

## Supplementary Material

### **An ab initio study on the stability of isolated phosphalkene synthons**

Adrianna Cyraniak<sup>1</sup>, Sylwia Freza<sup>1</sup>, Piotr Skurski<sup>1,2,\*</sup>

<sup>1</sup> *Laboratory of Quantum Chemistry, Faculty of Chemistry, University of Gdańsk,  
Wita Stwosza 63, 80-308 Gdańsk, Poland*

<sup>2</sup> *QSAR Lab Ltd., Trzy Lipy 3, 80-172, Poland*

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\* corresponding author: piotr.skurski@ug.edu.pl

**Table S1.** Cartesian coordinates in Å (calculated at the MP2/aug-cc-pVDZ theory level) of the isomeric structures of studied anions and their energies calculated at the MP2/aug-cc-pVDZ level. The refined MP2/aug-cc-pVTZ electronic energies are also provided.

<b>(P=CH<sub>2</sub>)<sup>-</sup> (C<sub>2v</sub>)</b>			
1	0.000000000	0.923003000	-1.678561000
6	0.000000000	0.000000000	-1.066166000
15	0.000000000	0.000000000	0.650274000
1	0.000000000	-0.923003000	-1.678561000
MP2/aug-cc-pVDZ=-379.9929903 a.u. MP2/aug-cc-pVTZ=-380.0672188 a.u.			
<b>(HP=CH)<sup>-</sup> (C<sub>s</sub>)</b>			
1	1.412074000	0.805690000	0.000000000
15	-0.014316000	0.519968000	0.000000000
6	-0.014316000	-1.193063000	0.000000000
1	-1.111446000	-1.446832000	0.000000000
MP2/aug-cc-pVDZ=-379.9584869 a.u. MP2/aug-cc-pVTZ=-380.0336653 a.u.			
<b>(H<sub>2</sub>P=C)<sup>-</sup> (C<sub>2v</sub>)</b>			
1	0.000000000	1.086106000	1.335113000
15	0.000000000	0.000000000	0.344417000
6	0.000000000	0.000000000	-1.306081000
1	0.000000000	-1.086106000	1.335113000
MP2//aug-cc-pVDZ=-379.8731455 a.u. MP2/aug-cc-pVTZ=-379.9503571 a.u.			
<b>(P=C(CH<sub>3</sub>)<sub>2</sub>)<sup>-</sup> (C<sub>2v</sub>)</b>			
6	0.000000000	1.259028000	-1.091956000
6	0.000000000	-1.259028000	-1.091956000
1	0.000000000	-2.161842000	-0.464402000
1	-0.889841000	-1.283717000	-1.757826000
1	0.889841000	-1.283717000	-1.757826000
1	-0.889841000	1.283717000	-1.757826000
1	0.000000000	2.161842000	-0.464402000
1	0.889841000	1.283717000	-1.757826000
6	0.000000000	0.000000000	-0.224746000
15	0.000000000	0.000000000	1.494137000

MP2/aug-cc-pVDZ=-458.3793188 a.u. MP2/aug-cc-pVTZ=-458.5283556 a.u.

**(P=CH-C<sub>2</sub>H<sub>5</sub>)<sup>-</sup> (C<sub>s</sub>)**

15	-1.576873000	0.233856000	0.000000000
6	0.000000000	0.911396000	0.000000000
1	0.146026000	2.013971000	0.000000000
6	1.352980000	0.191209000	0.000000000
1	1.935123000	0.532379000	0.882802000
1	1.935123000	0.532379000	-0.882802000
6	1.289757000	-1.338168000	0.000000000
1	2.307479000	-1.772323000	0.000000000
1	0.736458000	-1.700437000	0.880533000
1	0.736458000	-1.700437000	-0.880533000

MP2/aug-cc-pVDZ=-458.3737718 a.u. MP2/aug-cc-pVTZ=-458.5226957 a.u.

**(H<sub>3</sub>C-P=C-CH<sub>3</sub>)<sup>-</sup> (C<sub>s</sub>)**

6	-1.886666000	0.875745000	0.000000000
6	1.719257000	-1.377068000	0.000000000
1	2.473719000	-0.548899000	0.000000000
1	1.930869000	-2.014823000	0.880376000
1	1.930869000	-2.014823000	-0.880376000
1	-2.312177000	-0.142668000	0.000000000
1	-2.232421000	1.427952000	0.893029000
1	-2.232421000	1.427952000	-0.893029000
6	0.241003000	-0.966456000	0.000000000
15	0.000000000	0.711465000	0.000000000

MP2/aug-cc-pVDZ=-458.3407306 a.u. MP2/aug-cc-pVTZ=-458.4934878 a.u.

**(P=C(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>)<sup>-</sup> (C<sub>2</sub>)**

6	0.000000000	0.000000000	1.031724000
15	0.000000000	0.000000000	2.767920000
6	0.000000000	1.253008000	0.214743000
6	-0.766804000	1.347789000	-0.976997000
6	0.728049000	2.399738000	0.618390000
6	-0.823171000	2.542397000	-1.719884000
6	0.689194000	3.589216000	-0.129889000
6	-0.089459000	3.671599000	-1.304048000
1	-1.337439000	0.473724000	-1.309606000
1	1.299715000	2.327506000	1.549616000
1	-1.440269000	2.592941000	-2.624497000
1	1.270083000	4.457840000	0.201434000
1	-0.122755000	4.599588000	-1.885395000
6	0.000000000	-1.253008000	0.214743000
6	-0.728049000	-2.399738000	0.618390000
6	0.766804000	-1.347789000	-0.976997000
6	-0.689194000	-3.589216000	-0.129889000
6	0.823171000	-2.542397000	-1.719884000
6	0.089459000	-3.671599000	-1.304048000
1	-1.299715000	-2.327506000	1.549616000
1	1.337439000	-0.473724000	-1.309606000
1	-1.270083000	-4.457840000	0.201434000
1	1.440269000	-2.592941000	-2.624497000
1	0.122755000	-4.599588000	-1.885395000

MP2/aug-cc-pVDZ=-840.7778612 a.u. MP2/aug-cc-pVTZ=-841.2371824 a.u.

