**Validated Kinetic Model for the Oxidation of Dimethyl Ether/Propane Blends: Rapid Compression Machine Experiments and Pressure-Dependent Rate Calculations**

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**Supplemental Material – Tabulated Summary of Experimental Data**

Table S1. Summary of rapid compression machine data obtained in this work.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Eq. Ratio | X\_DME | X\_C3H8 | X\_O2 | X\_N2 | % DME | Compressed Pressure (bar) | Compressed Temperature (K) | 1000/Tc (1/K) | Ignition Delay (ms) | Ignition Delay Error (ms) | First Stage Delay (ms) | First Stage Error (ms) |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 29.99 | 689 | 1.451 | 97.08 | 3.04 |  |  |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 30.11 | 700 | 1.4277 | 65.78 | 1.64 |  |  |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 29.95 | 724 | 1.3821 | 24.01 | 0.9 |  |  |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 29.95 | 750 | 1.3335 | 12.78 | 0.82 |  |  |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 30.06 | 765 | 1.3075 | 9.15 | 0.77 |  |  |
| 0.5 | 0 | 0.0403 | 0.4032 | 0.5565 | 0 | 29.97 | 769 | 1.2996 | 8.87 | 0.49 | 5.33 | 0.55 |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 30.08 | 703 | 1.4225 | 97.9 | 3.02 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 29.9 | 712 | 1.4055 | 66.28 | 1.6 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 30.01 | 729 | 1.3719 | 41.87 | 1.8 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 30.02 | 751 | 1.3315 | 28.74 | 0.73 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 29.94 | 771 | 1.2974 | 25.08 | 1.06 | 13.71 | 2.49 |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 30 | 800 | 1.25 | 26.94 | 0.16 | 11.96 | 1.74 |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 29.92 | 828 | 1.2083 | 27.56 | 0.28 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 30.16 | 844 | 1.1846 | 21.89 | 0.75 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 29.99 | 874 | 1.1444 | 14.02 | 0.54 |  |  |
| 1 | 0 | 0.0403 | 0.2016 | 0.7581 | 0 | 29.88 | 898 | 1.1134 | 8.17 | 0.26 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.92 | 711 | 1.4064 | 109.03 | 2.14 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.99 | 726 | 1.3766 | 80.73 | 0.48 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.12 | 742 | 1.3477 | 62.93 | 1.05 | 43.17 | 0.96 |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.97 | 749 | 1.3348 | 61.8 | 0.95 | 39.66 | 1.23 |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.02 | 759 | 1.3174 | 62.9 | 1.72 | 35.32 | 1.11 |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.05 | 770 | 1.2981 | 66.2 | 0.16 | 36.81 | 1.59 |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30 | 780 | 1.2818 | 74.02 | 1.27 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.98 | 792 | 1.262 | 89.25 | 1.33 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.01 | 805 | 1.2422 | 89.19 | 1.04 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.97 | 818 | 1.2221 | 78.34 | 0.86 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.06 | 832 | 1.2015 | 63.4 | 1.14 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30.06 | 847 | 1.1807 | 40.64 | 0.56 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 29.99 | 876 | 1.1411 | 21.33 | 0.38 |  |  |
