**Table S2.** Rate constants *k* (s−1) for all unimolecular reactions in the C2H + propylene system calculated using RRKM theory at *E*c = 41.1 kJ mol−1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reaction** | ***k*** | **Reaction** | ***k*** | **Reaction** | ***k*** |
| **i14 – i15** | 4.19E+12 | **i5 – i7** | 4.63E+06 | **i11 – i4** | 1.19E+07 |
| **i15 – i14** | 2.79E+12 | **i6 – p2** | 3.56E+08 | **i4 – i11** | 1.71E+07 |
| **i15 – i17** | 1.96E+12 | **i4 – i6** | 2.97E+08 | **i12 – i4** | 1.88E+06 |
| **i17 – i15** | 4.48E+12 | **i6 – i4** | 4.10E+07 | **i4 – i12** | 6.78E+05 |
| **i17 – i19** | 7.76E+09 | **i1 – i4** | 3.09E+05 | **i1 – i8** | 2.60E+03 |
| **i19 – i17** | 6.48E+09 | **i4 – i1** | 2.63E+05 | **i8 – i1** | 1.76E+02 |
| **i19 – p7** | 2.20E+10 | **i8 – p1** | 2.04E+09 | **i4 – i2** | 1.15E+10 |
| **i15 – p2** | 1.39E+07 | **i4 – p6** | 3.41E+08 | **i2 – i4** | 6.20E+12 |
| **i19 – i18** | 1.89E+09 | **i4 – p2** | 6.17E+08 | **i12 – i10** | 1.28E+06 |
| **i18 – i19** | 1.53E+10 | **i1 – i2** | 1.26E+10 | **i10 – i12** | 1.06E+06 |
| **i15 – p3** | 1.19E+07 | **i2 – i1** | 5.81E+12 | **i4 – i3** | 5.39E+12 |
| **i13 – i18** | 4.45E+10 | **i10 – p8** | 3.31E+10 | **i3 – i4** | 1.95E+12 |
| **i18 – i13** | 9.21E+08 | **i10 – p6** | 2.24E+08 | **i5 – i3** | 1.06E+06 |
| **i18 – p7** | 1.40E+11 | **i10 – i4** | 6.65E+07 | **i3 – i5** | 8.85E+05 |
| **i13 – i21** | 2.23E+12 | **i4 – i10** | 2.91E+07 | **i3 – p4** | 1.45E+08 |
| **i12 – i13** | 2.17E+12 | **i10 – i8** | 1.04E+08 | **i3 – p3** | 2.85E+08 |
| **i19 – i16** | 1.57E+05 | **i8 – i10** | 7.26E+06 | **i8 – i3** | 1.74E+07 |
| **i16 – i19** | 8.74E+07 | **i7 – i4** | 5.26E+07 | **i3 – i8** | 7.94E+07 |
| **i13 – p6** | 5.92E+08 | **i4 – i7** | 5.05E+07 | **i3 – p5** | 1.45E+08 |
| **i12 – p6** | 3.78E+08 | **i16 – i10** | 1.47E+10 | **i10 – i9** | 6.06E+12 |
| **i17 – i7** | 2.90E+09 | **i10 – i16** | 4.15E+09 | **i9 – i10** | 3.97E+12 |
| **i7 – i17** | 6.91E+11 | **i1 – p1** | 1.60E+09 | **i3 – i9** | 1.45E+07 |
| **i7 – p2** | 5.07E+09 | **i1 – p9** | 5.79E+07 | **i9 – i3** | 6.00E+07 |
| **i5 – p3** | 1.13E+09 | **i8 – i6** | 9.26E+11 | **i9 – p4** | 1.23E+08 |
| **i7 – i5** | 1.11E+07 | **i6 – i8** | 1.61E+12 | **i9 – p5** | 1.23E+08 |