**(P=CH-C<sub>6</sub>H<sub>4</sub>-C<sub>6</sub>H<sub>5</sub>)<sup>-</sup> (C<sub>1</sub>)**

15	-5.067953000	-0.636237000	0.184862000
6	-3.854606000	0.548103000	-0.145180000
1	-4.135282000	1.582024000	-0.434021000
6	-2.384040000	0.389200000	-0.101658000
6	-1.756280000	-0.836551000	0.246329000
6	-1.527155000	1.479921000	-0.412632000
1	-2.419659000	-1.673350000	0.498218000
1	-1.982835000	2.436630000	-0.697898000
6	-0.361791000	-0.963099000	0.278655000
6	-0.127721000	1.362665000	-0.380710000
1	0.087429000	-1.916226000	0.583340000
1	0.498362000	2.218451000	-0.660573000
6	0.484457000	0.133816000	-0.033581000
6	1.956096000	-0.002578000	-0.001164000
6	2.588280000	-1.198825000	-0.423892000
6	2.780476000	1.057184000	0.453290000
1	1.970705000	-2.019255000	-0.803069000
1	2.309912000	1.977908000	0.813018000
6	3.987843000	-1.332440000	-0.390105000
6	4.180920000	0.930778000	0.476392000
1	4.452137000	-2.265527000	-0.726601000
1	4.795361000	1.762694000	0.836847000
6	4.793509000	-0.266742000	0.057231000
1	5.883237000	-0.368392000	0.079955000

MP2/aug-cc-pVDZ=-840.7733724 a.u. MP2/aug-cc-pVTZ=-841.2340070 a.u.

**(C<sub>6</sub>H<sub>5</sub>-P=C-C<sub>6</sub>H<sub>5</sub>)<sup>-</sup> (C<sub>s</sub>)**

6	0.378712000	0.582259000	0.000000000
15	-1.041582000	-0.319269000	0.000000000
6	-0.428851000	-2.088070000	0.000000000
6	0.944741000	-2.425946000	0.000000000
6	-1.375325000	-3.139125000	0.000000000
6	1.357133000	-3.770437000	0.000000000
6	-0.970530000	-4.490109000	0.000000000
6	0.401196000	-4.810065000	0.000000000
1	1.663871000	-1.596802000	0.000000000
1	-2.444536000	-2.890671000	0.000000000
1	2.426051000	-4.014833000	0.000000000
1	-1.720230000	-5.290037000	0.000000000
1	0.723123000	-5.857484000	0.000000000
6	0.308763000	2.024389000	0.000000000
6	0.320981000	2.785379000	1.214293000
6	0.320981000	2.785379000	-1.214293000
6	0.320981000	4.190184000	1.211719000
6	0.320981000	4.190184000	-1.211719000
6	0.325707000	4.915156000	0.000000000
1	0.327120000	2.239817000	2.164939000
1	0.327120000	2.239817000	-2.164939000
1	0.318188000	4.726997000	2.168699000
1	0.318188000	4.726997000	-2.168699000
1	0.332014000	6.010152000	0.000000000

MP2/aug-cc-pVDZ=-840.7479704 a.u. MP2/aug-cc-pVTZ=-841.2123409 a.u.

**(P=CF-C<sub>6</sub>F<sub>4</sub>-C<sub>6</sub>F<sub>5</sub>)<sup>-</sup> (C<sub>1</sub>)**

15	-5.332088000	-0.665410000	-1.079045000
6	-4.404629000	0.067047000	0.087756000
9	-4.856444000	0.807157000	1.266557000
6	-2.925637000	0.087906000	0.124001000
6	-2.181430000	-0.917195000	0.781623000
6	-2.177114000	1.099023000	-0.519487000
9	-2.823878000	-1.892818000	1.465991000
9	-2.815041000	2.116316000	-1.144408000
6	-0.788738000	-0.950002000	0.736458000
6	-0.784148000	1.067420000	-0.564856000
9	-0.113144000	-1.935774000	1.395253000
9	-0.107380000	2.039335000	-1.242332000
6	-0.051555000	0.039811000	0.058930000
6	1.420028000	0.004057000	0.010448000
6	2.110125000	-1.113379000	-0.495137000
6	2.196254000	1.084346000	0.469357000
9	1.423931000	-2.168231000	-0.981980000
9	1.596739000	2.169606000	1.003631000
6	3.507979000	-1.159973000	-0.540841000
6	3.594575000	1.062568000	0.422087000
9	4.148458000	-2.241742000	-1.038904000
9	4.318741000	2.110396000	0.876840000
6	4.252200000	-0.065859000	-0.082728000
9	5.602891000	-0.099074000	-0.127314000

MP2/aug-cc-pVDZ=-1831.3243206 a.u. MP2/aug-cc-pVTZ=-1832.5700686 a.u.

**(P=C(C<sub>6</sub>F<sub>5</sub>)<sub>2</sub>)<sup>-</sup> (C<sub>2</sub>)**

6	-1.601125000	3.247262000	-0.934669000
6	-0.527987000	3.484481000	-0.066907000
6	0.004368000	2.437828000	0.696891000
6	-0.513776000	1.128294000	0.631531000
6	-1.573452000	0.924747000	-0.274943000
6	-2.127561000	1.955126000	-1.042200000
6	0.000000000	0.000000000	1.463836000
6	0.513776000	-1.128294000	0.631531000
6	1.573452000	-0.924747000	-0.274943000
6	2.127561000	-1.955126000	-1.042200000
6	1.601125000	-3.247262000	-0.934669000
6	0.527987000	-3.484481000	-0.066907000
6	-0.004368000	-2.437828000	0.696891000
15	0.000000000	0.000000000	3.177415000
9	2.117566000	0.314827000	-0.401240000
9	-1.070317000	-2.725946000	1.471555000
9	3.171311000	-1.722259000	-1.881580000
9	0.000000000	-4.734718000	0.005489000
9	2.123590000	-4.261983000	-1.669818000
9	1.070317000	2.725946000	1.471555000
9	-2.117566000	-0.314827000	-0.401240000
9	0.000000000	4.734718000	0.005489000
9	-3.171311000	1.722259000	-1.881580000
9	-2.123590000	4.261983000	-1.669818000

MP2/aug-cc-pVDZ=-1831.3132685 a.u. MP2/aug-cc-pVTZ=-1832.5604219 a.u.



