

Supporting information

Interpretable machine learning modeling of capacitive deionization for contribution analysis of electrode and process features

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China.

1. Collected raw data

Table S1. Collected dataset from previous publications.

| No. | EC (mg/g) | VW (V) | FR (ml/min) | C _{NaCl} (mg/l) | SSA (m ² /g) | PV (cm ³ /g) | PS _{ave} * (nm) | PV _{micro} (cm ³ /g) | I _D /I _G | N (at. %) | O (at. %) | Ref. |
|-----|--------------|-----------|----------------|-----------------------------|----------------------------|----------------------------|-----------------------------|---|--------------------------------|--------------|--------------|--------------------------------|
| 1 | 6.40 | 1.20 | 9.00 | 390.00 | 651.00 | 0.50 | 3.07 | 0.18 | | | | DOI:10.1016/j.jcis.2014.12.065 |
| 2 | 4.60 | 1.20 | 9.00 | 390.00 | 512.00 | 0.29 | 2.27 | 0.23 | | | | |
| 3 | 10.00 | 1.00 | 25.00 | 292.00 | 1877.00 | 2.40 | 5.11 | 0.30 | 0.92 | | 4.60 | |
| 4 | 5.63 | 0.60 | 25.00 | 292.00 | 1877.00 | 2.40 | 5.11 | 0.30 | 0.92 | | 4.60 | |
| 5 | 8.20 | 0.80 | 25.00 | 292.00 | 1877.00 | 2.40 | 5.11 | 0.30 | 0.92 | | 4.60 | |
| 6 | 12.63 | 1.20 | 25.00 | 292.00 | 1877.00 | 2.40 | 5.11 | 0.30 | 0.92 | | 4.60 | |
| 7 | 3.10 | 0.60 | 25.00 | 292.00 | 747.00 | 1.13 | 6.05 | 0.05 | 0.84 | | 6.20 | |
| 8 | 4.38 | 0.80 | 25.00 | 292.00 | 747.00 | 1.13 | 6.05 | 0.05 | 0.84 | | 6.20 | |
| 9 | 5.00 | 1.00 | 25.00 | 292.00 | 747.00 | 1.13 | 6.05 | 0.05 | 0.84 | | 6.20 | |
| 10 | 6.68 | 1.20 | 25.00 | 292.00 | 747.00 | 1.13 | 6.05 | 0.05 | 0.84 | | 6.20 | |

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|----|-------|------|-------|--------|---------|------|-------|------|------|-------|-------------------------------|----------------------------|
| 11 | 5.87 | 1.20 | 50.00 | 100.00 | 606.40 | 0.33 | 2.18 | | 0.99 | 3.20 | DOI:10.1039/C5CC03999A | |
| 12 | 7.00 | 1.20 | 50.00 | 100.00 | 829.50 | 0.49 | 2.36 | | 1.02 | 5.70 | | |
| 13 | 7.71 | 1.20 | 50.00 | 100.00 | 1187.80 | 0.78 | 2.63 | | 1.05 | 10.40 | | |
| 14 | 10.10 | 1.20 | 50.00 | 250.00 | 1187.80 | 0.78 | 2.63 | | 1.05 | 10.40 | | |
| 15 | 13.86 | 1.20 | 50.00 | 500.00 | 1187.80 | 0.78 | 2.63 | | 1.05 | 10.40 | | |
| 16 | 4.50 | 1.20 | 27.00 | 500.00 | 106.20 | 0.23 | 8.66 | 0.02 | 0.91 | | | |
| 17 | 14.20 | 1.20 | 27.00 | 500.00 | 474.00 | 2.81 | 23.71 | 0.03 | 1.05 | | | |
| 18 | 14.58 | 1.20 | 20.00 | 584.00 | 694.70 | 0.38 | 2.19 | | | 8.30 | DOI:10.1016/j.cej.2019.01.098 | |
| 19 | 20.63 | 1.20 | 20.00 | 584.00 | 842.30 | 0.50 | 2.37 | | | 6.70 | | |
| 20 | 17.22 | 1.20 | 20.00 | 584.00 | 891.50 | 0.46 | 2.06 | | | 4.20 | | |
| 21 | 13.30 | 1.00 | 10.00 | 585.00 | 1860.00 | 1.04 | 2.24 | 0.94 | 0.90 | 0.16 | 7.20 | DOI:10.1002/cssc.201800689 |
| 22 | 5.30 | 1.10 | 10.00 | 585.00 | 1860.00 | 1.04 | 2.24 | 0.94 | 0.90 | 0.16 | 7.20 | |
| 23 | 3.10 | 1.20 | 10.00 | 585.00 | 1860.00 | 1.04 | 2.24 | 0.94 | 0.90 | 0.16 | 7.20 | |
| 24 | 4.50 | 1.20 | 10.00 | 20.00 | 177.63 | 0.09 | 2.12 | 0.06 | | | | DOI: 10.1039/c9en00028c |
| 25 | 4.20 | 1.20 | 10.00 | 20.00 | 114.16 | 0.10 | 3.54 | 0.03 | | | | |

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|----|-------|------|--------|---------|---------|------|-------|------|------|-------------------------|-------------------------------------|
| 26 | 3.13 | 1.20 | 10.00 | 20.00 | 89.30 | 0.04 | 1.84 | 0.03 | | | |
| 27 | 18.54 | 1.20 | 50.00 | 500.00 | 1185.00 | 0.93 | 3.14 | 0.26 | 1.01 | DOI: 10.1039/c9en01216h | |
| 28 | 20.21 | 1.20 | 50.00 | 500.00 | 1198.00 | 0.91 | 3.02 | 0.31 | 1.06 | 1.84 | |
| 29 | 24.17 | 1.20 | 50.00 | 500.00 | 962.00 | 0.84 | 3.48 | 0.20 | 1.07 | 2.60 | |
| 30 | 12.08 | 1.20 | 50.00 | 500.00 | 356.00 | 0.30 | 3.39 | 0.02 | 1.16 | 4.54 | |
| 31 | 14.00 | 1.00 | 50.00 | 500.00 | 962.00 | 0.84 | 3.48 | 0.20 | 1.07 | | |
| 32 | 5.50 | 0.80 | 50.00 | 500.00 | 962.00 | 0.84 | 3.48 | 0.20 | 1.07 | | |
| 33 | 15.00 | 1.20 | 50.00 | 300.00 | 962.00 | 0.84 | 3.48 | 0.20 | 1.07 | | |
| 34 | 10.00 | 1.20 | 50.00 | 100.00 | 962.00 | 0.84 | 3.48 | 0.20 | 1.07 | | |
| 35 | 6.36 | 1.20 | 100.00 | 100.00 | 450.90 | 1.65 | 14.64 | | 1.14 | 0.00 | DOI:10.1016/j.electacta.2016.02.049 |
| 36 | 7.64 | 1.20 | 100.00 | 100.00 | 541.60 | 1.53 | 11.30 | | 1.19 | 0.00 | |
| 37 | 9.86 | 1.20 | 100.00 | 100.00 | 676.90 | 1.98 | 11.70 | | 1.17 | 0.00 | |
| 38 | 15.10 | 1.20 | 100.00 | 300.00 | 676.90 | 1.98 | 11.70 | | 1.17 | 0.00 | |
| 39 | 19.80 | 1.20 | 100.00 | 500.00 | 676.90 | 1.98 | 11.70 | | 1.17 | 0.00 | |
| 40 | 15.60 | 1.50 | 8.00 | 1000.00 | 1100.00 | | 0.00 | 0.60 | | | DOI:10.1016/j.seppur.2020.116593 |

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|----|-------|------|-------|---------|---------|------|-------|------|------------------------------|
| 41 | 11.30 | 1.50 | 8.00 | 1000.00 | 1181.00 | | 0.00 | 0.65 | |
| 42 | 13.50 | 1.50 | 8.00 | 1000.00 | 1113.00 | | 0.00 | 0.61 | |
| 43 | 18.70 | 1.20 | 27.00 | 500.00 | 498.00 | 1.51 | 12.13 | 0.92 | 9.00 DOI: 10.1039/C5TA01889G |
| 44 | 5.28 | 0.60 | 50.00 | 300.00 | 1450.60 | 1.01 | 2.79 | 1.04 | DOI: 10.1038/srep32784 |
| 45 | 7.81 | 0.80 | 50.00 | 300.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 46 | 10.16 | 1.00 | 50.00 | 300.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 47 | 16.98 | 1.20 | 50.00 | 500.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 48 | 12.56 | 1.20 | 50.00 | 300.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 49 | 10.03 | 1.20 | 50.00 | 100.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 50 | 12.56 | 1.20 | 50.00 | 250.00 | 1450.60 | 1.01 | 2.79 | 1.04 | |
| 51 | 5.02 | 0.80 | 50.00 | 300.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 52 | 3.83 | 0.60 | 50.00 | 300.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 53 | 6.02 | 0.80 | 50.00 | 300.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 54 | 8.24 | 1.00 | 50.00 | 300.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 55 | 10.94 | 1.20 | 50.00 | 300.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |

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|----|-------|------|-------|---------|---------|------|-------|------|------------------------|
| 56 | 7.71 | 1.20 | 50.00 | 100.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 57 | 10.10 | 1.20 | 50.00 | 250.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 58 | 13.86 | 1.20 | 50.00 | 500.00 | 1187.80 | 0.78 | 2.63 | 0.99 | |
| 59 | 3.19 | 0.60 | 50.00 | 300.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 60 | 9.25 | 1.20 | 50.00 | 300.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 61 | 6.50 | 1.20 | 50.00 | 100.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 62 | 11.60 | 1.20 | 50.00 | 500.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 63 | 7.29 | 1.00 | 50.00 | 300.00 | 937.40 | 0.70 | 2.99 | 0.89 | |
| 64 | 8.90 | 1.20 | 50.00 | 1000.00 | 149.00 | 0.88 | 23.62 | 0.72 | DOI:10.1039/C6TA00618C |
| 65 | 7.50 | 0.40 | 50.00 | 1000.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 |
| 66 | 20.50 | 1.20 | 50.00 | 1000.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 |
| 67 | 11.40 | 1.20 | 50.00 | 290.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 |
| 68 | 9.45 | 0.60 | 50.00 | 1000.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 |
| 69 | 12.25 | 0.80 | 50.00 | 1000.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 |
| 70 | 2.00 | 0.40 | 50.00 | 1000.00 | 149.00 | 0.88 | 23.62 | 0.72 | |

