**Table S3.** Rate constants *k* (s−1) for all unimolecular reactions in the C2H + propylene system calculated using RRKM theory at *E*c = 0 kJ mol−1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reaction** | ***k*** | **Reaction** | ***k*** | **Reaction** | ***k*** |
| **i14 – i15** | 3.53E+12 | **i5 – i7** | 1.55E+05 | **i11 – i4** | 1.98E+06 |
| **i15 – i14** | 2.42E+12 | **i6 – p2** | 5.06E+07 | **i4 – i11** | 3.00E+06 |
| **i15 – i17** | 1.70E+12 | **i4 – i6** | 5.56E+07 | **i12 – i4** | 9.06E+04 |
| **i17 – i15** | 4.09E+12 | **i6 – i4** | 5.93E+06 | **i4 – i12** | 3.14E+04 |
| **i17 – i19** | 3.93E+09 | **i1 – i4** | 1.55E+03 | **i1 – i8** | 4.78E+00 |
| **i19 – i17** | 2.65E+09 | **i4 – i1** | 1.23E+03 | **i8 – i1** | 2.32E-01 |
| **i19 – p7** | 8.68E+09 | **i8 – p1** | 4.37E+08 | **i4 – i2** | 5.63E+09 |
| **i15 – p2** | 1.35E+06 | **i4 – p6** | 3.95E+07 | **i2 – i4** | 4.47E+12 |
| **i19 – i18** | 7.15E+08 | **i4 – p2** | 9.54E+07 | **i12 – i10** | 3.52E+04 |
| **i18 – i19** | 6.87E+09 | **i1 – i2** | 6.77E+09 | **i10 – i12** | 2.92E+04 |
| **i15 – p3** | 9.69E+05 | **i2 – i1** | 4.25E+12 | **i4 – i3** | 5.27E+12 |
| **i13 – i18** | 3.09E+10 | **i10 – p8** | 1.07E+10 | **i3 – i4** | 1.90E+12 |
| **i18 – i13** | 3.06E+08 | **i10 – p6** | 2.31E+07 | **i5 – i3** | 4.18E+04 |
| **i18 – p7** | 6.27E+10 | **i10 – i4** | 6.68E+06 | **i3 – i5** | 3.66E+04 |
| **i13 – i21** | 2.20E+12 | **i4 – i10** | 2.78E+06 | **i3 – p4** | 1.54E+07 |
| **i12 – i13** | 2.02E+12 | **i10 – i8** | 1.62E+07 | **i3 – p3** | 4.28E+07 |
| **i19 – i16** | 1.37E+04 | **i8 – i10** | 8.29E+05 | **i8 – i3** | 2.50E+06 |
| **i16 – i19** | 1.19E+07 | **i7 – i4** | 5.00E+06 | **i3 – i8** | 1.46E+07 |
| **i13 – p6** | 6.12E+07 | **i4 – i7** | 5.05E+06 | **i3 – p5** | 1.54E+07 |
| **i12 – p6** | 3.55E+07 | **i16 – i10** | 4.92E+09 | **i10 – i9** | 5.46E+12 |
| **i17 – i7** | 1.26E+09 | **i10 – i16** | 2.10E+09 | **i9 – i10** | 3.59E+12 |
| **i7 – i17** | 5.18E+11 | **i1 – p1** | 3.45E+08 | **i3 – i9** | 1.37E+06 |
| **i7 – p2** | 6.94E+08 | **i1 – p9** | 7.79E+06 | **i9 – i3** | 5.99E+06 |
| **i5 – p3** | 1.49E+08 | **i8 – i6** | 9.21E+11 | **i9 – p4** | 1.11E+07 |
| **i7 – i5** | 3.72E+05 | **i6 – i8** | 1.60E+12 | **i9 – p5** | 1.11E+07 |