**(C<sub>6</sub>F<sub>5</sub>-P=C-C<sub>6</sub>F<sub>5</sub>)<sup>-</sup> (C<sub>1</sub>)**

6	4.852402000	-0.024826000	0.251565000
6	4.157322000	1.144598000	-0.082880000
6	2.763890000	1.132045000	-0.187640000
6	1.970046000	-0.024764000	0.046573000
6	2.724267000	-1.186987000	0.367730000
6	4.117364000	-1.195968000	0.476700000
6	0.524760000	0.019092000	0.118619000
15	-0.352349000	-0.282630000	-1.283474000
6	-2.096657000	-0.084971000	-0.581890000
6	-2.578685000	1.137939000	-0.085357000
6	-3.870006000	1.278190000	0.441980000
6	-4.726878000	0.171929000	0.478331000
6	-4.288170000	-1.060357000	-0.018720000
6	-2.994414000	-1.162226000	-0.545758000
9	-1.816066000	2.255741000	-0.127077000
9	-2.617001000	-2.382354000	-1.017409000
9	-4.312597000	2.474421000	0.909324000
9	-5.121947000	-2.132706000	0.019180000
9	-5.978213000	0.294925000	0.986964000
9	2.147040000	2.305552000	-0.503123000
9	2.067798000	-2.356183000	0.611967000
9	4.856841000	2.291584000	-0.321211000
9	4.777595000	-2.348700000	0.788201000
9	6.213637000	-0.027027000	0.339473000

MP2/aug-cc-pVDZ=-1831.2903892 a.u. MP2/aug-cc-pVTZ=-1832.5420041 a.u.

**(P=CMes<sub>2</sub>)<sup>-</sup> (C<sub>2</sub>)**

6	-2.317463000	0.905582000	0.609766000
6	-1.254466000	-0.032048000	0.420081000
6	-1.388871000	-0.997638000	-0.629298000
6	-2.538496000	-1.008839000	-1.444247000
6	-3.578364000	-0.073336000	-1.279819000
6	-3.439838000	0.871095000	-0.246200000
6	0.000000000	0.000000000	1.241206000
6	1.254466000	0.032048000	0.420081000
6	1.388871000	0.997638000	-0.629298000
6	2.538496000	1.008839000	-1.444247000
6	3.578364000	0.073336000	-1.279819000
6	3.439838000	-0.871095000	-0.246200000
6	2.317463000	-0.905582000	0.609766000
15	0.000000000	0.000000000	2.977250000
6	0.335998000	2.061290000	-0.867667000
1	2.621275000	1.772731000	-2.229930000
6	4.806066000	0.104912000	-2.165881000
1	4.231612000	-1.618269000	-0.100631000
6	2.290158000	-1.974608000	1.679451000
6	-0.335998000	-2.061290000	-0.867667000
1	-2.621275000	-1.772731000	-2.229930000
6	-4.806066000	-0.104912000	-2.165881000
1	-4.231612000	1.618269000	-0.100631000
6	-2.290158000	1.974608000	1.679451000
1	0.766113000	2.884891000	-1.462728000
1	-0.541721000	1.662896000	-1.404515000
1	-0.024779000	2.470974000	0.088209000
1	-2.983667000	2.790823000	1.407136000
1	-2.577896000	1.554088000	2.655019000
1	-1.276955000	2.381981000	1.822505000
1	-5.421295000	0.797245000	-2.016348000
1	-4.529166000	-0.156863000	-3.232862000
1	-5.438603000	-0.983042000	-1.945409000
1	-0.766113000	-2.884891000	-1.462728000
1	0.541721000	-1.662896000	-1.404515000
1	0.024779000	-2.470974000	0.088209000
1	5.421295000	-0.797245000	-2.016348000
1	4.529166000	0.156863000	-3.232862000
1	5.438603000	0.983042000	-1.945409000
1	2.983667000	-2.790823000	1.407136000
1	2.577896000	-1.554088000	2.655019000
1	1.276955000	-2.381981000	1.822505000

MP2/aug-cc-pVDZ=-1075.9358809 a.u. MP2/aug-cc-pVTZ=-1076.6122979 a.u.

**(P=C(CH<sub>3</sub>)-Mes-Mes)<sup>-</sup> (C<sub>1</sub>)**

15	-4.472494000	2.061691000	1.003409000
6	-3.706446000	1.058589000	-0.164326000
6	-2.232674000	0.813847000	-0.104434000
6	-1.712827000	-0.293287000	0.626094000
6	-1.329572000	1.664307000	-0.805053000
6	-0.323738000	-0.529016000	0.651470000
6	0.055099000	1.406193000	-0.763316000
6	0.573802000	0.308575000	-0.044123000
6	2.038158000	0.045445000	-0.011435000
6	2.629903000	-0.791998000	-0.989452000
6	2.842136000	0.633216000	0.999750000
6	4.019491000	-1.031140000	-0.943501000
6	4.226551000	0.372865000	1.015704000
1	4.475368000	-1.679924000	-1.702317000
1	4.845770000	0.828861000	1.799285000
6	4.835239000	-0.457884000	0.051454000
6	-4.377083000	0.336842000	-1.331940000
1	-4.221097000	-0.760122000	-1.267966000
1	-5.457277000	0.550592000	-1.328703000
1	-3.943883000	0.656193000	-2.302557000
6	2.200453000	1.526098000	2.040246000
1	1.699838000	2.384782000	1.564258000
1	1.419983000	0.981239000	2.595706000
1	2.952787000	1.899983000	2.752927000
6	6.326576000	-0.720788000	0.093927000
1	6.619319000	-1.202509000	1.042306000
1	6.633607000	-1.382054000	-0.731609000
1	6.899266000	0.218279000	0.008601000
6	1.764001000	-1.414027000	-2.064472000
1	2.369541000	-2.031556000	-2.747024000
1	0.976768000	-2.042246000	-1.616601000
1	1.247875000	-0.634924000	-2.648932000
1	0.747826000	2.069321000	-1.299230000
1	0.072659000	-1.379646000	1.222546000
6	-1.858945000	2.883890000	-1.523151000
1	-1.049551000	3.400063000	-2.066179000
1	-2.656828000	2.618225000	-2.236053000
1	-2.311420000	3.572833000	-0.789827000
6	-2.650688000	-1.160167000	1.433692000
1	-3.473226000	-1.552362000	0.813178000
1	-2.108046000	-2.006526000	1.887179000
1	-3.119230000	-0.552700000	2.226530000

MP2/aug-cc-pVDZ=-1075.9301052 a.u. MP2/aug-cc-pVTZ=-1076.608498 a.u.