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|----|-------|------|-------|---------|---------|------|-------|------|------|-----------------------------------|
| 71 | 2.75 | 0.60 | 50.00 | 1000.00 | 149.00 | 0.88 | 23.62 | 0.72 | | |
| 72 | 4.90 | 0.80 | 50.00 | 1000.00 | 149.00 | 0.88 | 23.62 | 0.72 | | |
| 73 | 6.60 | 1.00 | 50.00 | 1000.00 | 149.00 | 0.88 | 23.62 | 0.72 | | |
| 74 | 16.60 | 1.20 | 50.00 | 1000.00 | 825.00 | 0.50 | 2.42 | 1.03 | | |
| 75 | 5.15 | 0.40 | 50.00 | 1000.00 | 825.00 | 0.50 | 2.42 | 1.03 | | |
| 76 | 7.00 | 0.60 | 50.00 | 1000.00 | 825.00 | 0.50 | 2.42 | 1.03 | | |
| 77 | 9.50 | 0.80 | 50.00 | 1000.00 | 825.00 | 0.50 | 2.42 | 1.03 | | |
| 78 | 12.00 | 1.00 | 50.00 | 1000.00 | 825.00 | 0.50 | 2.42 | 1.03 | | |
| 79 | 16.00 | 1.00 | 50.00 | 1000.00 | 898.00 | 1.31 | 5.84 | 0.91 | 9.43 | |
| 80 | 22.19 | 1.20 | 50.00 | 500.00 | 929.00 | 1.60 | 6.89 | 0.22 | 5.29 | DOI: 10.1039/C8TA04813D |
| 81 | 11.25 | 1.20 | 50.00 | 500.00 | 927.00 | 0.78 | 3.37 | 0.31 | | |
| 82 | 21.52 | 1.20 | 20.00 | 500.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | DOI:10.1021/acssuschemeng.7b03015 |
| 83 | 25.16 | 1.40 | 20.00 | 500.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | |
| 84 | 22.11 | 1.40 | 20.00 | 300.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | |
| 85 | 18.62 | 1.40 | 20.00 | 100.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------------------------|
| 86 | 16.26 | 1.00 | 20.00 | 500.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | |
| 87 | 10.00 | 1.40 | 10.00 | 500.00 | 1587.00 | 0.62 | 1.57 | 0.58 | 0.95 | |
| 88 | 19.30 | 1.20 | 50.00 | 500.00 | 2695.00 | 1.15 | 1.71 | | 0.99 | DOI:10.1039/c9en01233h |
| 89 | 9.30 | 1.20 | 50.00 | 500.00 | 493.00 | 0.24 | 1.95 | | 1.17 | |
| 90 | 14.30 | 1.20 | 50.00 | 500.00 | 2207.00 | 0.95 | 1.72 | | 1.13 | |
| 91 | 13.30 | 1.20 | 50.00 | 500.00 | 1371.00 | 0.63 | 1.84 | | 1.07 | |
| 92 | 0.79 | 2.00 | 2.50 | 30.00 | 888.00 | 0.53 | 2.39 | | 0.85 | DOI:10.1039/C8EN01181H |
| 93 | 0.98 | 2.00 | 2.50 | 30.00 | 1579.00 | 0.85 | 2.15 | | 0.95 | |
| 94 | 0.05 | 2.00 | 2.50 | 30.00 | 607.00 | 0.52 | 3.43 | | | |
| 95 | 0.63 | 1.40 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |
| 96 | 0.55 | 1.20 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |
| 97 | 1.18 | 2.00 | 2.50 | 30.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |
| 98 | 1.35 | 2.00 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |
| 99 | 2.35 | 2.00 | 2.50 | 50.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |
| 100 | 5.75 | 2.00 | 2.50 | 250.00 | 1955.00 | 1.35 | 2.76 | | 0.90 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------------------------------------|
| 101 | 5.13 | 1.80 | 2.50 | 250.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 102 | 4.50 | 1.60 | 2.50 | 250.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 103 | 3.88 | 1.40 | 2.50 | 250.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 104 | 2.10 | 1.20 | 2.50 | 250.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 105 | 2.00 | 1.80 | 2.50 | 50.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 106 | 1.63 | 1.60 | 2.50 | 50.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 107 | 1.30 | 1.40 | 2.50 | 50.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 108 | 0.70 | 1.20 | 2.50 | 50.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 109 | 1.13 | 1.80 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 110 | 0.88 | 1.60 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 111 | 0.63 | 1.40 | 2.50 | 25.00 | 1955.00 | 1.35 | 2.76 | 0.90 | |
| 112 | 11.10 | 1.20 | 10.00 | 600.00 | 352.20 | 0.27 | 3.11 | 0.96 | DOI:10.1016/j.jelechem.2019.113307 |
| 113 | 18.60 | 1.20 | 10.00 | 600.00 | 352.20 | 0.31 | 3.52 | 1.04 | |
| 114 | 14.75 | 1.00 | 10.00 | 600.00 | 352.20 | 0.31 | 3.52 | 1.04 | |
| 115 | 12.10 | 0.80 | 10.00 | 600.00 | 352.20 | 0.31 | 3.52 | 1.04 | |

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|-----|-------|------|-------|---------|---------|------|------|------|------|-------|----------------------------------|
| 116 | 12.81 | 1.20 | 50.00 | 1000.00 | 586.90 | 0.55 | 3.75 | | | 7.15 | DOI:10.1016/j.carbon.2018.01.035 |
| 117 | 14.54 | 1.20 | 50.00 | 1000.00 | 603.30 | 0.56 | 3.71 | | | 8.89 | |
| 118 | 16.20 | 1.20 | 50.00 | 1000.00 | 728.20 | 0.65 | 3.57 | | | 10.06 | |
| 119 | 15.03 | 1.20 | 50.00 | 1000.00 | 771.00 | 0.68 | 3.53 | | | 12.15 | |
| 120 | 2.50 | 1.00 | 5.00 | 29.25 | 908.00 | 0.48 | 2.11 | 0.42 | 1.62 | | DOI:j.chemosphere.2018.05.174 |
| 121 | 10.15 | 1.00 | 5.00 | 585.00 | 908.00 | 0.48 | 2.11 | 0.42 | 1.62 | | |
| 122 | 2.90 | 1.00 | 5.00 | 29.25 | 1819.00 | 0.95 | 2.09 | 0.77 | 1.27 | | |
| 123 | 22.50 | 1.00 | 5.00 | 585.00 | 1819.00 | 0.95 | 2.09 | 0.77 | 1.27 | | |
| 124 | 9.98 | 1.00 | 5.00 | 585.00 | 1307.00 | 0.69 | 2.11 | 0.59 | 1.54 | | |
| 125 | 2.40 | 1.00 | 5.00 | 29.25 | 1307.00 | 0.69 | 2.11 | 0.59 | 1.54 | | |
| 126 | 4.06 | 1.20 | 25.00 | 100.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | | DOI:10.1016/j.carbon.2015.12.095 |
| 127 | 2.80 | 1.20 | 25.00 | 50.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | | |
| 128 | 11.90 | 1.20 | 25.00 | 500.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | | |
| 129 | 15.20 | 1.20 | 25.00 | 1000.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | | |
| 130 | 17.50 | 1.20 | 25.00 | 2000.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | | |

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|-----|-------|------|-------|---------|---------|------|------|------|------|-------|
| 131 | 11.87 | 1.20 | 25.00 | 200.00 | 2140.00 | 1.11 | 2.07 | 0.86 | 1.54 | |
| 132 | 4.90 | 1.20 | 25.00 | 500.00 | 690.00 | 0.32 | 1.86 | 0.32 | 1.62 | |
| 133 | 1.17 | 1.20 | 25.00 | 100.00 | 690.00 | 0.32 | 1.86 | 0.32 | 1.62 | |
| 134 | 2.68 | 1.20 | 25.00 | 200.00 | 690.00 | 0.32 | 1.86 | 0.32 | 1.62 | |
| 135 | 5.83 | 1.20 | 25.00 | 1000.00 | 690.00 | 0.32 | 1.86 | 0.32 | 1.62 | |
| 136 | 6.31 | 1.20 | 25.00 | 2000.00 | 690.00 | 0.32 | 1.86 | 0.32 | 1.62 | |
| 137 | 11.31 | 1.20 | 25.00 | 2000.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 138 | 8.20 | 1.20 | 25.00 | 500.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 139 | 1.88 | 1.20 | 25.00 | 50.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 140 | 3.43 | 1.20 | 25.00 | 100.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 141 | 4.18 | 1.20 | 25.00 | 200.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 142 | 10.20 | 1.20 | 25.00 | 1000.00 | 1470.00 | 0.79 | 2.15 | 0.49 | 1.41 | |
| 143 | 2.30 | 1.50 | 26.00 | 600.00 | 240.00 | 0.11 | 1.78 | 0.09 | 0.84 | 14.80 |
| 144 | 4.30 | 1.50 | 26.00 | 600.00 | 353.00 | 0.19 | 2.11 | 0.14 | 0.96 | 15.71 |
| 145 | 3.80 | 1.50 | 26.00 | 600.00 | 381.00 | 0.17 | 1.77 | 0.14 | 0.90 | 12.01 |

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|-----|-------|------|-------|--------|---------|------|-------|------|-------|-------------------------------------|
| 146 | 3.90 | 1.50 | 26.00 | 600.00 | 551.00 | 0.23 | 1.68 | 0.21 | 0.60 | |
| 147 | 2.70 | 1.50 | 26.00 | 600.00 | 491.00 | 0.22 | 1.78 | 0.19 | 0.70 | 7.77 |
| 148 | 1.96 | 1.20 | 25.00 | 20.00 | 1136.00 | 0.65 | 2.29 | | 0.91 | DOI: 10.2166/wst.2016.372 |
| 149 | 6.90 | 1.20 | 10.00 | 250.00 | 1541.00 | 1.56 | 4.05 | 0.47 | | DOI: 10.1039/C9TA12170F |
| 150 | 8.20 | 1.20 | 25.00 | 200.00 | 302.30 | 1.13 | 14.95 | | 1.26 | DOI:10.1016/j.electacta.2019.135420 |
| 151 | 10.20 | 1.20 | 25.00 | 300.00 | 302.30 | 1.13 | 14.95 | | 1.26 | |
| 152 | 13.20 | 1.20 | 25.00 | 500.00 | 302.30 | 1.13 | 14.95 | | 1.26 | |
| 153 | 11.80 | 1.20 | 25.00 | 300.00 | 401.10 | 1.65 | 16.45 | | 1.17 | |
| 154 | 9.70 | 1.20 | 25.00 | 200.00 | 401.10 | 1.65 | 16.45 | | 1.17 | |
| 155 | 15.00 | 1.20 | 25.00 | 500.00 | 401.10 | 1.65 | 16.45 | | 1.17 | |
| 156 | 8.62 | 1.20 | 25.00 | 100.00 | 642.70 | 0.53 | 3.30 | | 8.70 | DOI:10.1016/j.electacta.2018.04.004 |
| 157 | 15.31 | 1.20 | 25.00 | 500.00 | 642.70 | 0.53 | 3.30 | | 8.70 | |
| 158 | 11.25 | 1.20 | 25.00 | 250.00 | 642.70 | 0.53 | 3.30 | | 8.70 | |
| 159 | 6.56 | 1.20 | 25.00 | 250.00 | 934.90 | 0.46 | 1.97 | | 11.90 | |
| 160 | 5.40 | 1.20 | 25.00 | 100.00 | 934.90 | 0.46 | 1.97 | | 11.90 | |

