

# (1R,9R,E)-4,11,11-Trimethyl-8-methylenebicyclo[7

**Other names:**

Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, (1R,4E,9R)-  
Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R\*,4E,9R\*)]-  
(+)-9-epi-«beta»-Caryophyllene  
9-epi-(E)-Caryophyllene  
9-epi-trans-Caryophyllene  
9-epi-«beta»-Caryophyllene  
epi-«beta»-Caryophyllene  
9-epi-(E)-Caryophyllene

**Inchi:** InChI=1S/C15H24/c1-11-6-5-7-12(2)13-10-15(3,4)14(13)9-8-11/h6,13-14H,2,5,7-10H2,1,**InchiKey:** NPNUFJAVOOONJE-BLOBHPOZSA-N**Formula:** C15H24**SMILES:** C=C1CCC=C(C)CCC2C1CC2(C)C**Mol. weight [g/mol]:** 204.35**CAS:** 68832-35-9

## Physical Properties

| Property code | Value   | Unit   | Source         |
|---------------|---------|--------|----------------|
| gf            | 196.63  | kJ/mol | Joback Method  |
| hf            | -112.68 | kJ/mol | Joback Method  |
| hfus          | 14.82   | kJ/mol | Joback Method  |
| h vap         | 49.32   | kJ/mol | Joback Method  |
| log10ws       | -4.87   |        | Crippen Method |
| logp          | 4.725   |        | Crippen Method |
| m cvol        | 191.890 | ml/mol | McGowan Method |
| pc            | 2027.23 | kPa    | Joback Method  |
| rinpol        | 1465.00 |        | NIST Webbook   |
| rinpol        | 1457.00 |        | NIST Webbook   |
| rinpol        | 1466.00 |        | NIST Webbook   |
| rinpol        | 1465.00 |        | NIST Webbook   |
| rinpol        | 1470.00 |        | NIST Webbook   |
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| rinpol        | 1463.00 |        | NIST Webbook   |
| rinpol        | 1466.00 |        | NIST Webbook   |
| rinpol        | 1429.00 |        | NIST Webbook   |
| rinpol        | 1465.00 |        | NIST Webbook   |
| rinpol        | 1468.00 |        | NIST Webbook   |
| rinpol        | 1467.00 |        | NIST Webbook   |

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|--------|---------|----------------------|---------------|
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| rinpol | 1471.00 |                      | NIST Webbook  |
| rinpol | 1455.00 |                      | NIST Webbook  |
| rinpol | 1472.00 |                      | NIST Webbook  |
| rinpol | 1467.00 |                      | NIST Webbook  |
| rinpol | 1462.00 |                      | NIST Webbook  |
| rinpol | 1451.00 |                      | NIST Webbook  |
| rinpol | 1467.00 |                      | NIST Webbook  |
| rinpol | 1467.00 |                      | NIST Webbook  |
| rinpol | 1457.00 |                      | NIST Webbook  |
| rinpol | 1474.00 |                      | NIST Webbook  |
| rinpol | 1462.00 |                      | NIST Webbook  |
| rinpol | 1457.00 |                      | NIST Webbook  |
| rinpol | 1467.00 |                      | NIST Webbook  |
| rinpol | 1465.00 |                      | NIST Webbook  |
| rinpol | 1475.00 |                      | NIST Webbook  |
| rinpol | 1471.00 |                      | NIST Webbook  |
| ripol  | 1630.00 |                      | NIST Webbook  |
| ripol  | 1572.00 |                      | NIST Webbook  |
| ripol  | 1563.00 |                      | NIST Webbook  |
| tb     | 576.30  | K                    | Joback Method |
| tc     | 802.06  | K                    | Joback Method |
| tf     | 323.71  | K                    | Joback Method |
| vc     | 0.717   | m <sup>3</sup> /kmol | Joback Method |

## Temperature Dependent Properties

| Property code | Value  | Unit    | Temperature [K] | Source        |
|---------------|--------|---------|-----------------|---------------|
| cpg           | 501.77 | J/mol×K | 576.30          | Joback Method |
| cpg           | 525.28 | J/mol×K | 613.93          | Joback Method |
| cpg           | 547.37 | J/mol×K | 651.55          | Joback Method |
| cpg           | 568.18 | J/mol×K | 689.18          | Joback Method |
| cpg           | 587.84 | J/mol×K | 726.81          | Joback Method |
| cpg           | 606.51 | J/mol×K | 764.43          | Joback Method |
| cpg           | 624.31 | J/mol×K | 802.06          | Joback Method |

## Sources

|                        |   |
|------------------------|---|
| <b>Crippen Method:</b> | <a href="http://pubs.acs.org/doi/abs/10.1021/ci9903071">http://pubs.acs.org/doi/abs/10.1021/ci9903071</a>                                     |
| <b>Crippen Method:</b> | <a href="https://www.chemeo.com/doc/models/crippen_log10ws">https://www.chemeo.com/doc/models/crippen_log10ws</a>                             |
| <b>Joback Method:</b>  | <a href="https://en.wikipedia.org/wiki/Joback_method">https://en.wikipedia.org/wiki/Joback_method</a>   |
| <b>McGowan Method:</b> | <a href="http://link.springer.com/article/10.1007/BF02311772">http://link.springer.com/article/10.1007/BF02311772</a>                         |
| <b>NIST Webbook:</b>   | <a href="http://webbook.nist.gov/cgi/cbook.cgi?ID=C68832359&amp;Units=SI">http://webbook.nist.gov/cgi/cbook.cgi?ID=C68832359&amp;Units=SI</a> |

## Legend

|                            |   |
|----------------------------|---|
| <b>cp<sub>g</sub>:</b>     | Ideal gas heat capacity                         |
| <b>g<sub>f</sub>:</b>      | Standard Gibbs free energy of formation         |
| <b>h<sub>f</sub>:</b>      | Enthalpy of formation at standard conditions    |
| <b>h<sub>fus</sub>:</b>    | Enthalpy of fusion at standard conditions       |
| <b>h<sub>vap</sub>:</b>    | Enthalpy of vaporization at standard conditions |
| <b>log<sub>10</sub>ws:</b> | Log <sub>10</sub> of Water solubility in mol/l  |
| <b>log<sub>p</sub>:</b>    | Octanol/Water partition coefficient             |
| <b>mc<sub>vol</sub>:</b>   | McGowan's characteristic volume                 |
| <b>pc:</b>                 | Critical Pressure                               |
| <b>rin<sub>pol</sub>:</b>  | Non-polar retention indices                     |
| <b>rip<sub>ol</sub>:</b>   | Polar retention indices                         |
| <b>tb:</b>                 | Normal Boiling Point Temperature                |
| <b>tc:</b>                 | Critical Temperature                            |
| <b>tf:</b>                 | Normal melting (fusion) point                   |
| <b>vc:</b>                 | Critical Volume                                 |

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