li> <li>• Yoshida at para. [0025]</li> <li>• Nagayama-PCT at para. [0021]</li> <li>• Igaki at para. [0009]</li> <li>• Igaki at para. [0021]</li> <li>• Kikuchi at para. [0014]</li> <li>• Kikuchi at para. [0028]</li> <li>• Kikuchi at para. [0031]</li> <li>• Kikuchi at para. [0034]</li> </ul>

1e	the thermoplastic resin constitutes a shutdown layer formed of a heat-shrinkable microporous film,	<ul style="list-style-type: none"> <li>• Ko at p. 4, ll. 20-26</li> <li>• Ko at p. 5, ll. 21-33</li> <li>• Ko at p. 7, ll. 21-29</li> <li>• Shinohara at Abstract</li> <li>• Shinohara at para. [0008]</li> <li>• Shinohara at para. [0012]</li> <li>• Shinohara at para. [0016]</li> <li>• Shinohara at para. [0024]</li> <li>• Kasamatsu-US at para. [0029]</li> <li>• Kasamatsu-US at Fig. 1</li> <li>• Kasamatsu-US at para. [0038]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-PCT at para. [0020]</li> <li>• Kasamatsu-PCT at Fig. 1</li> <li>• Kasamatsu-PCT at para. [0023]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Katayama-US at 1:26-36</li> <li>• Katayama-US at 5:14-41</li> <li>• Katayama-US at 11:13-43</li> <li>• Katayama-PCT at para. [0003]</li> <li>• Katayama-PCT at para. [0022]</li> <li>• Katayama-PCT at para. [0051]</li> <li>• Yoshida at para. [0022]</li> <li>• Yoshida at para. [0036]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Igaki at para. [0004]</li> <li>• Igaki at para. [0028]</li> <li>• Kikuchi at para. [0002]</li> <li>• Kikuchi at para. [0012]</li> <li>• Kikuchi at para. [0019]</li> <li>• Kikuchi at para. [0044]</li> </ul>
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#	Claim Language	Prior Art
1f	the heat-resistant layer and the shutdown layer are integrated into a multilayer structure,	<ul style="list-style-type: none"> <li>• Ko at p. 4, ll. 3-6</li> <li>• Ko at p. 4, ll. 16-19</li> <li>• Shinohara at para. [0041]</li> <li>• Shinohara at para. [0047]</li> <li>• Kasamatsu-US at Fig. 1</li> <li>• Kasamatsu-US at para. [0038]</li> <li>• Kasamatsu-PCT at Fig. 1</li> <li>• Kasamatsu-PCT at para. [0023]</li> <li>• Katayama-US at 3:25-36</li> <li>• Katayama-US at 5:14-65</li> <li>• Katayama-PCT at para. [0014]</li> <li>• Katayama-PCT at para. [0022]-[0023]</li> <li>• Yoshida at Fig. 1</li> <li>• Yoshida at para. [0021]</li> <li>• Igaki at para. [0022]</li> <li>• Igaki at Fig. 2</li> <li>• Kikuchi at Abstract</li> <li>• Kikuchi at para. [0012]</li> <li>• Kikuchi at para. [0020]</li> <li>• Kikuchi at para. [0045]</li> </ul>