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|-----|-------|------|-------|--------|---------|------|-------|------|-------|-------------------------------------|
| 161 | 9.37 | 1.20 | 25.00 | 500.00 | 934.90 | 0.46 | 1.97 | | 11.90 | |
| 162 | 10.80 | 1.20 | 20.00 | 500.00 | 740.00 | 2.10 | 11.35 | 0.11 | | DOI:10.1016/j.desal.2017.11.036 |
| 163 | 9.43 | 1.20 | 20.00 | 500.00 | 712.00 | 0.40 | 2.25 | 0.29 | | |
| 164 | 9.70 | 1.20 | 20.00 | 500.00 | 1062.00 | 0.59 | 2.21 | 0.32 | | |
| 165 | 10.14 | 1.20 | 20.00 | 500.00 | 1347.00 | 0.76 | 2.27 | 0.34 | | |
| 166 | 3.32 | 1.60 | 50.00 | 50.00 | 1321.00 | 0.59 | 1.79 | | 1.04 | DOI:10.1016/j.electacta.2014.11.086 |
| 167 | 4.77 | 1.60 | 50.00 | 100.00 | 1321.00 | 0.59 | 1.79 | | 1.04 | |
| 168 | 5.62 | 1.60 | 50.00 | 250.00 | 1321.00 | 0.59 | 1.79 | | 1.04 | |
| 169 | 5.81 | 1.60 | 50.00 | 500.00 | 1321.00 | 0.59 | 1.79 | | 1.04 | |
| 170 | 0.55 | 1.00 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | DOI: 10.1039/c2jm32207b |
| 171 | 0.55 | 1.20 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | |
| 172 | 0.58 | 1.40 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | |
| 173 | 0.64 | 1.60 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | |
| 174 | 0.78 | 1.80 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | |
| 175 | 0.85 | 2.00 | 25.00 | 25.00 | 779.00 | 0.41 | 2.11 | 0.18 | | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------|------|-------------------------------------|
| 176 | 2.94 | 1.20 | 25.00 | 50.00 | 779.00 | 0.41 | 2.11 | 0.18 | | | | |
| 177 | 0.25 | 1.60 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 178 | 0.23 | 1.40 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 179 | 0.34 | 1.80 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 180 | 0.21 | 1.20 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 181 | 0.40 | 2.00 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 182 | 0.20 | 1.00 | 25.00 | 25.00 | 963.00 | 0.49 | 2.04 | 0.22 | | | | |
| 183 | 0.41 | 1.20 | 25.00 | 25.00 | 407.00 | 0.30 | 2.95 | 0.09 | | | | |
| 184 | 7.25 | 2.00 | 10.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | DOI:10.1016/j.electacta.2018.12.072 |
| 185 | 6.55 | 2.00 | 15.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 186 | 6.22 | 2.00 | 5.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 187 | 5.20 | 1.40 | 10.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 188 | 6.00 | 1.60 | 10.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 189 | 6.80 | 1.80 | 10.00 | 25.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 190 | 19.43 | 2.00 | 10.00 | 250.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------|------|---------------------------------|
| 191 | 9.31 | 2.00 | 10.00 | 50.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 192 | 11.02 | 2.00 | 10.00 | 125.00 | 1016.00 | 0.78 | 3.07 | 0.30 | 0.94 | 0.46 | 6.99 | |
| 193 | 6.56 | 2.00 | 10.00 | 25.00 | 698.00 | 0.63 | 3.61 | 0.15 | 1.04 | 0.61 | 6.76 | |
| 194 | 7.50 | 2.00 | 10.00 | 50.00 | 698.00 | 0.63 | 3.61 | 0.15 | 1.04 | 0.61 | 6.76 | |
| 195 | 8.43 | 2.00 | 10.00 | 125.00 | 698.00 | 0.63 | 3.61 | 0.15 | 1.04 | 0.61 | 6.76 | |
| 196 | 14.53 | 2.00 | 10.00 | 250.00 | 698.00 | 0.63 | 3.61 | 0.15 | 1.04 | 0.61 | 6.76 | |
| 197 | 6.45 | 2.00 | 10.00 | 25.00 | 633.00 | 0.53 | 3.35 | 0.11 | 0.92 | 0.57 | 8.47 | |
| 198 | 7.08 | 2.00 | 10.00 | 50.00 | 633.00 | 0.53 | 3.35 | 0.11 | 0.92 | 0.57 | 8.47 | |
| 199 | 8.13 | 2.00 | 10.00 | 125.00 | 633.00 | 0.53 | 3.35 | 0.11 | 0.92 | 0.57 | 8.47 | |
| 200 | 13.54 | 2.00 | 10.00 | 250.00 | 633.00 | 0.53 | 3.35 | 0.11 | 0.92 | 0.57 | 8.47 | |
| 201 | 3.30 | 1.20 | 40.00 | 100.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | DOI:10.1016/j.desal.2019.114278 |
| 202 | 4.20 | 1.40 | 40.00 | 100.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | |
| 203 | 5.20 | 1.60 | 40.00 | 100.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | |
| 204 | 4.00 | 1.20 | 40.00 | 100.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |
| 205 | 4.70 | 1.40 | 40.00 | 100.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |

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|-----|-------|------|-------|--------|--------|------|------|------|------|------|-------|--------------------------------|
| 206 | 5.80 | 1.60 | 40.00 | 100.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |
| 207 | 3.30 | 1.20 | 40.00 | 100.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 208 | 3.70 | 1.40 | 40.00 | 100.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 209 | 4.70 | 1.60 | 40.00 | 100.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 210 | 7.20 | 1.20 | 40.00 | 250.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | |
| 211 | 8.20 | 1.40 | 40.00 | 250.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | |
| 212 | 9.30 | 1.60 | 40.00 | 250.00 | 271.50 | 0.12 | 1.83 | 0.11 | 0.52 | 0.00 | 0.82 | |
| 213 | 7.70 | 1.20 | 40.00 | 250.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |
| 214 | 8.70 | 1.40 | 40.00 | 250.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |
| 215 | 10.30 | 1.60 | 40.00 | 250.00 | 361.10 | 0.17 | 1.93 | 0.14 | 0.70 | 0.00 | 0.52 | |
| 216 | 5.20 | 1.20 | 40.00 | 250.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 217 | 6.30 | 1.40 | 40.00 | 250.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 218 | 7.00 | 1.60 | 40.00 | 250.00 | 211.70 | 0.11 | 2.00 | 0.09 | 0.71 | 0.00 | 0.38 | |
| 219 | 13.94 | 1.40 | | 80.00 | 464.89 | 0.36 | 3.10 | 0.01 | 0.88 | 3.90 | 19.97 | DOI:10.1016/j.jcis.2019.04.082 |
| 220 | 21.56 | 1.40 | | 80.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |

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|-----|-------|------|-------|---------|--------|------|------|------|------|-------|-------|------------------------------------|
| 221 | 21.75 | 1.40 | | 80.00 | 818.64 | 0.73 | 3.57 | 0.14 | 0.92 | 3.71 | 9.75 | |
| 222 | 25.00 | 1.00 | | 330.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |
| 223 | 43.05 | 1.20 | | 330.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |
| 224 | 55.79 | 1.40 | | 330.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |
| 225 | 18.74 | 1.20 | | 80.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |
| 226 | 20.97 | 1.20 | | 165.00 | 751.56 | 0.71 | 3.78 | 0.13 | 0.90 | 4.38 | 10.03 | |
| 227 | 8.37 | 1.20 | 50.00 | 1000.00 | 472.20 | 0.47 | 3.98 | | 1.18 | 6.80 | 11.93 | DOI:10.1016/j.jelechem.2018.05.024 |
| 228 | 13.74 | 1.20 | 50.00 | 1000.00 | 650.20 | 0.63 | 3.88 | | 1.05 | 8.78 | 8.47 | |
| 229 | 17.29 | 1.20 | 50.00 | 1000.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 230 | 14.30 | 1.20 | 50.00 | 500.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 231 | 8.22 | 1.20 | 50.00 | 250.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 232 | 7.70 | 0.80 | 50.00 | 1000.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 233 | 14.40 | 1.20 | 80.00 | 1000.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 234 | 17.80 | 1.20 | 20.00 | 1000.00 | 874.50 | 0.78 | 3.57 | | 0.91 | 10.21 | 5.36 | |
| 235 | 12.81 | 1.20 | 50.00 | 1000.00 | 585.00 | 0.55 | 3.76 | | 0.78 | 1.80 | 7.04 | DOI:10.1039/C5TA00435G |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------|----------------------------------|
| 236 | 10.67 | 1.20 | 50.00 | 500.00 | 585.00 | 0.55 | 3.76 | 0.78 | 1.80 | 7.04 | |
| 237 | 6.72 | 1.20 | 50.00 | 200.00 | 585.00 | 0.55 | 3.76 | 0.78 | 1.80 | 7.04 | |
| 238 | 3.75 | 0.60 | 40.00 | 250.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | DOI:10.1016/j.seppur.2019.115918 |
| 239 | 4.16 | 0.60 | 40.00 | 589.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 240 | 3.75 | 0.60 | 40.00 | 50.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 241 | 6.25 | 0.80 | 40.00 | 250.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 242 | 7.20 | 0.80 | 40.00 | 500.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 243 | 5.41 | 0.80 | 40.00 | 50.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 244 | 9.25 | 1.00 | 40.00 | 250.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 245 | 10.37 | 1.00 | 40.00 | 500.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 246 | 8.95 | 1.00 | 40.00 | 50.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 247 | 11.25 | 1.20 | 40.00 | 250.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 248 | 14.20 | 1.20 | 40.00 | 500.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 249 | 10.25 | 1.20 | 40.00 | 50.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |
| 250 | 12.50 | 1.40 | 40.00 | 250.00 | 1025.93 | 1.25 | 4.87 | 1.04 | 3.02 | 4.52 | |

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|-----|-------|------|--------|--------|---------|------|------|------|------|------|------|-----------------------------------|
| 251 | 16.62 | 1.40 | 40.00 | 500.00 | 1025.93 | 1.25 | 4.87 | | 1.04 | 3.02 | 4.52 | |
| 252 | 10.75 | 1.40 | 40.00 | 50.00 | 1025.93 | 1.25 | 4.87 | | 1.04 | 3.02 | 4.52 | |
| 253 | 4.25 | 0.60 | 40.00 | 500.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | DOI:10.1016/j.seppur.2018.09.085 |
| 254 | 6.75 | 0.80 | 40.00 | 500.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 255 | 3.56 | 1.00 | 40.00 | 50.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 256 | 5.57 | 1.20 | 40.00 | 50.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 257 | 9.77 | 1.40 | 40.00 | 50.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 258 | 8.54 | 1.00 | 40.00 | 250.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 259 | 10.72 | 1.20 | 40.00 | 250.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 260 | 14.15 | 1.40 | 40.00 | 250.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 261 | 10.00 | 1.00 | 40.00 | 500.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 262 | 12.10 | 1.20 | 40.00 | 500.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 263 | 17.75 | 1.40 | 40.00 | 500.00 | 1135.00 | 1.89 | 6.66 | | 1.06 | 3.73 | 5.75 | |
| 264 | 7.50 | 1.20 | 100.00 | 200.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | DOI: 10.1021/acs.langmuir.7b03175 |
| 265 | 17.65 | 1.20 | 100.00 | 300.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | |

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|-----|-------|------|--------|--------|---------|------|-------|------|------|------|------|---------------------------------------|
| 266 | 21.30 | 1.20 | 100.00 | 500.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | |
| 267 | 13.00 | 1.00 | 100.00 | 500.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | |
| 268 | 7.40 | 0.80 | 100.00 | 500.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | |
| 269 | 12.30 | 1.20 | 50.00 | 500.00 | 2189.00 | 1.11 | 2.03 | 0.96 | 0.95 | 0.00 | 9.24 | |
| 270 | 6.60 | 1.20 | 24.96 | 292.00 | 747.00 | 1.10 | 5.89 | 0.05 | 0.84 | 0.00 | 6.20 | DOI: 10.1021/acssuschemeng.8b05782 |
| 271 | 11.00 | 1.20 | 24.96 | 292.00 | 947.00 | 2.20 | 9.29 | 0.02 | 0.87 | 0.00 | 9.70 | |
| 272 | 5.50 | 1.20 | 24.96 | 292.00 | 628.00 | 1.40 | 8.92 | 0.05 | 0.83 | 0.00 | 6.40 | |
| 273 | 9.00 | 1.20 | 24.96 | 292.00 | 907.00 | 2.80 | 12.35 | 0.05 | 0.83 | 0.00 | 8.10 | |
| 274 | 8.00 | 1.20 | 24.96 | 292.00 | 884.00 | 2.00 | 9.05 | 0.08 | 0.76 | 0.00 | 8.00 | |
| 275 | 9.05 | 1.20 | 24.96 | 292.00 | 1037.00 | 3.00 | 11.57 | 0.08 | 0.76 | 0.00 | 9.70 | |
| 276 | 10.20 | 1.20 | 24.96 | 292.00 | 1434.00 | 1.86 | 5.19 | 0.52 | | 0.00 | 7.20 | |
| 277 | 12.63 | 1.20 | 24.96 | 292.00 | 1877.00 | 2.70 | 5.75 | 0.66 | | 0.00 | 4.60 | |
| 278 | 14.20 | 1.20 | 24.96 | 292.00 | 1581.00 | 2.60 | 6.58 | 0.42 | | 0.00 | 5.40 | |
| 279 | 9.80 | 1.20 | 24.96 | 292.00 | 1542.00 | 3.90 | 10.12 | 0.48 | | 0.00 | 4.40 | |
| 280 | 9.80 | 1.20 | 24.96 | 292.00 | 1823.00 | 4.20 | 9.22 | 0.53 | | 0.00 | 5.80 | |