**(Mes-P=C-Mes)<sup>-</sup> (C<sub>1</sub>)**

6	1.027290000	-3.814097000	-0.307104000
6	1.955501000	-3.184953000	-1.178866000
6	2.318734000	-3.839893000	-2.388005000
6	1.759817000	-5.095784000	-2.700892000
6	0.842865000	-5.733221000	-1.839774000
6	0.485285000	-5.072095000	-0.649147000
6	1.665074000	-0.454709000	-1.411001000
6	1.894154000	0.968432000	-1.286928000
6	2.593890000	1.701444000	-2.306483000
6	2.673592000	3.105026000	-2.252292000
6	2.079504000	3.853522000	-1.212094000
6	1.384137000	3.135051000	-0.214770000
6	1.282505000	1.731731000	-0.233765000
15	2.739966000	-1.550417000	-0.710006000
6	3.202857000	0.930048000	-3.452032000
1	3.212146000	3.631951000	-3.053371000
6	2.221372000	5.359627000	-1.145750000
1	0.897803000	3.686027000	0.603280000
6	0.498091000	0.993114000	0.823288000
6	3.269173000	-3.171850000	-3.359423000
1	2.043009000	-5.586967000	-3.642134000
6	0.258702000	-7.084526000	-2.197650000
1	-0.237317000	-5.545176000	0.029538000
6	0.583675000	-3.121057000	0.964335000
1	3.624784000	1.611598000	-4.210650000
1	3.996525000	0.248762000	-3.100364000
1	2.430870000	0.287632000	-3.917121000
1	-0.095702000	-3.766921000	1.545647000
1	1.450230000	-2.856404000	1.594792000
1	0.069423000	-2.176129000	0.723040000
1	-0.443059000	-7.427595000	-1.420500000
1	-0.289220000	-7.042137000	-3.154768000
1	1.049051000	-7.847946000	-2.302284000
1	3.481119000	-3.832649000	-4.216770000
1	2.835417000	-2.226885000	-3.725847000
1	4.221517000	-2.911160000	-2.865939000
1	1.372499000	5.814627000	-0.607004000
1	3.146417000	5.664455000	-0.621037000
1	2.256272000	5.801989000	-2.156424000
1	0.001036000	1.696339000	1.513558000
1	-0.260083000	0.348644000	0.338678000
1	1.147059000	0.316888000	1.405777000

MP2/aug-cc-pVDZ=-1075.9048848 a.u. MP2/aug-cc-pVTZ=-1076.5891742 a.u.

**Table S2.** Reaction energies ( $E_r$  in kcal/mol) of the  $(\text{P}=\text{CH}_2)^-$  fragmentation processes.

Decomposition path	$E_r$ [kcal/mol]
$(\text{P}=\text{CH}_2)^- \rightarrow \text{CH}_2 + \text{P}^-$	161.5
$(\text{P}=\text{CH}_2)^- \rightarrow \text{CH}_2 + {}^3\text{P}^-$	128.6
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{CH}_2 + \text{P}^-$	144.4
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{CH}_2 + {}^3\text{P}^-$	111.6
$(\text{P}=\text{CH}_2)^- \rightarrow {}^2(\text{CH}_2)^- + {}^2\text{P}$	161.4
$(\text{P}=\text{CH}_2)^- \rightarrow {}^2(\text{CH}_2)^- + {}^4\text{P}$	110.2
$(\text{P}=\text{CH}_2)^- \rightarrow (\text{CH})^- + \text{PH}$	204.5
$(\text{P}=\text{CH}_2)^- \rightarrow (\text{CH})^- + {}^3\text{PH}$	165.9
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3(\text{CH})^- + \text{PH}$	172.1
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{PH}$	133.5
$(\text{P}=\text{CH}_2)^- \rightarrow {}^2\text{CH} + {}^2(\text{PH})^-$	145.3
$(\text{P}=\text{CH}_2)^- \rightarrow \text{C} + (\text{PH}_2)^-$	188.0
$(\text{P}=\text{CH}_2)^- \rightarrow \text{C} + {}^3(\text{PH}_2)^-$	229.3
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{C} + (\text{PH}_2)^-$	140.5
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{C} + {}^3(\text{PH}_2)^-$	181.8
$(\text{P}=\text{CH}_2)^- \rightarrow (\text{C}\equiv\text{P})^- + \text{H}_2$	22.9
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3(\text{C}\equiv\text{P})^- + \text{H}_2$	116.6
$(\text{P}=\text{CH}_2)^- \rightarrow \text{P}^- + \text{C} + \text{H}_2$	272.4
$(\text{P}=\text{CH}_2)^- \rightarrow \text{P}^- + {}^3\text{C} + \text{H}_2$	224.9
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{P}^- + \text{C} + \text{H}_2$	239.5
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{P}^- + {}^3\text{C} + \text{H}_2$	192.0
$(\text{P}=\text{CH}_2)^- \rightarrow {}^2\text{P} + {}^2\text{C}^- + \text{H}_2$	267.3
$(\text{P}=\text{CH}_2)^- \rightarrow {}^2\text{P} + {}^4\text{C}^- + \text{H}_2$	223.5
$(\text{P}=\text{CH}_2)^- \rightarrow {}^4\text{P} + {}^2\text{C}^- + \text{H}_2$	216.0
$(\text{P}=\text{CH}_2)^- \rightarrow {}^4\text{P} + {}^4\text{C}^- + \text{H}_2$	172.2
$(\text{P}=\text{CH}_2)^- \rightarrow \text{H}-\text{C}\equiv\text{P} + \text{H}^-$	57.6
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{H}-\text{P}=\text{C} + \text{H}^-$	135.8
$(\text{P}=\text{CH}_2)^- \rightarrow {}^1\text{P}-\text{H}-\text{C} + {}^2\text{H}$	65.5
$(\text{P}=\text{CH}_2)^- \rightarrow {}^3\text{P}-\text{H}-\text{C} + {}^2\text{H}$	157.8


**Table S3.** Reaction energies ( $E_r$  in kcal/mol) of the  $(\text{P}=\text{C}(\text{CH}_3)_2)^-$  fragmentation processes.