| 2 | 0 | 0.0403 | 0.1008 | 0.8589 | 0 | 30 | 906 | 1.1042 | 11.67 | 0.32 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.03 | 687 | 1.4563 | 92.26 | 0.66 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.09 | 704 | 1.4198 | 45.49 | 2.81 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 29.99 | 717 | 1.3942 | 28.47 | 0.34 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 29.97 | 728 | 1.3742 | 20.46 | 0.86 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.15 | 741 | 1.3501 | 14.8 | 0.39 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 29.96 | 749 | 1.3349 | 12.44 | 0.66 | 9.84 | 0.8 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.14 | 763 | 1.3098 | 10.52 | 0.38 | 7.45 | 0.24 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.1 | 771 | 1.2972 | 9.68 | 0.2 | 6.44 | 0.38 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.01 | 773 | 1.2932 | 7.16 | 0.69 | 4.64 | 0.72 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.1 | 803 | 1.2458 | 6.74 | 0.17 | 3.27 | 0.24 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.01 | 814 | 1.2285 | 6.34 | 0.04 | 2.02 | 0.16 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 29.98 | 836 | 1.1963 | 6.63 | 0.29 | 2.04 | 0.32 |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.07 | 871 | 1.1487 | 6.34 | 0.25 |  |  |
| 1 | 0.0042 | 0.0377 | 0.2013 | 0.7568 | 10 | 30.04 | 898 | 1.1141 | 4.02 | 0.15 |  |  |
| 1 | 0.0111 | 0.0335 | 0.2007 | 0.7547 | 25 | 30 | 673 | 1.4861 | 75.87 | 0.7 |  |  |
| 1 | 0.0111 | 0.0335 | 0.2007 | 0.7547 | 25 | 30.07 | 687 | 1.4559 | 40.61 | 1.48 |  |  |
| 1 | 0.0111 | 0.0335 | 0.2007 | 0.7547 | 25 | 30.05 | 698 | 1.4329 | 23.9 | 0.59 |  |  |
| 1 | 0.0111 | 0.0335 | 0.2007 | 0.7547 | 25 | 30.04 | 709 | 1.411 | 16.03 | 1.12 |  |  |
| 1 | 0.0111 | 0.0335 | 0.2007 | 0.7547 | 25 | 30.03 | 719 | 1.39 | 10.7 | 0.44 |  |  |
| 1 | 0.025 | 0.025 | 0.1996 | 0.7504 | 50 | 30.02 | 650 | 1.5386 | 101.54 | 1.59 |  |  |
| 1 | 0.025 | 0.025 | 0.1996 | 0.7504 | 50 | 30.05 | 664 | 1.5063 | 47.33 | 1.33 |  |  |
| 1 | 0.025 | 0.025 | 0.1996 | 0.7504 | 50 | 30.11 | 682 | 1.467 | 19.05 | 0.61 |  |  |
| 1 | 0.025 | 0.025 | 0.1996 | 0.7504 | 50 | 29.99 | 694 | 1.4412 | 12.31 | 1.31 |  |  |
| 1 | 0.025 | 0.025 | 0.1996 | 0.7504 | 50 | 30 | 706 | 1.4171 | 7.5 | 0.35 |  |  |
| 1 | 0.0425 | 0.0142 | 0.1982 | 0.7451 | 75 | 29.92 | 624 | 1.6021 | 127.69 | 5.98 |  |  |
| 1 | 0.0425 | 0.0142 | 0.1982 | 0.7451 | 75 | 30.1 | 640 | 1.5631 | 46.87 | 2.64 |  |  |
| 1 | 0.0425 | 0.0142 | 0.1982 | 0.7451 | 75 | 29.97 | 656 | 1.5255 | 20.63 | 0.22 |  |  |
| 1 | 0.0425 | 0.0142 | 0.1982 | 0.7451 | 75 | 30.05 | 670 | 1.4928 | 8.96 | 0.21 |  |  |
| 1 | 0.0425 | 0.0142 | 0.1982 | 0.7451 | 75 | 30.06 | 679 | 1.4724 | 5.47 | 0.23 |  |  |
| 1 | 0.0655 | 0 | 0.1963 | 0.7382 | 100 | 29.97 | 602 | 1.6598 | 87.33 | 5.37 |  |  |
| 1 | 0.0655 | 0 | 0.1963 | 0.7382 | 100 | 30.03 | 611 | 1.6374 | 61.1 | 4.27 |  |  |
| 1 | 0.0655 | 0 | 0.1963 | 0.7382 | 100 | 30.08 | 626 | 1.5974 | 20.97 | 1.25 |  |  |
| 1 | 0.0655 | 0 | 0.1963 | 0.7382 | 100 | 30.05 | 632 | 1.5821 | 14.17 | 0.37 |  |  |
| 1 | 0.0655 | 0 | 0.1963 | 0.7382 | 100 | 30.05 | 645 | 1.5496 | 6.56 | 0.7 |  |  |