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|-----|-------|------|-------|---------|--------|------|------|------|------|-------|-------------------------------------|
| 281 | 6.90 | 1.20 | 40.00 | 100.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | DOI:10.1016/j.apsusc.2016.02.085 |
| 282 | 8.50 | 1.20 | 40.00 | 300.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 283 | 10.28 | 1.20 | 40.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 284 | 12.95 | 1.40 | 40.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 285 | 8.00 | 1.00 | 40.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 286 | 5.94 | 0.80 | 40.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 287 | 8.45 | 1.20 | 20.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 288 | 9.00 | 1.20 | 30.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 289 | 8.00 | 1.20 | 50.00 | 500.00 | 512.00 | 0.70 | 5.47 | 0.86 | 2.92 | 12.62 | |
| 290 | 5.48 | 1.20 | 34.00 | 589.00 | 171.60 | 0.17 | 4.07 | 0.97 | 7.05 | 5.85 | DOI:10.1016/j.electacta.2018.01.044 |
| 291 | 7.08 | 1.40 | 34.00 | 589.00 | 171.60 | 0.17 | 4.07 | 0.97 | 7.05 | 5.85 | |
| 292 | 12.81 | 1.20 | 50.00 | 1000.00 | 586.90 | 0.55 | 3.75 | 1.13 | 0.00 | 7.15 | DOI:10.1016/j.carbon.2018.01.035 |
| 293 | 14.54 | 1.20 | 50.00 | 1000.00 | 603.30 | 0.56 | 3.71 | 1.13 | 0.00 | 8.89 | |
| 294 | 8.31 | 1.20 | 50.00 | 250.00 | 728.20 | 0.65 | 3.57 | 1.13 | 0.00 | 10.06 | |
| 295 | 13.72 | 1.20 | 50.00 | 500.00 | 728.20 | 0.65 | 3.57 | 1.13 | 0.00 | 10.06 | |

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|-----|-------|------|-------|---------|--------|------|-------|------|------|-------|-------|-------------------------------------|
| 296 | 16.20 | 1.20 | 50.00 | 1000.00 | 728.20 | 0.65 | 3.57 | | 1.13 | 0.00 | 10.06 | |
| 297 | 15.03 | 1.20 | 50.00 | 1000.00 | 771.00 | 0.68 | 3.53 | | 1.13 | 0.00 | 12.15 | |
| 298 | 11.80 | 1.20 | 25.00 | 200.00 | 439.00 | 1.81 | 16.49 | | 1.13 | 10.60 | 6.63 | DOI:10.1016/j.electacta.2019.135420 |
| 299 | 13.40 | 1.20 | 25.00 | 300.00 | 439.00 | 1.81 | 16.49 | | 1.13 | 10.60 | 6.63 | |
| 300 | 16.70 | 1.20 | 25.00 | 500.00 | 439.00 | 1.81 | 16.49 | | 1.13 | 10.60 | 6.63 | |
| 301 | 12.25 | 1.40 | 40.00 | 500.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | DOI: 10.1039/C6TA02420C |
| 302 | 11.38 | 1.40 | 40.00 | 500.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 303 | 8.04 | 1.00 | 40.00 | 100.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 304 | 8.75 | 1.20 | 40.00 | 100.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 305 | 9.31 | 1.40 | 40.00 | 100.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 306 | 12.43 | 1.40 | 40.00 | 300.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 307 | 16.63 | 1.40 | 40.00 | 500.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 308 | 8.48 | 1.40 | 20.00 | 100.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 309 | 7.96 | 1.40 | 60.00 | 100.00 | 813.00 | 0.65 | 3.20 | 0.25 | 1.11 | 6.34 | 10.52 | |
| 310 | 4.70 | 1.00 | 40.00 | 100.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------|-------|----------------------------------|
| 311 | 5.90 | 1.20 | 40.00 | 100.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | |
| 312 | 6.80 | 1.40 | 40.00 | 100.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | |
| 313 | 9.90 | 1.40 | 40.00 | 300.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | |
| 314 | 12.20 | 1.40 | 40.00 | 500.00 | 898.00 | 0.65 | 2.89 | 0.30 | 1.20 | 7.59 | 8.17 | |
| 315 | 3.67 | 1.00 | 40.00 | 100.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 316 | 3.93 | 1.20 | 40.00 | 100.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 317 | 4.76 | 1.40 | 40.00 | 100.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 318 | 9.39 | 1.40 | 40.00 | 300.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 319 | 11.25 | 1.40 | 40.00 | 500.00 | 398.00 | 0.55 | 5.52 | 0.07 | 0.93 | 2.04 | 12.84 | |
| 320 | 13.50 | 1.20 | 15.00 | 500 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | DOI:10.1016/j.apsusc.2020.146485 |
| 321 | 12.00 | 1.60 | 15.00 | 100 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | |
| 322 | 34.00 | 1.60 | 15.00 | 250 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | |
| 323 | 40.00 | 1.60 | 15.00 | 500 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | |
| 324 | 45.00 | 1.60 | 15.00 | 1000 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | |
| 325 | 65.00 | 1.60 | 15.00 | 2000 | 4482.00 | | 0.00 | | 1.05 | 0.47 | 10.22 | |

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|-----|-------|------|-------|--------|--------|------|------|------|-------|-------|-------------------------------------|
| 326 | 9.55 | 1.60 | 15.00 | 800.00 | 80.58 | 0.13 | 6.40 | 1.18 | 0.00 | 14.92 | DOI:10.1016/j.electacta.2020.135639 |
| 327 | 9.50 | 1.60 | 15.00 | 500 | 80.58 | 0.13 | 6.40 | 1.18 | 0.00 | 14.92 | |
| 328 | 8.90 | 1.60 | 15.00 | 200.00 | 80.58 | 0.13 | 6.40 | 1.18 | 0.00 | 14.92 | |
| 329 | 7.49 | 1.60 | 15.00 | 100.00 | 80.58 | 0.13 | 6.40 | 1.18 | 0.00 | 14.92 | |
| 330 | 2.00 | 1.60 | 15.00 | 50.00 | 80.58 | 0.13 | 6.40 | 1.18 | 0.00 | 14.92 | |
| 331 | 19.57 | 1.60 | 15.00 | 500 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 332 | 20.69 | 1.60 | 15.00 | 800.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 333 | 14.45 | 1.60 | 15.00 | 100.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 334 | 17.00 | 1.60 | 15.00 | 200.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 335 | 11.00 | 1.60 | 15.00 | 50.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 336 | 10.80 | 1.30 | 15.00 | 100.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 337 | 7.37 | 1.00 | 15.00 | 100.00 | 574.14 | 0.50 | 3.51 | 1.25 | 9.63 | 13.53 | |
| 338 | 10.79 | 1.60 | 15.00 | 100.00 | 390.11 | 0.24 | 2.46 | 1.21 | 14.33 | 7.75 | |
| 339 | 9.50 | 1.60 | 15.00 | 50.00 | 390.11 | 0.24 | 2.46 | 1.21 | 14.33 | 7.75 | |
| 340 | 12.25 | 1.60 | 15.00 | 200.00 | 390.11 | 0.24 | 2.46 | 1.21 | 14.33 | 7.75 | |

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|-----|-------|------|-------|--------|---------|------|-------|------|------|-------|------|----------------------------------|
| 341 | 13.52 | 1.60 | 15.00 | 800.00 | 390.11 | 0.24 | 2.46 | | 1.21 | 14.33 | 7.75 | |
| 342 | 13.25 | 1.60 | 15.00 | 500 | 390.11 | 0.24 | 2.46 | | 1.21 | 14.33 | 7.75 | |
| 343 | 1.00 | 1.20 | 15.00 | 500 | 4.50 | 0.02 | 21.33 | 0.00 | 0.97 | 3.26 | 5.17 | DOI:10.1016/j.apsusc.2020.146485 |
| 344 | 12.50 | 1.60 | 25.00 | 500.00 | 512.00 | 0.47 | 3.67 | 0.15 | 1.31 | 12.50 | 6.70 | DOI:10.1016/j.carbon.2017.01.084 |
| 345 | 8.43 | 1.60 | 25.00 | 250.00 | 512.00 | 0.47 | 3.67 | 0.15 | 1.31 | 12.50 | 6.70 | |
| 346 | 6.45 | 1.60 | 25.00 | 100.00 | 512.00 | 0.47 | 3.67 | 0.15 | 1.31 | 12.50 | 6.70 | |
| 347 | 13.12 | 1.60 | 25.00 | 100.00 | 1670.00 | 1.12 | 2.68 | 0.48 | 1.01 | 2.50 | 4.50 | DOI:10.1016/j.carbon.2017.01.084 |
| 348 | 15.69 | 1.60 | 25.00 | 250.00 | 1670.00 | 1.12 | 2.68 | 0.48 | 1.01 | 2.50 | 4.50 | |
| 349 | 18.75 | 1.60 | 25.00 | 500.00 | 1670.00 | 1.12 | 2.68 | 0.48 | 1.01 | 2.50 | 4.50 | |
| 350 | 17.29 | 1.60 | 25.00 | 500.00 | 647.00 | 0.63 | 3.89 | 0.21 | 1.26 | 9.70 | 5.30 | |
| 351 | 12.57 | 1.60 | 25.00 | 250.00 | 647.00 | 0.63 | 3.89 | 0.21 | 1.26 | 9.70 | 5.30 | |
| 352 | 9.06 | 1.60 | 25.00 | 100.00 | 647.00 | 0.63 | 3.89 | 0.21 | 1.26 | 9.70 | 5.30 | |
| 353 | 18.70 | 1.60 | 25.00 | 250.00 | 1082.00 | 0.85 | 3.14 | 0.35 | 1.12 | 5.20 | 4.80 | |
| 354 | 20.02 | 1.60 | 25.00 | 500.00 | 1082.00 | 0.85 | 3.14 | 0.35 | 1.12 | 5.20 | 4.80 | |
| 355 | 16.50 | 1.60 | 25.00 | 100.00 | 1082.00 | 0.85 | 3.14 | 0.35 | 1.12 | 5.20 | 4.80 | |