Decomposition path	$E_r$ [kcal/mol]
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + (\text{CH}_2\text{CP})^-$	10.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CH}_2\text{CP})^-$	48.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CHCHP})^-$	63.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + (\text{CCPH}_2)^-$	40.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CCPH}_2)^-$	107.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + (\text{CHCPH})^-$	22.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CHCPH})^-$	74.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CCHPH})^-$	76.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + (\text{CHPCH})^-$	83.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CHPCH})^-$	97.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	55.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3 \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	64.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + (\text{CH}_2\text{PC})^-$	77.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CH}_2\text{PC})^-$	124.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \text{---} \text{C} \end{array} \right)^-$	45.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3 \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \text{---} \text{C} \end{array} \right)^-$	89.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_4 + {}^3(\text{CHPHC})^-$	131.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CH}_3\text{CP}$	59.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CH}_3\text{CP}$	135.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CH}_2\text{CHP}$	123.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CH}_2\text{CHP}$	90.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CHCPH}_2$	89.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CHCPH}_2$	175.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CCHPH}_2$	187.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CHCHPH}$	127.3

$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CCPH}_3$	148.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CH}_2\text{PCH}$	141.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CH}_2\text{PCH}$	140.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{HC}=\text{P} \end{array}$	83.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{HC}=\text{P} \\ \text{}^3 \end{array}$	127.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CHPHCH}$	207.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CHPHCH}$	194.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \begin{array}{c} \text{CH} \\ \diagup \quad \diagdown \\ \text{HC}=\text{PH} \end{array}$	94.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + \text{CH}_3\text{PC}$	132.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3)^- + {}^3\text{CH}_3\text{PC}$	164.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_3\text{CHP})^-$	121.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_3\text{CHP})^-$	148.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_3\text{CHP})^-$	104.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_3\text{CHP})^-$	131.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_2\text{CH}_2\text{P})^-$	163.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_2\text{CH}_2\text{P})^-$	146.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_2\text{CHPH})^-$	115.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_2\text{CHP})^- + \text{H}_2$	191.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_2\text{CHPH})^-$	98.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_2\text{CHP})^- + \text{H}_2$	174.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_2\text{CP})^- + \text{H}_2$	140.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_3\text{CPH})^-$	173.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_2\text{CP})^- + \text{H}_2$	123.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_3\text{CPH})^-$	156.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_2\text{CPH}_2)^-$	148.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_2\text{CPH}_2)^-$	131.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CCH}_2\text{PH}_2)^-$	208.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CCH}_2\text{PH}_2)^-$	191.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CHCHPH}_2)^-$	157.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CHCHPH}_2)^-$	199.7

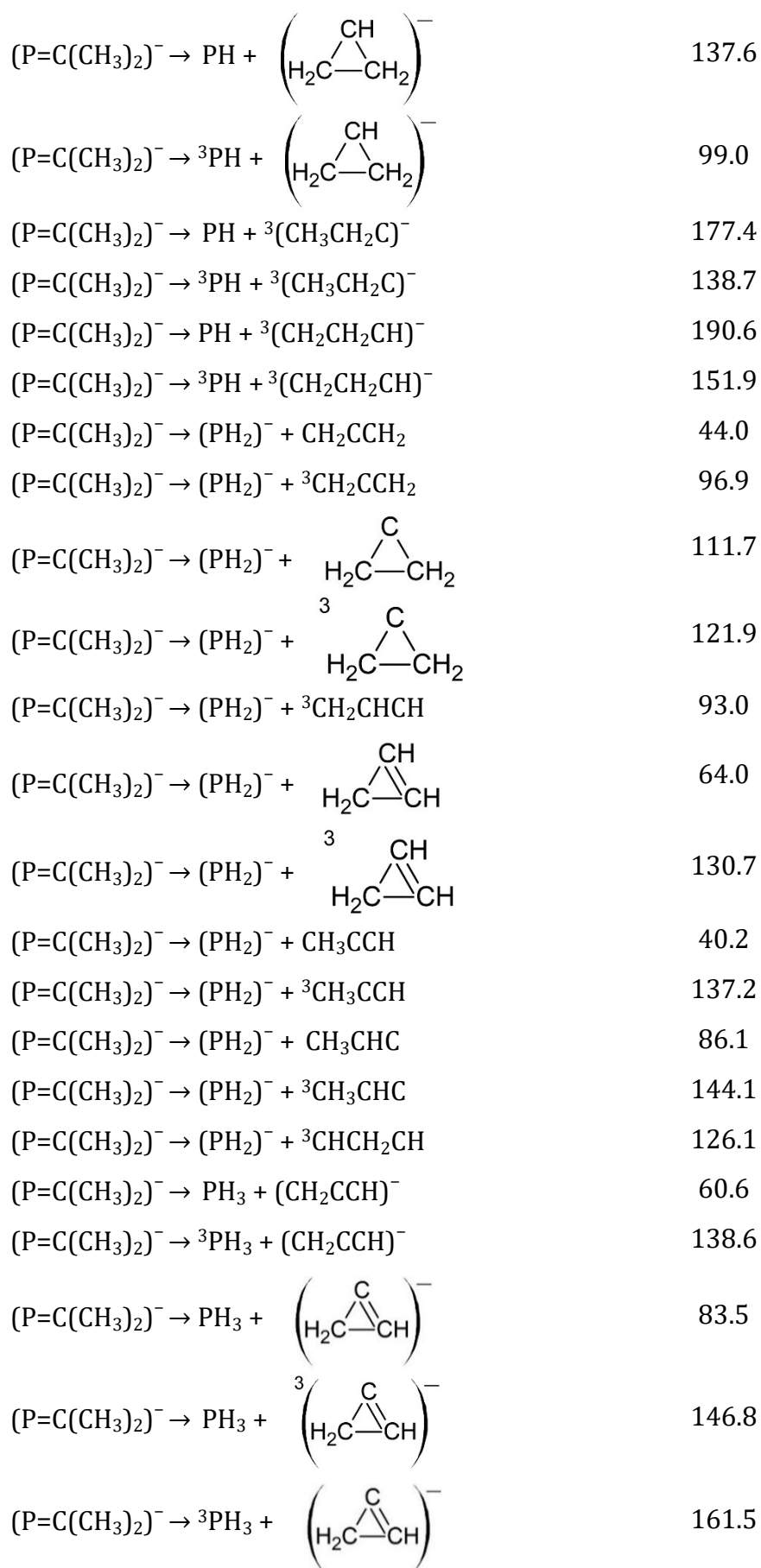
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CHCHPH}_2)^-$	140.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CHCHPH}_2)^-$	182.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + \text{PH}_3 + (\text{CHC})^-$	166.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + \text{PH}_3 + (\text{CHC})^-$	149.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + \text{PH}_3 + (\text{CHC})^-$	167.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CCHPH}_3)^-$	237.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + \text{PH}_3 + (\text{CHC})^-$	150.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CCHPH}_3)^-$	220.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CCPH}_4)^-$	211.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CCPH}_4)^-$	194.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_2\text{PCH}_2)^-$	126.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_2\text{PCH}_2)^-$	169.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_2\text{PCH}_2)^-$	109.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_2\text{PCH}_2)^-$	152.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_3\text{PCH})^-$	141.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_3\text{PCH})^-$	174.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_3\text{PCH})^-$	124.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_3\text{PCH})^-$	157.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + (\text{CH}_2\text{PHCH})^-$	176.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_2\text{PHCH})^-$	205.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + (\text{CH}_2\text{PHCH})^-$	159.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_2\text{PHCH})^-$	188.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + \left( \begin{array}{c} \text{CH}_2 \\ \text{HC}=\text{PH} \end{array} \right)^-$	148.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + \left( \begin{array}{c} \text{CH}_2 \\ \text{HC}=\text{PH} \end{array} \right)^-$	131.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_3\text{PHC})^-$	228.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_3\text{PHC})^-$	211.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CH}_2\text{PH}_2\text{C})^-$	231.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CH}_2\text{PH}_2\text{C})^-$	214.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + \left( \begin{array}{c} \text{CH} \\ \text{HC}=\text{PH}_2 \end{array} \right)^-$	211.4