#	Claim Language	Prior Art
1g	the shutdown layer has a thickness A ( $\mu\text{m}$ ) of 5 to 30, the heat-resistant layer has a thickness B ( $\mu\text{m}$ ) of 1 to 10, a sum of A and B is 6 to 23, and a ratio A/B is 1/2 to 4,	<ul style="list-style-type: none"> <li>• Ko at p. 4, ll. 3-6</li> <li>• Ko at p. 4, l. 27 – p. 5, l. 2</li> <li>• Ko at p. 6, ll. 9-24</li> <li>• Shinohara at para. [0015]</li> <li>• Shinohara at para. [0022]</li> <li>• Shinohara at para. [0025]</li> <li>• Shinohara at para. [0034]-[0035]</li> <li>• Kasamatsu-US at para. [0053]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-US at para. [0094]</li> <li>• Kasamatsu-US at para. [0133]</li> <li>• Kasamatsu-US at para. [0144]</li> <li>• Kasamatsu-PCT at para. [0030]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Kasamatsu-PCT at para. [0056]</li> <li>• Kasamatsu-PCT at para. [0078]</li> <li>• Kasamatsu-PCT at para. [0084]</li> <li>• Katayama-US at 15:62-16:12</li> <li>• Katayama-US at 24:31-44</li> <li>• Katayama-PCT at para. [0080]-[0082]</li> <li>• Katayama-PCT at para. [0127]</li> <li>• Nagayama-US at para. [0035]</li> <li>• Nagayama-PCT at para. [0025]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Igaki at para. [0018]-[0019]</li> <li>• Igaki at para. [0036]</li> <li>• Kikuchi at para. [0111]</li> </ul>

#	Claim Language	Prior Art
1h	a content of the heat-resistant fine particles in the heat-resistant layer is 50 vol % or more of a total volume of components in the heat-resistant layer,	<ul style="list-style-type: none"> <li>• Ko at Abstract</li> <li>• Ko at p. 6, ll. 4-12</li> <li>• Shinohara at para. [0021]</li> <li>• Kasamatsu-US at para. [0049]</li> <li>• Kasamatsu-US at para. [0052]</li> <li>• Kasamatsu-PCT at para. [0017]</li> <li>• Katayama-US at 24:5-11</li> <li>• Katayama-US at 24:45-48</li> <li>• Katayama-PCT at para. [0125]</li> <li>• Katayama-PCT at para. [0128]</li> <li>• Nagayama-US at para. [0034]</li> <li>• Nagayama-PCT at para. [0024]</li> <li>• Kikuchi at para. [0033]</li> </ul>
1i	a proportion of particles with a particle size of 0.2 $\mu\text{m}$ or less in the heat-resistant fine particles is 10 vol % or less and a proportion of particles with a particle size of 2 $\mu\text{m}$ or more in the heat-resistant fine particles is 10 vol % or less, and	<ul style="list-style-type: none"> <li>• Ko at p. 6, ll. 4-12</li> <li>• Shinohara at para. [0029]</li> <li>• Kasamatsu-US at para. [0018]</li> <li>• Kasamatsu-US at para. [0025]</li> <li>• Kasamatsu-US at para. [0046]-[0047]</li> <li>• Kasamatsu-US at para. [0078]</li> <li>• Kasamatsu-PCT at para. [0012]</li> <li>• Kasamatsu-PCT at para. [0028]</li> <li>• Kasamatsu-PCT at para. [0029]</li> <li>• Kasamatsu-PCT at para. [0045]</li> <li>• Katayama-US at 23:52-63</li> <li>• Katayama-PCT at para. [0124]</li> <li>• Yoshida at para. [0026]</li> <li>• Igaki at para. [0023]</li> <li>• Kikuchi at para. [0031]</li> </ul>

#	Claim Language	Prior Art
1j	a shutdown is effected in a range of 135° C. to 150° C.	<ul style="list-style-type: none"> <li>• Ko at p. 4, ll. 20-26</li> <li>• Ko at p. 7, ll. 21-29</li> <li>• Shinohara at para. [0016]</li> <li>• Shinohara at para. [0024]</li> <li>• Kasamatsu-US at para. [0029]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-PCT at para. [0020]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Katayama-US at 7:19-43</li> <li>• Katayama-US at 15:11-18</li> <li>• Katayama-US at 31:49-61</li> <li>• Katayama-US at 33:16-24</li> <li>• Katayama-PCT at para. [0030]</li> <li>• Katayama-PCT at para. [0075]</li> <li>• Katayama-PCT at para. [0181]</li> <li>• Katayama-PCT at para. [0185]</li> <li>• Yoshida at para. [0022]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Igaki at para. [0004]</li> <li>• Kikuchi at para. [0093]</li> </ul>