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|-----|-------|------|-------|---------|---------|------|------|------|-------|-------|-------------------------------------|
| 356 | 31.30 | 1.20 | 10.00 | 1000.00 | 2564.99 | 1.65 | 2.57 | 0.53 | 11.19 | 5.43 | DOI:10.1016/j.electacta.2019.134665 |
| 357 | 23.31 | 0.80 | 10.00 | 1000.00 | 2564.99 | 1.65 | 2.57 | 0.53 | 11.19 | 5.43 | |
| 358 | 25.61 | 1.20 | 10.00 | 500.00 | 2564.99 | 1.65 | 2.57 | 0.53 | 11.19 | 5.43 | |
| 359 | 21.99 | 1.20 | 10.00 | 250.00 | 2564.99 | 1.65 | 2.57 | 0.53 | 11.19 | 5.43 | |
| 360 | 11.67 | 1.20 | 10.00 | 250.00 | 674.43 | 0.32 | 1.90 | 0.27 | 4.79 | 10.09 | |
| 361 | 13.75 | 1.20 | 10.00 | 500.00 | 674.43 | 0.32 | 1.90 | 0.27 | 4.79 | 10.09 | |
| 362 | 17.75 | 1.20 | 10.00 | 1000.00 | 674.43 | 0.32 | 1.90 | 0.27 | 4.79 | 10.09 | |
| 363 | 11.50 | 0.80 | 10.00 | 1000.00 | 674.43 | 0.32 | 1.90 | 0.27 | 4.79 | 10.09 | |
| 364 | 15.00 | 1.00 | 10.00 | 1000.00 | 674.43 | 0.32 | 1.90 | 0.27 | 4.79 | 10.09 | |
| 365 | 14.40 | 1.20 | 10.00 | 250.00 | 3276.28 | 2.23 | 2.72 | 0.83 | 1.91 | 8.05 | |
| 366 | 13.37 | 0.80 | 10.00 | 1000.00 | 3276.28 | 2.23 | 2.72 | 0.83 | 1.91 | 8.05 | |
| 367 | 20.25 | 1.20 | 10.00 | 1000.00 | 3276.28 | 2.23 | 2.72 | 0.83 | 1.91 | 8.05 | |
| 368 | 16.25 | 1.20 | 10.00 | 500.00 | 3276.28 | 2.23 | 2.72 | 0.83 | 1.91 | 8.05 | |
| 369 | 17.50 | 1.00 | 10.00 | 1000.00 | 3276.28 | 2.23 | 2.72 | 0.83 | 1.91 | 8.05 | |
| 370 | 27.66 | 1.00 | 10.00 | 1000.00 | 2564.99 | 1.65 | 2.57 | 0.53 | 11.19 | 5.43 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|-------|---------------------------------------|
| 371 | 3.20 | 1.20 | 40.00 | 500.00 | 1700.00 | 1.43 | 3.36 | 0.74 | 0.09 | 5.58 | DOI: 10.1021/acssuschemeng.7b02307 |
| 372 | 6.60 | 1.20 | 40.00 | 500.00 | 1247.00 | 1.47 | 4.71 | 0.54 | 0.17 | 11.01 | |
| 373 | 12.25 | 1.20 | 40.00 | 200.00 | 2254.00 | 1.10 | 1.96 | 0.96 | 1.30 | 7.30 | |
| 374 | 16.30 | 1.20 | 40.00 | 500.00 | 2254.00 | 1.10 | 1.96 | 0.96 | 1.30 | 7.30 | |
| 375 | 15.09 | 1.20 | 25.00 | 100.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 DOI: 10.1039/c9en00773c |
| 376 | 18.15 | 1.20 | 25.00 | 300.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 377 | 23.42 | 1.20 | 25.00 | 500.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 378 | 19.83 | 1.20 | 40.00 | 500.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 379 | 16.74 | 1.20 | 60.00 | 500.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 380 | 19.68 | 0.80 | 25.00 | 500.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 381 | 15.46 | 1.00 | 25.00 | 500.00 | 1143.00 | 0.97 | 3.39 | 0.39 | 1.08 | 10.56 | 8.45 |
| 382 | 16.50 | 1.20 | 25.00 | 500.00 | 605.00 | 1.02 | 6.74 | 0.72 | 1.01 | 4.95 | 8.51 |
| 383 | 20.70 | 1.20 | 25.00 | 500.00 | 935.00 | 0.85 | 3.64 | 0.42 | 1.05 | 7.67 | 11.05 |
| 384 | 14.00 | 1.20 | 25.00 | 500.00 | 554.00 | 0.48 | 3.47 | 0.48 | 0.98 | | |
| 385 | 12.90 | 1.20 | 25.00 | 500.00 | 494.00 | 0.41 | 3.32 | 0.64 | 1.02 | | |

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|-----|-------|------|-------|--------|--------|------|-------|------|------|------|------|---------------------------------------|
| 386 | 16.10 | 1.40 | 30.00 | 500.00 | 910.00 | 3.49 | 15.34 | 0.13 | 0.99 | 3.10 | 8.20 | DOI: 10.1021/acssuschemeng.6b03183 |
| 387 | 3.40 | 0.80 | 30.00 | 100.00 | 910.00 | 3.49 | 15.34 | 0.13 | 0.99 | 3.10 | 8.20 | |
| 388 | 8.50 | 1.40 | 30.00 | 100.00 | 910.00 | 3.49 | 15.34 | 0.13 | 0.99 | 3.10 | 8.20 | |
| 389 | 14.20 | 1.40 | 30.00 | 300.00 | 910.00 | 3.49 | 15.34 | 0.13 | 0.99 | 3.10 | 8.20 | |
| 390 | 12.70 | 1.40 | 30.00 | 500.00 | 534.00 | 2.50 | 18.73 | 0.15 | 1.03 | | | |
| 391 | 2.70 | 0.80 | 30.00 | 100.00 | 534.00 | 2.50 | 18.73 | 0.15 | 1.03 | | | |
| 392 | 6.90 | 1.40 | 30.00 | 100.00 | 534.00 | 2.50 | 18.73 | 0.15 | 1.03 | | | |
| 393 | 26.20 | 1.60 | 10.00 | 250.00 | 459.32 | 1.27 | 11.07 | | 1.01 | 3.46 | 9.17 | DOI:10.1016/j.cej.2019.122514 |
| 394 | 22.50 | 2.00 | 10.00 | 250.00 | 459.32 | 1.27 | 11.07 | | 1.01 | 3.46 | 9.17 | |
| 395 | 20.15 | 1.20 | 10.00 | 250.00 | 459.32 | 1.27 | 11.07 | | 1.01 | 3.46 | 9.17 | |
| 396 | 14.38 | 0.80 | 10.00 | 250.00 | 459.32 | 1.27 | 11.07 | | 1.01 | 3.46 | 9.17 | |
| 397 | 15.93 | 1.60 | 10.00 | 250.00 | 718.25 | 1.17 | 6.54 | | 0.88 | 0.00 | 3.95 | |
| 398 | 14.38 | 2.00 | 10.00 | 250.00 | 718.25 | 1.17 | 6.54 | | 0.88 | 0.00 | 3.95 | |
| 399 | 13.13 | 1.20 | 10.00 | 250.00 | 718.25 | 1.17 | 6.54 | | 0.88 | 0.00 | 3.95 | |
| 400 | 10.30 | 0.80 | 10.00 | 250.00 | 718.25 | 1.17 | 6.54 | | 0.88 | 0.00 | 3.95 | |

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|-----|-------|------|-------|---------|---------|------|------|------|------|------|-------------------------|---------------------------------------|
| 401 | 8.40 | 1.50 | 20.00 | 50.00 | 861.00 | 1.61 | 7.48 | | 0.46 | 4.47 | DOI: 10.1039/C8EN01181H | |
| 402 | 17.70 | 1.50 | 20.00 | 500.00 | 861.00 | 1.61 | 7.48 | | 0.46 | 4.47 | | |
| 403 | 10.00 | 1.50 | 20.00 | 100.00 | 861.00 | 1.61 | 7.48 | | 0.46 | 4.47 | | |
| 404 | 5.70 | 1.50 | 20.00 | 500.00 | 268.00 | 0.23 | 3.43 | 0.10 | 0.73 | 5.32 | | |
| 405 | 3.20 | 1.50 | 20.00 | 50.00 | 268.00 | 0.23 | 3.43 | 0.10 | 0.73 | 5.32 | | |
| 406 | 4.50 | 1.50 | 20.00 | 100.00 | 268.00 | 0.23 | 3.43 | 0.10 | 0.73 | 5.32 | | |
| 407 | 8.15 | 1.50 | 20.00 | 100.00 | 523.00 | 0.27 | 2.07 | 0.22 | 0.44 | 7.53 | | |
| 408 | 8.00 | 1.50 | 20.00 | 50.00 | 523.00 | 0.27 | 2.07 | 0.22 | 0.44 | 7.53 | | |
| 409 | 9.10 | 1.50 | 20.00 | 500.00 | 523.00 | 0.27 | 2.07 | 0.22 | 0.44 | 7.53 | | |
| 410 | 11.16 | 1.00 | 40.00 | 500.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | DOI: 10.1021/acssuschemeng.7b00551 |
| 411 | 16.27 | 1.20 | 40.00 | 500.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | |
| 412 | 18.27 | 1.40 | 40.00 | 500.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | |
| 413 | 16.84 | 1.40 | 40.00 | 300.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | |
| 414 | 20.78 | 1.40 | 40.00 | 1000.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | |
| 415 | 12.25 | 1.40 | 20.00 | 500.00 | 2726.00 | 1.73 | 2.54 | | 1.06 | 0.70 | 15.34 | |

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|-----|--------------|------|-------|---------|---------|------|------|------|------|-------|------------------------------------|
| 416 | 16.30 | 1.40 | 60.00 | 500.00 | 2726.00 | 1.73 | 2.54 | 1.06 | 0.70 | 15.34 | |
| 417 | 1.00 | 1.10 | 9.20 | 500.00 | 90.00 | 0.04 | 1.78 | 1.03 | 0.70 | 7.00 | DOI: 10.1021/acs.est.7b01629 |
| 418 | 15.60 | 1.10 | 9.20 | 500.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 419 | 8.30 | 1.10 | 9.20 | 100.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 420 | 13.10 | 1.10 | 9.20 | 300.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 421 | 20.80 | 1.10 | 9.20 | 1000.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 422 | 17.00 | 1.10 | 9.20 | 5000.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 423 | 18.00 | 1.10 | 9.20 | 3000.00 | 2853.00 | 0.48 | 0.67 | 0.87 | 0.60 | 4.80 | |
| 424 | 31.90 | 1.20 | 15.00 | 500.00 | 1226.00 | 0.72 | 2.35 | 0.94 | 2.67 | 21.34 | DOI: 10.1039/c9ew00239a |
| 425 | 33.12 | 1.20 | 15.00 | 1000.00 | 1226.00 | 0.72 | 2.35 | 0.94 | 2.67 | 21.34 | |
| 426 | 23.12 | 1.20 | 15.00 | 300.00 | 1226.00 | 0.72 | 2.35 | 0.94 | 2.67 | 21.34 | |
| 427 | 21.87 | 1.20 | 15.00 | 100.00 | 1226.00 | 0.72 | 2.35 | 0.94 | 2.67 | 21.34 | |
| 428 | 14.06 | 1.20 | 15.00 | 40.00 | 1226.00 | 0.72 | 2.35 | 0.94 | 2.67 | 21.34 | |
| 429 | 3.75 | 1.20 | 50.00 | 100.00 | 792.40 | 0.41 | 2.07 | | 4.60 | 13.10 | DOI:10.1016/j.jelechem.2017.09.062 |
| 430 | 12.02 | 1.20 | 50.00 | 1000.00 | 792.40 | 0.41 | 2.07 | | 4.60 | 13.10 | |

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|-----|-------|------|-------|---------|---------|------|------|------|------|-------|---------------------------------------|---------------------------------------|
| 431 | 9.75 | 1.20 | 50.00 | 500.00 | 792.40 | 0.41 | 2.07 | | 4.60 | 13.10 | | |
| 432 | 6.60 | 1.20 | 50.00 | 250.00 | 792.40 | 0.41 | 2.07 | | 4.60 | 13.10 | | |
| 433 | 4.87 | 1.20 | 50.00 | 100.00 | 905.30 | 0.58 | 2.56 | | 4.90 | 13.00 | | |
| 434 | 12.38 | 1.20 | 50.00 | 500.00 | 905.30 | 0.58 | 2.56 | | 4.90 | 13.00 | | |
| 435 | 8.25 | 1.20 | 50.00 | 250.00 | 905.30 | 0.58 | 2.56 | | 4.90 | 13.00 | | |
| 436 | 16.56 | 1.20 | 50.00 | 1000.00 | 905.30 | 0.58 | 2.56 | | 4.90 | 13.00 | | |
| 437 | 1.74 | 0.80 | 5.00 | 30.00 | 2535.00 | 1.50 | 2.37 | 0.81 | 1.80 | 20.67 | DOI: 10.1021/acssuschemeng.5b01587 | |
| 438 | 2.73 | 1.00 | 5.00 | 30.00 | 2535.00 | 1.50 | 2.37 | 0.81 | 1.80 | 20.67 | | |
| 439 | 3.24 | 1.20 | 5.00 | 30.00 | 2535.00 | 1.50 | 2.37 | 0.81 | 1.80 | 20.67 | | |
| 440 | 7.75 | 1.20 | 5.00 | 580.00 | 2535.00 | 1.50 | 2.37 | 0.81 | 1.80 | 20.67 | | |
| 441 | 11.87 | 1.60 | 25.00 | 100.00 | 1099.00 | 1.13 | 4.11 | | 1.01 | 3.70 | 6.10 | DOI: 10.1021/acssuschemeng.7b00884 |
| 442 | 13.75 | 1.60 | 25.00 | 250.00 | 1099.00 | 1.13 | 4.11 | | 1.01 | 3.70 | 6.10 | |
| 443 | 16.60 | 1.60 | 25.00 | 500.00 | 1099.00 | 1.13 | 4.11 | | 1.01 | 3.70 | 6.10 | |
| 444 | 11.87 | 1.60 | 25.00 | 250.00 | 1230.00 | 1.35 | 4.39 | | 0.94 | 0.00 | 7.40 | |
| 445 | 13.77 | 1.60 | 25.00 | 500.00 | 1230.00 | 1.35 | 4.39 | | 0.94 | 0.00 | 7.40 | |