$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 +$ 	194.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2 + {}^3(\text{CHPH}_2\text{CH})^-$	242.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{CH}_2 + {}^3(\text{CHPH}_2\text{CH})^-$	225.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_3\text{CH}_2\text{P}$	204.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_3\text{CH}_2\text{P}$	171.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_3\text{CH}_2\text{P}$	172.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_3\text{CH}_2\text{P}$	139.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_3\text{CHPH}$	157.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_3\text{CHPH}$	202.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_3\text{CHPH}$	124.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_3\text{CHPH}$	169.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_3\text{CPH}_2$	220.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_3\text{CPH}_2$	225.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_3\text{CPH}_2$	187.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_3\text{CPH}_2$	193.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_2\text{CHPH}_2$	162.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_2\text{CHPH}_2$	225.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_2\text{CHPH}_2$	129.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_2\text{CHPH}_2$	193.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_2\text{CPH}_3$	220.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_2\text{CPH}_3$	187.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_3\text{PCH}_2$	156.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_3\text{PCH}_2$	200.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_3\text{PCH}_2$	123.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_3\text{PCH}_2$	167.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_3\text{PHCH}$	212.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_3\text{PHCH}$	224.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_3\text{PHCH}$	180.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_3\text{PHCH}$	192.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \text{CH}_2\text{PHCH}_2$	197.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_2\text{PHCH}_2$	221.3

$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \text{CH}_2\text{PHCH}_2$	165.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_2\text{PHCH}_2$	188.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{—} \quad \text{PH} \end{array}$	155.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{—} \quad \text{PH} \\ \text{}^3 \end{array}$	202.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{—} \quad \text{PH} \end{array}$	122.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{—} \quad \text{PH} \\ \text{}^3 \end{array}$	170.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH})^- + {}^3\text{CH}_2\text{PH}_2\text{CH}$	275.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{CH})^- + {}^3\text{CH}_2\text{PH}_2\text{CH}$	243.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_3\text{CH}_2\text{PH})^-$	199.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_3\text{CH}_2\text{PH})^-$	152.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_3\text{CHPH}_2)^-$	225.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_3\text{CHPH}_2)^-$	177.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_2\text{CH}_2\text{PH}_2)^-$	219.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_2\text{CH}_2\text{PH}_2)^-$	172.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_3\text{CPH}_3)^-$	282.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_3\text{CPH}_3)^-$	234.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_2\text{CPH}_4)^-$	292.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_2\text{CPH}_4)^-$	244.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CHCHPH}_4)^-$	300.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + {}^3(\text{CHCHPH}_4)^-$	336.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CHCHPH}_4)^-$	252.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + {}^3(\text{CHCHPH}_4)^-$	289.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_3\text{PHCH}_2)^-$	220.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_3\text{PHCH}_2)^-$	172.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_3\text{PH}_2\text{CH})^-$	268.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_3\text{PH}_2\text{CH})^-$	220.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + {}^3(\text{CH}_3\text{PH}_3\text{C})^-$	338.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + {}^3(\text{CH}_3\text{PH}_3\text{C})^-$	290.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CH}_2\text{PH}_2\text{CH}_2)^-$	248.9