#	Claim Language	Prior Art
10a	A nonaqueous electrolyte batter[y] comprising:	<ul style="list-style-type: none"> <li>• Ko at p. 4, ll. 20-26</li> <li>• Shinohara at para. [0004]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-PCT at Abstract</li> <li>• Katayama-US at 20:15-35</li> <li>• Katayama-PCT at para. [0104]-[0105]</li> <li>• Yoshida at para. [0002]</li> <li>• Nagayama-US at Abstract</li> <li>• Nagayama-US at para. [0013]</li> <li>• Nagayama-PCT at Abstract</li> <li>• Nagayama-PCT at para. [0008]</li> <li>• Yamaguchi at Abstract</li> <li>• Yamaguchi at para. [0015]</li> <li>• Igaki at para. [0001]</li> <li>• Igaki at para. [0014]</li> <li>• Kikuchi at para. [0002]</li> <li>• Kikuchi at para. [0012]</li> <li>• Kikuchi at para. [0018]</li> </ul>

#	Claim Language	Prior Art
10b	a positive electrode having a positive active material capable of intercalating and deintercalating a lithium ion;	<ul style="list-style-type: none"> <li>• Shinohara at para. [0004]</li> <li>• Shinohara at para. [0062]-[0063]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-US at para. [0092]</li> <li>• Kasamatsu-PCT at para. [0054]</li> <li>• Katayama-US at 20:36-52</li> <li>• Katayama-PCT at para. [0106]</li> <li>• Yoshida at para. [0003]</li> <li>• Yoshida at para. [0032]</li> <li>• Nagayama-US at Abstract</li> <li>• Nagayama-US at claim 1</li> <li>• Nagayama-PCT at Abstract</li> <li>• Nagayama-PCT at claim 1</li> <li>• Yamaguchi at para. [0014]</li> <li>• Yamaguchi at para. [0018]</li> <li>• Yamaguchi at para. [0086]</li> <li>• Igaki at para. [0006]</li> <li>• Igaki at para. [0023]</li> <li>• Igaki at para. [0032]-[0033]</li> <li>• Kikuchi at para. [0100]-[0101]</li> </ul>

#	Claim Language	Prior Art
10c	a negative electrode having a negative active material capable of intercalating and deintercalating a lithium ion;	<ul style="list-style-type: none"> <li>• Shinohara at para. [0004]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-US at para. [0093]</li> <li>• Kasamatsu-PCT at para. [0055]</li> <li>• Katayama-US at 21:4-19</li> <li>• Katayama-PCT at para. [0110]</li> <li>• Yoshida at para. [0003]</li> <li>• Yoshida at para. [0033]</li> <li>• Nagayama-US at Abstract</li> <li>• Nagayama-US at claim 1</li> <li>• Nagayama-PCT at Abstract</li> <li>• Nagayama-PCT at claim 1</li> <li>• Yamaguchi at para. [0014]</li> <li>• Yamaguchi at para. [0018]</li> <li>• Yamaguchi at para. [0088]</li> <li>• Igaki at para. [0006]</li> <li>• Igaki at para. [0023]</li> <li>• Igaki at para. [0032]-[0033]</li> <li>• Kikuchi at para. [0100]-[0101]</li> </ul>

#	Claim Language	Prior Art
10d	a separator interposed between the positive electrode and the negative electrode; and	<ul style="list-style-type: none"> <li>• Shinohara at para. [0009]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-US at para. [0094]</li> <li>• Kasamatsu-PCT at para. [0056]</li> <li>• Katayama-US at 21:39-43</li> <li>• Katayama-PCT at para. [0113]</li> <li>• Yoshida at para. [0013]</li> <li>• Nagayama-US at claim 2</li> <li>• Nagayama-PCT at claim 2</li> <li>• Yamaguchi at para. [0080]</li> <li>• Yamaguchi at para. [0102]</li> <li>• Igaki at para. [0006]</li> <li>• Igaki at para. [0023]</li> <li>• Igaki at para. [0032]</li> <li>• Kikuchi at para. [0100]</li> </ul>