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|-----|-------|------|-------|--------|---------|------|------|------|------|------|-------|---------------------------------------|
| 446 | 8.75 | 1.60 | 25.00 | 100.00 | 1230.00 | 1.35 | 4.39 | | 0.94 | 0.00 | 7.40 | |
| 447 | 8.75 | 1.60 | 25.00 | 250.00 | 1166.00 | 0.78 | 2.68 | | 0.96 | 0.00 | 7.60 | |
| 448 | 6.37 | 1.60 | 25.00 | 100.00 | 1166.00 | 0.78 | 2.68 | | 0.96 | 0.00 | 7.60 | |
| 449 | 10.12 | 1.60 | 25.00 | 500.00 | 1166.00 | 0.78 | 2.68 | | 0.96 | 0.00 | 7.60 | |
| 450 | 7.70 | 1.00 | 10.00 | 250.00 | 1679.00 | 1.81 | 4.31 | 0.46 | 1.01 | 4.20 | 7.55 | DOI: 10.1039/C9TA12170F |
| 451 | 10.30 | 1.20 | 10.00 | 250.00 | 1679.00 | 1.81 | 4.31 | 0.46 | 1.01 | 4.20 | 7.55 | |
| 452 | 18.10 | 1.40 | 10.00 | 250.00 | 1679.00 | 1.81 | 4.31 | 0.46 | 1.01 | 4.20 | 7.55 | |
| 453 | 4.65 | 1.20 | 10.00 | 250.00 | 402.00 | 0.68 | 6.77 | 0.05 | | 3.82 | 6.32 | |
| 454 | 7.80 | 0.80 | 25.00 | 500.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | DOI: 10.1021/acssuschemeng.9b00233 |
| 456 | 10.70 | 1.00 | 25.00 | 500.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | |
| 457 | 14.50 | 1.20 | 25.00 | 500.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | |
| 458 | 21.10 | 1.40 | 25.00 | 500.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | |
| 459 | 17.60 | 1.40 | 25.00 | 400.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | |
| 460 | 13.50 | 1.40 | 25.00 | 300.00 | 341.00 | 0.51 | 5.98 | | 1.26 | 0.00 | 17.70 | |
| 461 | 10.87 | 1.20 | 50.00 | 250.00 | 1640.00 | 0.79 | 1.93 | | | 6.70 | 3.00 | DOI:10.1016/j.electacta.2015.01.179 |

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|-----|-------|------|-------|---------|---------|------|------|------|-------|-------|----------------------------------|
| 462 | 13.71 | 1.20 | 50.00 | 500.00 | 1640.00 | 0.79 | 1.93 | | 6.70 | 3.00 | |
| 463 | 14.91 | 1.20 | 50.00 | 1000.00 | 1640.00 | 0.79 | 1.93 | | 6.70 | 3.00 | |
| 464 | 2.46 | 1.40 | 5.00 | 500.00 | 2006.13 | 0.96 | 1.91 | | 0.00 | 11.37 | DOI: 10.2166/wrd.2020.052 |
| 465 | 15.52 | 1.40 | 5.00 | 500.00 | 1907.45 | 0.92 | 1.92 | | 0.00 | 32.09 | |
| 466 | 10.43 | 1.40 | 5.00 | 500.00 | 1199.65 | 0.57 | 1.88 | | 2.69 | 18.50 | |
| 467 | 9.22 | 1.40 | 5.00 | 500.00 | 1918.74 | 0.90 | 1.87 | | 13.77 | 18.27 | |
| 468 | 7.14 | 1.40 | 5.00 | 500.00 | 1278.53 | 0.60 | 1.87 | | 3.11 | 12.47 | |
| 469 | 4.63 | 1.40 | 5.00 | 500.00 | 1928.33 | 0.92 | 1.90 | | 0.00 | 9.41 | |
| 470 | 5.80 | 1.20 | 25.00 | 600.00 | 2652.00 | 1.38 | 2.08 | 1.06 | 0.60 | 8.60 | DOI:10.1016/j.carbon.2017.07.071 |
| 471 | 5.10 | 1.40 | 25.00 | 600.00 | 2652.00 | 1.38 | 2.08 | 1.06 | 0.60 | 8.60 | |
| 472 | 12.60 | 1.20 | 25.00 | 600.00 | 2041.00 | 1.05 | 2.06 | 0.44 | 0.80 | 9.80 | |
| 473 | 11.70 | 1.40 | 25.00 | 600.00 | 2041.00 | 1.05 | 2.06 | 0.44 | 0.80 | 9.80 | |
| 474 | 14.30 | 1.20 | 25.00 | 600.00 | 1484.00 | 0.64 | 1.73 | 0.59 | 0.80 | 10.70 | |
| 475 | 14.90 | 1.40 | 25.00 | 600.00 | 1484.00 | 0.64 | 1.73 | 0.59 | 0.80 | 10.70 | |
| 476 | 13.10 | 1.20 | 25.00 | 600.00 | 1268.00 | 0.53 | 1.67 | 0.50 | 0.90 | 8.9 | |

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|-----|-------|------|-------|--------|---------|------|-------|------|------|------|----------------------------------|---------------------------------|
| 477 | 13.70 | 1.40 | 25.00 | 600.00 | 1268.00 | 0.53 | 1.67 | 0.50 | 0.90 | 8.90 | | |
| 478 | 6.60 | 1.20 | 25.00 | 100.00 | 609.00 | 0.49 | 3.22 | | 0.00 | 5.30 | DOI:10.1016/j.seppur.2016.04.007 | |
| 479 | 8.49 | 1.20 | 25.00 | 250.00 | 609.00 | 0.49 | 3.22 | | 0.00 | 5.30 | | |
| 480 | 10.20 | 1.20 | 25.00 | 500.00 | 609.00 | 0.49 | 3.22 | | 0.00 | 5.30 | | |
| 481 | 8.65 | 1.20 | 25.00 | 100.00 | 730.00 | 0.70 | 3.84 | | 9.70 | 4.90 | | |
| 482 | 10.47 | 1.20 | 25.00 | 250.00 | 730.00 | 0.70 | 3.84 | | 9.70 | 4.90 | | |
| 483 | 13.76 | 1.20 | 25.00 | 500.00 | 730.00 | 0.70 | 3.84 | | 9.70 | 4.90 | | |
| 484 | 21.00 | 1.50 | 27.00 | 500.00 | 526.7 | 3.13 | | 1.16 | 8.50 | 0.76 | DOI: 10.1038/srep11225 | |
| 485 | 8.04 | 1.50 | 27.00 | 50.00 | 526.7 | 3.13 | | 1.16 | 8.50 | 0.76 | | |
| 486 | 4.50 | 1.50 | 27.00 | 500.00 | 150.50 | 0.83 | 22.06 | | 0.93 | 8.40 | | |
| 487 | 2.36 | 1.50 | 27.00 | 50.00 | 150.50 | 0.83 | 22.06 | | 0.93 | 8.40 | | |
| 488 | 5.51 | 1.50 | 27.00 | 50.00 | 356.00 | 1.51 | 16.97 | | 1.05 | 7.70 | | |
| 489 | 14.60 | 1.50 | 27.00 | 500.00 | 356.00 | 1.51 | 16.97 | | 1.05 | 7.70 | | |
| 490 | 6.25 | 1.20 | 40.00 | 500.00 | 1400.00 | 1.55 | 4.43 | | 1.10 | 0.20 | 14.70 | DOI:10.1016/j.desal.2015.08.009 |
| 491 | 7.38 | 1.20 | 40.00 | 500.00 | 1437.00 | 1.65 | 4.59 | | 0.93 | 0.70 | 9.70 | |

| | | | | | | | | | | | | |
|-----|---------------|------|-------|--------|---------|------|------|------|------|------|-------|----------------------------------|
| 492 | 6.60 | 1.20 | 40.00 | 500.00 | 1452.00 | 1.47 | 4.05 | | 0.87 | 0.30 | 8.50 | |
| 493 | 3.35 | 1.20 | 40.00 | 500.00 | 709.00 | 0.87 | 4.91 | | 0.99 | 0.50 | 5.60 | |
| 494 | 4.30 | 1.20 | 40.00 | 500.00 | 732.00 | 0.29 | 1.58 | | 0.94 | 0.80 | 8.10 | |
| 495 | 15.30 | 1.00 | 10.00 | 585.00 | 1838.00 | 0.82 | 1.78 | 0.79 | 0.90 | 0.25 | 2.44 | DOI:10.1002/cssc.201800689 |
| 496 | 16.8(+ -3) | 1.10 | 10.00 | 585.00 | 1838.00 | 0.82 | 1.78 | 0.79 | 0.90 | 0.25 | 2.44 | |
| 497 | 16.8(+ -4) | 1.20 | 10.00 | 585.00 | 1838.00 | 0.82 | 1.78 | 0.79 | 0.90 | 0.25 | 2.44 | |
| 498 | 10.54 | 1.20 | 10.00 | 500.00 | 2600.00 | 2.12 | 3.26 | 0.98 | | 0.00 | 5.00 | |
| 499 | 2.90 | 1.20 | 10.00 | 20.00 | 44.26 | 0.03 | 2.44 | 0.01 | | 2.06 | 5.05 | DOI: 10.1039/c9en00028c |
| 500 | 18.71 | 1.20 | 10.00 | 500.00 | 335.28 | 0.17 | 2.06 | 0.10 | | 4.15 | 10.24 | |
| 501 | 5.50 | 1.20 | 10.00 | 20.00 | 335.28 | 0.17 | 2.06 | 0.10 | | 4.15 | 10.24 | |
| 502 | 17.50 | 1.20 | 10.00 | 300.00 | 335.28 | 0.17 | 2.06 | 0.10 | | 4.15 | 10.24 | |
| 503 | 10.62 | 1.20 | 10.00 | 60.00 | 335.28 | 0.17 | 2.06 | 0.10 | | 4.15 | 10.24 | |
| 504 | 13.12 | 1.20 | 10.00 | 100.00 | 335.28 | 0.17 | 2.06 | 0.10 | | 4.15 | 10.24 | |
| 505 | 5.40 | 0.80 | 22.00 | 292.50 | 1478.00 | 0.56 | 1.52 | | | 0.00 | 2.00 | DOI:10.1016/j.carbon.2017.06.077 |
| 506 | 3.20 | 0.60 | 22.00 | 292.50 | 1478.00 | 0.56 | 1.52 | | | 0.00 | 0.00 | |