$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CH}_2\text{PH}_2\text{CH}_2)^-$	201.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + {}^3(\text{CH}_2\text{PH}_3\text{CH})^-$	344.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + {}^3(\text{CH}_2\text{PH}_3\text{CH})^-$	297.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + \left( \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{PH}_3 \end{array} \right)^-$	291.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + \left( \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{PH}_3 \end{array} \right)^-$	244.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{C} + (\text{CHPH}_4\text{CH})^-$	297.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{C} + (\text{CHPH}_4\text{CH})^-$	249.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + \text{CH}_3\text{CCH}_3$	150.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + {}^3\text{CH}_3\text{CCH}_3$	145.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + \text{CH}_3\text{CCH}_3$	117.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + {}^3\text{CH}_3\text{CCH}_3$	113.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + \text{CH}_3\text{CHCH}_2$	77.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + {}^3\text{CH}_3\text{CHCH}_2$	145.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + \text{CH}_3\text{CHCH}_2$	44.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + {}^3\text{CH}_3\text{CHCH}_2$	112.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + {}^3\text{CH}_3\text{CH}_2\text{CH}$	149.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + {}^3\text{CH}_3\text{CH}_2\text{CH}$	117.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + \text{CH}_2\text{CH}_2\text{CH}_2$	156.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + {}^3\text{CH}_2\text{CH}_2\text{CH}_2$	146.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + \text{CH}_2\text{CH}_2\text{CH}_2$	123.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + {}^3\text{CH}_2\text{CH}_2\text{CH}_2$	113.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{P})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{CH}_2 \end{array}$	83.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3(\text{P})^- + \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \quad \text{CH}_2 \end{array}$	50.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH} + (\text{CH}_3\text{CCH}_2)^-$	124.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH} + (\text{CH}_3\text{CCH}_2)^-$	85.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH} + (\text{CH}_3\text{CHCH})^-$	125.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH} + (\text{CH}_3\text{CHCH})^-$	86.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH} + (\text{CH}_2\text{CHCH}_2)^-$	108.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH} + (\text{CH}_2\text{CHCH}_2)^-$	69.3



$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + \left( \begin{array}{c} \text{C} \\ \text{H}_2\text{C} \text{---} \text{CH} \end{array} \right)^-$	224.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH}_3 + (\text{CH}_3\text{CC})^-$	56.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + (\text{CH}_3\text{CC})^-$	134.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH}_3 + (\text{CHCHCH})^-$	136.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH}_3 + {}^3(\text{CHCHCH})^-$	136.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + (\text{CHCHCH})^-$	214.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + {}^3(\text{CHCHCH})^-$	214.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH}_3 + \left( \begin{array}{c} \text{CH} \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	119.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{PH}_3 + {}^3 \left( \begin{array}{c} \text{CH} \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	127.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + \left( \begin{array}{c} \text{CH} \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	197.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow {}^3\text{PH}_3 + {}^3 \left( \begin{array}{c} \text{CH} \\ \text{HC} \text{---} \text{CH} \end{array} \right)^-$	205.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + \text{CHCCH}$	182.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + {}^3\text{CHCCH}$	166.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + \begin{array}{c} \text{C} \\ \text{HC} \text{---} \text{CH} \end{array}$	152.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + {}^3 \begin{array}{c} \text{C} \\ \text{HC} \text{---} \text{CH} \end{array}$	203.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + \text{CH}_2\text{CC}$	170.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{PH}_4)^- + {}^3\text{CH}_2\text{CC}$	205.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_3\text{PCCH})^-$	39.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_3\text{PCCH})^-$	86.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_2\text{PCHCH})^-$	65.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_2\text{PCHCH})^-$	93.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_2\text{CPCH}_2)^-$	55.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_2\text{CPCH}_2)^-$	85.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_3\text{CHCP})^-$	25.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_3\text{CHCP})^-$	60.4

$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_2\text{CHCP})^-$	32.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_2\text{CHCP})^-$	48.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CH}_2\text{CCHPH})^-$	44.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CH}_2\text{CCH}_2\text{P})^-$	86.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_3\text{C} \\ \diagdown \\ \text{C}=\text{P} \\ \diagup \\ \text{HC} \end{array} \right)^-$	63.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{H}_3\text{C} \\ \diagdown \\ \text{C}=\text{P} \\ \diagup \\ \text{HC} \end{array} \right)^-$	78.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{C}=\text{P} \\ \diagup \\ \text{H}_2\text{C} \end{array} \right)^-$	34.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{C}=\text{P} \\ \diagup \\ \text{H}_2\text{C} \end{array} \right)^-$	66.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_3\text{C} \\ \diagdown \\ \text{CH}=\text{P} \\ \diagup \\ \text{C} \end{array} \right)^-$	101.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{CH}_2 \\ \diagdown \quad \diagup \\ \text{CH} \end{array} \right)^-$	62.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{P}=\text{C} \\ \diagup \\ \text{H}_2\text{C} \end{array} \right)^-$	113.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{P}=\text{C} \\ \diagup \\ \text{H}_2\text{C} \end{array} \right)^-$	130.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{P}=\text{CH} \\ \diagup \\ \text{HC} \end{array} \right)^-$	135.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{H}_2\text{C} \\ \diagdown \\ \text{P}=\text{CH} \\ \diagup \\ \text{HC} \end{array} \right)^-$	147.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{l} \text{H}_3\text{C} \\ \diagdown \\ \text{P}=\text{CH} \\ \diagup \\ \text{C} \end{array} \right)^-$	144.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{H}_3\text{C} \\ \diagdown \\ \text{P}=\text{CH} \\ \diagup \\ \text{C} \end{array} \right)^-$	139.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + (\text{CHCHPHCH})^-$	110.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3 \left( \begin{array}{l} \text{HC} \\ \diagdown \\ \text{PH}=\text{CH} \\ \diagup \\ \text{HC} \end{array} \right)^-$	151.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + \left( \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{PH} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	65.0