#	Claim Language	Prior Art
10e	a nonaqueous electrolyte,	<ul style="list-style-type: none"> <li>• Shinohara at para. [0059]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-US at para. [0095]</li> <li>• Kasamatsu-PCT at para. [0056]</li> <li>• Katayama-US at 21:44-54</li> <li>• Katayama-PCT at para. [0114]</li> <li>• Yoshida at para. [0002]</li> <li>• Yoshida at para. [0034]</li> <li>• Nagayama-US at claim 2</li> <li>• Nagayama-PCT at Abstract</li> <li>• Yamaguchi at para. [0003]</li> <li>• Yamaguchi at para. [0065]</li> <li>• Igaki at para. [0031]</li> <li>• Igaki at para. [0033]</li> <li>• Igaki at para. [0038]</li> <li>• Kikuchi at para. [0102]</li> </ul>
10f	wherein a heat generation starting temperature of the positive electrode is 180° C. or higher, and	<ul style="list-style-type: none"> <li>• Kasamatsu-US at para. [0024]</li> <li>• Kasamatsu-US at para. [0059]</li> <li>• Kasamatsu-US at para. [0174]</li> <li>• Kasamatsu-PCT at para. [0016]</li> <li>• Kasamatsu-PCT at para. [0034]</li> <li>• Kasamatsu-PCT at para. [0109]</li> <li>• Katayama-US at 15:4-18</li> <li>• Katayama-PCT at para. [0075]</li> <li>• Nagayama-US at para. [0069]</li> <li>• Nagayama-PCT at para. [0033]-[0035]</li> </ul>



#	Claim Language	Prior Art
10g	wherein the separator is the battery separator according to claim 1.	<ul style="list-style-type: none"> <li>• Shinohara at para. [0009]</li> <li>• Kasamatsu-US at Abstract</li> <li>• Kasamatsu-PCT at Abstract</li> <li>• Katayama-US at 20:15-35</li> <li>• Katayama-PCT at para. [0104]-[0105]</li> <li>• Yoshida at para. [0001]</li> <li>• Nagayama-US at claim 2</li> <li>• Nagayama-PCT at claim 2</li> <li>• Yamaguchi at para. [0080]</li> <li>• Igaki at para. [0001]</li> <li>• Igaki at para. [0014]</li> <li>• Kikuchi at para. [0002]</li> <li>• Kikuchi at para. [0012]</li> <li>• Kikuchi at para. [0018]</li> </ul>
23	The battery separator according to claim 1, wherein the shutdown layer has a thickness of 16 $\mu\text{m}$ or less.	<ul style="list-style-type: none"> <li>• Ko at p. 4, l. 27 – p. 5, l. 2</li> <li>• Ko at p. 6, ll. 9-24</li> <li>• Shinohara at para. [0015]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Katayama-US at 15:62-16:12</li> <li>• Katayama-PCT at para. [0080]-[0082]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Igaki at para. [0018]</li> </ul>

#	Claim Language	Prior Art
27	The nonaqueous electrolyte battery according to claim 10, wherein the shutdown layer of the separator has a thickness of 16 $\mu\text{m}$ or less.	<ul style="list-style-type: none"> <li>• Ko at p. 4, l. 27 – p. 5, l. 2</li> <li>• Ko at p. 6, ll. 9-24</li> <li>• Shinohara at para. [0015]</li> <li>• Kasamatsu-US at para. [0061]</li> <li>• Kasamatsu-PCT at para. [0036]</li> <li>• Katayama-US at 15:62-16:12</li> <li>• Katayama-PCT at para. [0080]-[0082]</li> <li>• Katayama-PCT at para. [0127]</li> <li>• Nagayama-PCT at para. [0044]</li> <li>• Igaki at para. [0018]</li> </ul>