| | | | | | | | | | |
|-----|-------|------|-------|--------|---------|------|------|------|------|
| 507 | 8.70 | 1.00 | 22.00 | 292.50 | 1478.00 | 0.56 | 1.52 | 0.00 | 2.00 |
| 508 | 12.60 | 1.20 | 22.00 | 292.50 | 1478.00 | 0.56 | 1.52 | 0.00 | 2.00 |
| 509 | 2.20 | 0.60 | 22.00 | 292.50 | 2070.00 | 0.81 | 1.57 | 0.00 | 1.00 |
| 510 | 5.20 | 0.80 | 22.00 | 292.50 | 2070.00 | 0.81 | 1.57 | 0.00 | 1.00 |
| 511 | 9.90 | 1.00 | 22.00 | 292.50 | 2070.00 | 0.81 | 1.57 | 0.00 | 1.00 |
| 512 | 14.50 | 1.20 | 22.00 | 292.50 | 2070.00 | 0.81 | 1.57 | 0.00 | 1.00 |
| 513 | 2.70 | 0.60 | 22.00 | 292.50 | 1339.00 | 0.50 | 1.49 | 0.00 | 2.00 |
| 514 | 6.70 | 1.00 | 22.00 | 292.50 | 1339.00 | 0.50 | 1.49 | 0.00 | 2.00 |
| 515 | 9.80 | 1.20 | 22.00 | 292.50 | 1339.00 | 0.50 | 1.49 | 0.00 | 2.00 |
| 516 | 4.40 | 0.80 | 22.00 | 292.50 | 1339.00 | 0.50 | 1.49 | 0.00 | 2.00 |
| 517 | 3.10 | 0.60 | 22.00 | 292.50 | 2794.00 | 1.22 | 1.75 | 0.00 | 1.00 |
| 518 | 10.50 | 1.00 | 22.00 | 292.50 | 2794.00 | 1.22 | 1.75 | 0.00 | 1.00 |
| 519 | 6.20 | 0.80 | 22.00 | 292.50 | 2794.00 | 1.22 | 1.75 | 0.00 | 1.00 |
| 520 | 16.20 | 1.20 | 22.00 | 292.50 | 2794.00 | 1.22 | 1.75 | 0.00 | 1.00 |
| 521 | 2.70 | 0.60 | 22.00 | 292.50 | 2209.00 | 0.89 | 1.61 | 0.00 | 1.00 |

| | | | | | | | | | | | |
|-----|-------|------|-------|--------|---------|------|------|------|------|------|---------------------------------|
| 522 | 13.90 | 1.20 | 22.00 | 292.50 | 2209.00 | 0.89 | 1.61 | | 0.00 | 1.00 | |
| 523 | 8.90 | 1.00 | 22.00 | 292.50 | 2209.00 | 0.89 | 1.61 | | 0.00 | 1.00 | |
| 524 | 5.10 | 0.80 | 22.00 | 292.50 | 2209.00 | 0.89 | 1.61 | | 0.00 | 1.00 | |
| 525 | 17.20 | 1.60 | 25.00 | 500.00 | 1359.00 | 3.11 | 9.15 | 0.15 | 5.40 | 6.00 | DOI:10.1016/j.desal.2017.12.040 |
| 526 | 13.57 | 1.60 | 25.00 | 250.00 | 1359.00 | 3.11 | 9.15 | 0.15 | 5.40 | 6.00 | |
| 527 | 11.98 | 1.60 | 25.00 | 100.00 | 1359.00 | 3.11 | 9.15 | 0.15 | 5.40 | 6.00 | |
| 528 | 9.00 | 1.60 | 25.00 | 250.00 | 747.00 | 1.66 | 8.89 | 0.08 | 9.20 | 9.10 | |
| 529 | 6.25 | 1.60 | 25.00 | 100.00 | 747.00 | 1.66 | 8.89 | 0.08 | 9.20 | 9.10 | |
| 530 | 11.67 | 1.60 | 25.00 | 500.00 | 747.00 | 1.66 | 8.89 | 0.08 | 9.20 | 9.10 | |
| 531 | 11.97 | 1.60 | 25.00 | 250.00 | 1432.00 | 2.40 | 6.70 | 0.21 | 3.70 | 5.30 | |
| 532 | 9.96 | 1.60 | 25.00 | 100.00 | 1432.00 | 2.40 | 6.70 | 0.21 | 3.70 | 5.30 | |
| 533 | 15.97 | 1.60 | 25.00 | 500.00 | 1432.00 | 2.40 | 6.70 | 0.21 | 3.70 | 5.30 | |
| 534 | 7.95 | 1.60 | 25.00 | 100.00 | 992.00 | 2.27 | 9.15 | 0.11 | 7.00 | 6.70 | |
| 535 | 10.92 | 1.60 | 25.00 | 250.00 | 992.00 | 2.27 | 9.15 | 0.11 | 7.00 | 6.70 | |
| 536 | 13.96 | 1.60 | 25.00 | 500.00 | 992.00 | 2.27 | 9.15 | 0.11 | 7.00 | 6.70 | |

| | | | | | | | | | | | |
|-----|-------|------|-------|--------|---------|------|-------|------|-------|-------|--------------------------------|
| 537 | 0.98 | 1.20 | 27.00 | 50.00 | 154.70 | 0.87 | 22.50 | 0.91 | 0.00 | 7.60 | DOI:10.1016/j.jcis.2015.01.003 |
| 538 | 2.37 | 1.50 | 27.00 | 50.00 | 154.70 | 0.87 | 22.50 | 0.91 | 0.00 | 7.60 | |
| 539 | 3.85 | 1.80 | 27.00 | 50.00 | 154.70 | 0.87 | 22.50 | 0.91 | 0.00 | 7.60 | |
| 540 | 1.26 | 1.20 | 27.00 | 50.00 | 358.90 | 1.02 | 11.37 | 1.04 | 7.30 | 2.60 | |
| 541 | 3.06 | 1.50 | 27.00 | 50.00 | 358.90 | 1.02 | 11.37 | 1.04 | 7.30 | 2.60 | |
| 542 | 4.81 | 1.80 | 27.00 | 50.00 | 358.90 | 1.02 | 11.37 | 1.04 | 7.30 | 2.60 | |
| 543 | 12.80 | 1.20 | 27.00 | 500.00 | 358.90 | 1.02 | 11.37 | 1.04 | 7.30 | 2.60 | |
| 544 | 26.80 | 1.20 | 40.00 | 500.00 | 349.00 | 0.38 | 4.36 | 1.10 | 3.06 | 10.29 | DOI:10.1039/C8EN00652K |
| 545 | 21.40 | 1.20 | 60.00 | 500.00 | 349.00 | 0.38 | 4.36 | 1.10 | 3.06 | 10.29 | |
| 546 | 19.60 | 1.20 | 20.00 | 500.00 | 349.00 | 0.38 | 4.36 | 1.10 | 3.06 | 10.29 | |
| 547 | 22.50 | 1.20 | 40.00 | 400.00 | 349.00 | 0.38 | 4.36 | 1.10 | 3.06 | 10.29 | |
| 548 | 11.50 | 1.20 | 40.00 | 300.00 | 349.00 | 0.38 | 4.36 | 1.10 | 3.06 | 10.29 | |
| 549 | 5.10 | 1.20 | 40.00 | 500.00 | 321.00 | | 0.00 | 1.10 | 1.74 | | |
| 550 | 11.32 | 1.20 | 50.00 | 100.00 | 1557.00 | 0.78 | 2.00 | | 10.70 | 6.20 | DOI:10.1039/C5TA03663A |
| 551 | 14.88 | 1.20 | 50.00 | 250.00 | 1557.00 | 0.78 | 2.00 | | 10.70 | 6.20 | |

| | | | | | | | | | | |
|-----|-------|------|-------|--------|---------|------|------|-------|-------|----------------------------|
| 552 | 17.62 | 1.20 | 50.00 | 500.00 | 1557.00 | 0.78 | 2.00 | 10.70 | 6.20 | |
| 553 | 7.10 | 1.20 | 7.50 | 292.50 | 880.00 | 0.45 | 2.05 | 4.03 | 19.51 | DOI:10.1002/cssc.201500166 |
| 554 | 1.50 | 0.60 | 7.50 | 292.50 | 880.00 | 0.45 | 2.05 | 4.03 | 19.51 | |
| 555 | 3.10 | 0.80 | 7.50 | 292.50 | 880.00 | 0.45 | 2.05 | 4.03 | 19.51 | |
| 556 | 5.20 | 1.00 | 7.50 | 292.50 | 880.00 | 0.45 | 2.05 | 4.03 | 19.51 | |
| 557 | 1.50 | 0.60 | 7.50 | 292.50 | 840.00 | 0.36 | 1.71 | 3.63 | 8.59 | |
| 558 | 2.75 | 0.80 | 7.50 | 292.50 | 840.00 | 0.36 | 1.71 | 3.63 | 8.59 | |
| 559 | 4.65 | 1.00 | 7.50 | 292.50 | 840.00 | 0.36 | 1.71 | 3.63 | 8.59 | |
| 560 | 6.00 | 1.20 | 7.50 | 292.50 | 840.00 | 0.36 | 1.71 | 3.63 | 8.59 | |
| 561 | 2.10 | 0.60 | 7.50 | 292.50 | 850.00 | 0.47 | 2.21 | 4.60 | 14.80 | |
| 562 | 5.70 | 1.00 | 7.50 | 292.50 | 850.00 | 0.47 | 2.21 | 4.60 | 14.80 | |
| 563 | 3.75 | 0.80 | 7.50 | 292.50 | 850.00 | 0.47 | 2.21 | 4.60 | 14.80 | |
| 564 | 7.30 | 1.20 | 7.50 | 292.50 | 850.00 | 0.47 | 2.21 | 4.60 | 14.80 | |
| 565 | 8.75 | 1.20 | 7.50 | 292.50 | 885.00 | 0.38 | 1.72 | 0.00 | 2.80 | |
| 566 | 6.87 | 1.00 | 7.50 | 292.50 | 885.00 | 0.38 | 1.72 | 0.00 | 2.80 | |

| | | | | | | | | | | | | |
|-----|-------|------|-------|---------|---------|------|------|------|------|------|-------|---------------------------------------|
| 567 | 4.25 | 0.80 | 7.50 | 292.50 | 885.00 | 0.38 | 1.72 | | | 0.00 | 2.80 | |
| 568 | 4.25 | 0.60 | 7.50 | 292.50 | 1230.00 | 0.65 | 2.11 | | | 0.00 | 3.11 | |
| 569 | 6.60 | 0.80 | 7.50 | 292.50 | 1230.00 | 0.65 | 2.11 | | | 0.00 | 3.11 | |
| 570 | 7.87 | 1.00 | 7.50 | 292.50 | 1230.00 | 0.65 | 2.11 | | | 0.00 | 3.11 | |
| 571 | 10.25 | 1.20 | 7.50 | 292.50 | 1230.00 | 0.65 | 2.11 | | | 0.00 | 3.11 | |
| 572 | 5.80 | 1.20 | 7.50 | 292.50 | 880.00 | 0.45 | 2.05 | | | 0.00 | 9.86 | |
| 573 | 15.00 | 1.20 | 7.50 | 292.50 | 2830.00 | 1.56 | 2.20 | | | 0.76 | 8.28 | |
| 574 | 4.80 | 1.20 | 25.00 | 50.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | DOI:10.1016/j.carbon.2015.12.095 |
| 575 | 6.88 | 1.20 | 25.00 | 100.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | |
| 576 | 19.06 | 1.20 | 25.00 | 1000.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | |
| 577 | 16.10 | 1.20 | 25.00 | 500.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | |
| 578 | 12.18 | 1.20 | 25.00 | 200.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | |
| 579 | 21.68 | 1.20 | 25.00 | 2000.00 | 2680.00 | 1.54 | 2.30 | 0.83 | 1.47 | 1.50 | 9.30 | |
| 580 | 0.41 | 1.00 | 5.00 | 29.25 | 1377.90 | 0.73 | 2.11 | 0.54 | | 0.43 | 12.76 | DOI:10.1016/j.chemosphere.2015.06.055 |
| 581 | 2.10 | 1.00 | 5.00 | 29.25 | 1901.00 | 1.09 | 2.30 | 0.60 | | 1.10 | 17.53 | |

| | | | | | | | | | | |
|-----|-------|------|-------|---------|--------|------|------|------|------|-----------------------------|
| 582 | 8.60 | 1.20 | 27.00 | 250.00 | 565.17 | 1.08 | 7.64 | 0.00 | 2.76 | DOI: 10.1002/celc.201600051 |
| 583 | 10.40 | 1.20 | 27.00 | 250.00 | 729.84 | 1.30 | 7.12 | 0.00 | 2.85 | |
| 584 | 11.70 | 1.20 | 27.00 | 250.00 | 871.98 | 1.84 | 8.44 | 0.00 | 5.68 | |
| 585 | 14.60 | 1.20 | 27.00 | 500.00 | 871.98 | 1.84 | 8.44 | 0.00 | 5.68 | |
| 586 | 16.20 | 1.20 | 27.00 | 1000.00 | 871.98 | 1.84 | 8.44 | 0.00 | 5.68 | |

*Obtained by the Wheeler's approach

2. R code for missing value imputation

Step 1- Impute the missing information based on the provided R code.