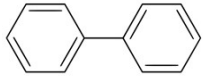
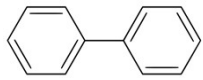
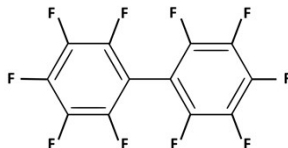
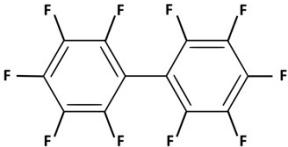
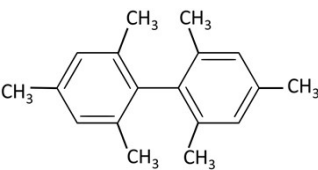
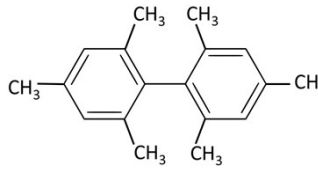
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 +$	
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{H}_2 + {}^3(\text{CCHCH}_2\text{PH})^-$	104.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CH}_2\text{CCP})^-$	66.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CH}_2\text{CCP})^-$	82.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CHCCHP})^-$	79.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCCHP})^-$	94.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CHCHCP})^-$	83.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCHCP})^-$	133.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CHCCPH})^-$	92.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCCPH})^-$	112.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CCCHPH})^-$	83.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CCCHPH})^-$	124.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CH}_2\text{CPC})^-$	130.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CH}_2\text{CPC})^-$	146.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CHCPHC})^-$	157.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCPHC})^-$	157.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCHPC})^-$	161.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CCHPHC})^-$	193.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CCHPHC})^-$	194.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CHCPCH})^-$	101.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CHCPCH})^-$	130.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CCPHCH})^-$	132.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CCPH}_2\text{C})^-$	182.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CCCPH}_2)^-$	132.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3(\text{CCCPH}_2)^-$	133.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CCHCPH})^-$	94.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{HC} \\ \diagdown \quad \diagup \\ \text{C} - \text{PH} \\ \diagup \quad \diagdown \\ \text{C} \end{array} \right)^-$	144.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{C} \\ \diagdown \quad \diagup \\ \text{C} - \text{PH}_2 \\ \diagup \quad \diagdown \\ \text{C} \end{array} \right)^-$	125.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{C} \\ \diagdown \quad \diagup \\ \text{C} - \text{PH}_2 \\ \diagup \quad \diagdown \\ \text{C} \end{array} \right)^-$	185.9

$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{CH} \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{P} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	128.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3 \left( \begin{array}{c} \text{CH} \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{P} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	122.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{CH} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	110.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{HC} \\ \diagup \quad \diagdown \\ \text{C} \quad \text{P} \\ \diagdown \quad \diagup \\ \text{HC} \end{array} \right)^-$	170.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{C} \\ \diagup \quad \diagdown \\ \text{C} \quad \text{PH} \\ \diagdown \quad \diagup \\ \text{CH} \end{array} \right)^-$	115.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + {}^3 \left( \begin{array}{c} \text{C} \\ \diagup \quad \diagdown \\ \text{HC} \quad \text{PH} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	184.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + (\text{CH}_2\text{PCC})^-$	81.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{H}_2 + \left( \begin{array}{c} \text{H}_2\text{C} \\ \diagup \quad \diagdown \\ \text{C} \quad \text{P} \quad \text{C} \\ \diagdown \quad \diagup \\ \text{C} \end{array} \right)^-$	228.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 3\text{H}_2 + \left( \begin{array}{c} \text{P} \\ \diagup \quad \diagdown \\ \text{C} \\ \diagdown \quad \diagup \\ \text{C} \quad \text{C} \end{array} \right)^-$	166.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 3\text{H}_2 + (\text{CCCP})^-$	91.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 3\text{H}_2 + {}^3(\text{CCCP})^-$	154.9
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 3\text{H}_2 + \left( \begin{array}{c} \text{C} \\ \diagup \quad \diagdown \\ \text{C} \\ \diagdown \quad \diagup \\ \text{C} \quad \text{P} \end{array} \right)^-$	150.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 3\text{H}_2 + {}^3(\text{CCPC})^-$	203.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_3\text{CH}_3 + (\text{CP})^-$	17.5
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_3\text{CH}_3 + {}^3(\text{CP})^-$	111.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3\text{CH}_2)^- + \text{CHP}$	72.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_3\text{CH}_2)^- + {}^3\text{CHP}$	154.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2\text{CH}_2 + (\text{CH}_2\text{P})^-$	36.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2\text{CH}_2 + (\text{CH}_2\text{P})^-$	58.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2\text{CH}_2 + (\text{CHPH})^-$	59.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow \text{CH}_2\text{CH}_2 + {}^3(\text{CHPH})^-$	85.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + \text{CH}_3\text{P}$	122.6



$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + {}^3\text{CH}_3\text{P}$	88.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + \text{CH}_2\text{PH}$	77.2
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + {}^3\text{CH}_2\text{PH}$	156.4
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + \text{CHPH}_2$	137.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow (\text{CH}_2\text{CH})^- + {}^3\text{CHPH}_2$	145.0
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2{}^2\text{C}^- + {}^2\text{P} + 3\text{H}_2$	670.6
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2{}^2\text{C}^- + {}^4\text{P} + 3\text{H}_2$	619.3
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{C} + \text{P}^- + 3\text{H}_2$	736.7
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2\text{C} + {}^3\text{P}^- + 3\text{H}_2$	703.8
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2{}^3\text{C} + \text{P}^- + 3\text{H}_2$	594.1
$(\text{P}=\text{C}(\text{CH}_3)_2)^- \rightarrow 2{}^3\text{C} + {}^3\text{P}^- + 3\text{H}_2$	561.3

**Table S4.** Reaction energies ( $E_r$  in kcal/mol) of the  $(\text{P}=\text{C}(\text{C}_6\text{H}_5)_2)^-$ ,  $(\text{P}=\text{CF}-\text{C}_6\text{F}_4-\text{C}_6\text{F}_5)^-$  and  $(\text{P}=\text{CMes}_2)^-$  fragmentation processes.

Decomposition path	$E_r$ [kcal/mol]
$(\text{P}=\text{C}(\text{C}_6\text{H}_5)_2)^- \rightarrow$  $+ (\text{C}\equiv\text{P})^-$	35.2
$(\text{P}=\text{C}(\text{C}_6\text{H}_5)_2)^- \rightarrow$  $+ 3(\text{C}\equiv\text{P})^-$	128.9
$(\text{P}=\text{CF}-\text{C}_6\text{F}_4-\text{C}_6\text{F}_5)^- \rightarrow$  $+ (\text{C}\equiv\text{P})^-$	57.4
$(\text{P}=\text{CF}-\text{C}_6\text{F}_4-\text{C}_6\text{F}_5)^- \rightarrow$  $+ 3(\text{C}\equiv\text{P})^-$	151.1
$(\text{P}=\text{CMes}_2)^- \rightarrow$  $+ (\text{C}\equiv\text{P})^-$	30.6
$(\text{P}=\text{CMes}_2)^- \rightarrow$  $+ 3(\text{C}\equiv\text{P})^-$	124.3