Step 2- If any imputed feature gets a value lower than zero, change it to zero.

Step 3- In some cases, same electrode is tested in different operational conditions, hence if a missing electrode feature (PV_{micro}) gets different imputed values at different operational conditions, average them and change them to the averaged value.

```
# import libraries
library(readr)
library(mice)
# import data and visualize missingness pattern
Data_f <- read_csv("C:/path_to_the_file/file_input.csv")
data <- Data_f
md.pattern(data)
# optional dry run (maxit = 0) and statistics on the data
imp <- mice(data, maxit = 0)
```

Performing a dry run with ($\text{maxit} = 0$) allows us to inspect the logged events produced by `mice()`. A dry run is in this case a sort of initialization of `mice` and, this way, we can access and modify the various `mice` functions.

The `predictorMatrix` and `meth` specify the used predictor matrix and the applied methods for imputation. The `predictorMatrix` specifies the target variable or block in the rows and the predictor variables on the columns in datasets. An entry of 0 means that the column variable is not used to impute the row variable or block. A nonzero value indicates that it is used.

```
pred <- imp$predictorMatrix
# specify the imputation methods (pmm)
meth <- imp$meth
```

```
# impute the data using mice
imp <- mice(data, maxit = 20, m = 5, method="pmm")
# the methods can be selected here
# combine the multiple imputations into one
imputed <- complete(imp)
# visualize the data
View(imputed)
# save the data
write.csv(imputed, 'file_output.csv')
```

3. Python script for Artificial Neural Network (ANN) model development

```
# import libraries
import pandas as pd
import tensorflow as tf
import numpy as np
from sklearn.model_selection import train_test_split, cross_val_score,
KFold
from sklearn.preprocessing import MinMaxScaler
from tensorflow.keras.layers import Dense
from tensorflow.keras.wrappers.scikit_learn import KerasRegressor
from tensorflow.keras.models import Sequential
from keras.layers import Activation
from keras.layers import LeakyReLU
from tensorflow.keras import backend as K
import matplotlib.pyplot as plt

# base path of located files.
# in your computer put all files in folder and set it to ./
base_path = '/content/'

# read raw data and show some records. The first column (0) needs to be #
output column and the second column (1) to column (9) need to be input #
feature columns

df_raw = pd.read_excel(base_path+'raw.xlsx')
df_raw.head()

# get values of each data frame as array
values_raw = df_raw.values
# normalize by min max scaler
scaler = MinMaxScaler()
values_raw = scaler.fit_transform(values_raw)

# define the loss function
def root_mean_squared_error (y_true, y_pred):
    return K.sqrt(K.mean(K.square(y_pred - y_true)))

# define the neural network model structure
def base_line_model():
    model = Sequential()
    model.add(Dense(10, input_shape=(9,), activation=tf.keras.layers.Leaky
ReLU(alpha=0.2), kernel_initializer='normal'))
    model.add(Dense(1, activation='linear', kernel_initializer='normal'))
    model.compile(loss=root_mean_squared_error, optimizer='adam')
```

```

return model

# define all model configurations
models = {
    'raw_data': [{
        'title': 'base line model for raw data',
        'model': KerasRegressor(build_fn=base_line_model, epochs=100, batc
h_size=5, verbose=2),
        'data': values_raw,
    }]
}

# 5-fold cross-validation of model for defining optimum structure and #
interested hyperparameters such as a value of Leaky ReLU

for model in models['raw_data']:
    print("Start training for "+model['title'])
    print("=====")
    results = cross_val_score(model['model'], model['data'][:, 1:], model[
'data'][:, 0], cv=KFold(5))
    print("*****")
    print("result for "+model['title']+" : Mean is %.2f and std is %.2f R
MSE" % (np.abs(results.mean()), results.std()))

# define the best model and start training it
# linear normalization with base line model is good
model = base_line_model()

# split data to train and test
train_x, test_x, train_y , test_y = train_test_split(
    values_raw[:, 1:],
    values_raw[:, 0],
    test_size=.2
)

# start learning model on train data
history_object = model.fit(
    train_x,
    train_y,
    epochs=10,
    batch_size=5,
    validation_data=(test_x, test_y),
    verbose=2,

```

```

)

# plot the training curve
epochs = np.arange(1000)
plt.figure(10, figsize=(10,10))
plt.plot(epochs, history_object.history['loss'], label='train loss')
plt.plot(epochs, history_object.history['val_loss'], label='test loss')
plt.legend()
plt.title('Loss curve')
plt.ylim((0,0.75))
plt.xlim((-50,1100))
plt.show()

# print the weights and biases
print(model.layers[0].weights)
print(model.layers[0].bias.numpy())
print(model.layers[1].weights)
print(model.layers[1].bias.numpy())

# predict results
predictions = model.predict(test_x)
for i in range(len(predictions)):
    print('real Y', test_y[i], 'prediction y', predictions[i])

```

4. Python script for Random Forest model developmet and relative importance calculation

```
#Input the required libraries
from sklearn.preprocessing import MinMaxScaler
from sklearn.inspection import permutation_importance
from sklearn.ensemble import RandomForestRegressor
from sklearn import metrics

# base path of located files.
# in your computer put all files in folder and set it to ./
base_path = '/content/'

# read raw data and list few. The first column (0)needs to be output      #
column and the second column (1) to column (9)need to be input feature #
columns.

df_raw = pd.read_excel(base_path+'raw.xlsx')
df_raw.head()

# Obtain the values of each data frame (df) as an array
values_raw = df_raw.values

# normalize the data by min-max scaler
scaler = MinMaxScaler()
values_raw = scaler.fit_transform(values_raw)

# split data into train and test subsets with a specific ratio (test_size)
train_x, test_x, train_y , test_y = train_test_split(
    values_raw[:, 1:],
    values_raw[:, 0],
    test_size=.2
)

# start training and testing the model on the randomly selected
#train and test data. Optionally the n_estimator can be fine-tuned.

regressor = RandomForestRegressor(n_estimators=187, random_state=0)
regressor.fit(train_x, train_y)

# test your model based on the test data
y_pred = regressor.predict(test_x)
```

```
# evaluate the model
print('Root Mean Squared Error:', np.sqrt(metrics.mean_squared_error(test_
y, y_pred)))
print('Mean Squared Error:', metrics.mean_squared_error(test_y, y_pred))

# Calculate feature relative importance
regressor.feature_importances_

# print the output of the test subset and the predicted values by model
for i in range(len(y_pred)):
    print('real Y', test_y[i], 'prediction y', y_pred[i])
```


5. The ANN model results

Table S2. The connection weights of input-hidden neurons and hidden-output neurons for the ANN.

| | Hidden 1 | Hidden 2 | Hidden 3 | Hidden 4 | Hidden 5 | Hidden 6 | Hidden 7 | Hidden 8 | Hidden 9 | Hidden 10 |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| Input 1 | 4.86E-01 | 2.62E-01 | 4.75E-01 | 2.80E-01 | -2.47E-01 | 2.75E-01 | 2.64E-01 | 4.33E-01 | -5.02E-01 | -1.37E-01 |
| Input 2 | -7.94E-01 | -3.53E-01 | 3.62E-01 | 1.85E-02 | -1.17E-01 | -4.08E-02 | -6.37E-01 | -2.91E-01 | 1.32E-01 | -1.40E-01 |
| Input 3 | 1.87E-03 | 7.19E-02 | -1.08E+00 | -3.07E-01 | -1.44E-01 | -2.89E-01 | -1.04E-01 | -5.64E-02 | 9.34E-01 | -1.25E+00 |
| Input 4 | -1.35E-02 | 1.01E-01 | -4.79E-01 | 2.20E-01 | -5.76E-01 | 1.10E-01 | -1.24E-02 | 1.88E-01 | 9.52E-02 | 5.27E-03 |
| Input 5 | -1.43E-01 | -1.48E-01 | 8.38E-02 | -1.08E-01 | -1.96E-01 | -6.34E-02 | -2.17E-01 | -1.80E-01 | 2.90E-01 | 5.01E-01 |
| Input 6 | -4.53E-01 | 1.44E-01 | 5.52E-02 | 8.47E-02 | 4.09E-01 | -1.52E-01 | 7.12E-02 | -1.88E-01 | 2.38E-02 | -4.50E-01 |
| Input 7 | -2.04E-01 | 3.50E-01 | 2.56E-01 | 4.31E-01 | -4.84E-01 | 6.11E-01 | 3.19E-01 | 1.58E-01 | -3.84E-02 | 2.19E-01 |
| Input 8 | -3.86E-01 | -1.86E-01 | 2.56E-01 | -7.06E-02 | 2.58E-01 | 3.19E-01 | 2.22E-01 | 5.26E-02 | -3.59E-02 | -1.11E-01 |
| Input 9 | 1.03E-01 | 1.12E-01 | 4.88E-02 | -1.86E-02 | -4.07E-01 | 2.73E-01 | -5.68E-02 | -1.61E-01 | -1.97E-01 | 1.38E-01 |
| Output | -0.6440701 | 0.3994246 | -0.87829804 | 0.15722843 | -0.66081446 | 0.5361128 | 0.21946062 | 0.5547894 | -0.33469564 | -0.71096003 |

Input 1: VW; Input 2: FR; Input 3: C_{NaCl}; Input 4: SSA; Input 5: PV; Input 6: PS_{ave}; Input 7: PV_{ch}; Input 8: N; Input 9: O; Output: EC

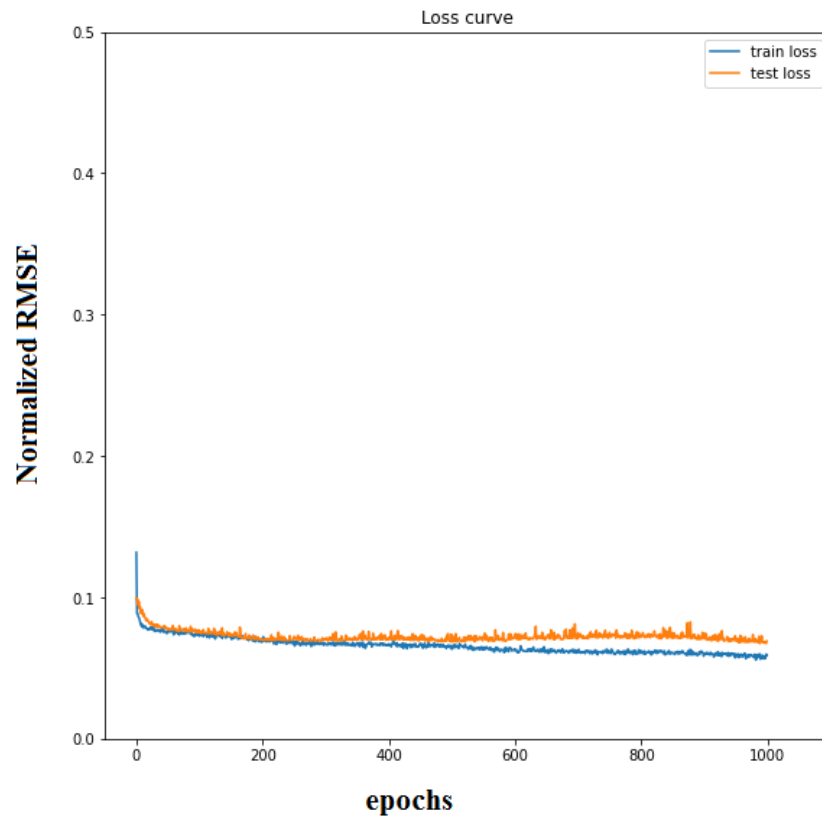


Figure S1. Training curve of ANN