

# [2-methyl-1-phenyl-2-propanol c10h14o structure](https://assignbuster.com/2-methyl-1-phenyl-2-propanol-c10h14o-structure/)

Contents

* Retention Index (Linear):

|  |  |
| --- | --- |
| Molecular Formula | C 10 H 14 O |
| Average mass | 150. 218 Da |
| Density | 1. 0±0. 1 g/cm 3 |
| Boiling Point | 215. 0±8. 0 °C at 760 mmHg |
| Flash Point | 81. 1±0. 0 °C |
| Molar Refractivity | 46. 6±0. 3 cm 3 |
| Polarizability | 18. 5±0. 5 10 -24 cm 3 |
| Surface Tension | 36. 4±3. 0 dyne/cm |
| Molar Volume | 152. 8±3. 0 cm 3 |

* Experimental data
* Predicted – ACD/Labs
* Predicted – EPISuite
* Predicted – ChemAxon
* Predicted – Mcule
* Experimental Physico-chemical Properties

## Experimental Melting Point:

|  |
| --- |
| 23-25 °CAlfa Aesar |
| 24 °CJean-Claude Bradley Open Melting Point Dataset2859, 20682 |
| 23-25 °CAlfa AesarL03679 |
| 24 °CFooDBFDB008187 |

## Experimental Boiling Point:

|  |
| --- |
| 215 °CAlfa Aesar |
| 214-216 °CFood and Agriculture Organization of the United Nations2-Methyl-1-phenylpropan-2-ol |
| 215 °CAlfa AesarL03679 |
| 1 °C / 58 mmHg (69. 8871 °C / 760 mmHg)FooDBFDB008187 |

## Experimental Flash Point:

|  |
| --- |
| 23 °CTCID0783 |
| 82 °CAlfa Aesar |
| 82 °CAlfa Aesar |
| 82 °F (27. 7778 °C)Alfa AesarL03679 |

## Experimental Gravity:

|  |
| --- |
| 20 g/mLMerck Millipore4351 |
| 20 g/lMerck Millipore4351, 840096 |
| 0. 974 g/mLAlfa AesarL03679 |

## Experimental Refraction Index:

|  |
| --- |
| 1. 514Alfa AesarL03679 |
| 1. 514-1. 517 (Liquid)Food and Agriculture Organization of the United Nations2-Methyl-1-phenylpropan-2-ol |
| 20 (Liquid)FooDBFDB008187 |

* Miscellaneous

## Appearance:

|  |
| --- |
| Colourless to pale yellow viscous liquid or white crystalline solid; Warm, herbaceous, floral aromaFood and Agriculture Organization of the United Nations2-Methyl-1-phenylpropan-2-ol |

## Safety:

|  |
| --- |
| 22Alfa AesarL03679 |
| 36Alfa AesarL03679 |
| GHS07BiosynthW-108935 |
| H302Alfa AesarL03679 |
| H302BiosynthW-108935 |
| HARMFULAlfa AesarL03679 |
| P264-P270-P301+P312-P330-P501aAlfa AesarL03679 |
| WarningAlfa AesarL03679 |
| WarningBiosynthW-108935 |
| WARNING: Irritates skin and eyes, harmful if swallowedAlfa AesarL03679 |

* Gas Chromatography

## Retention Index (Kovats):

|  |
| --- |
| 1184 (estimated with error: 41)NIST Spectramainlib\_232311, replib\_285185, replib\_131780, replib\_156522, replib\_114583 |
| 1140. 9 (Program type: Isothermal; Col… (show more)umn class: Standard non-polar; Column diameter: 0. 35 mm; Column length: 40 m; Column type: Capillary; Start T: 100 C; CAS no: 100867; Active phase: SE-30; Phase thickness: 0. 35 um; Data type: Kovats RI; Authors: Tudor, E., Temperature dependence of the retention index for perfumery compounds on a SE-30 glass capillary column. I. Linear equations, J. Chromatogr. A, 779, 1997, 287-297.)NIST Spectranist ri |
| 1781 (Program type: Isothermal; Col… (show more)umn class: Standard polar; Column type: Capillary; Start T: 150 C; CAS no: 100867; Active phase: Carbowax 20M; Phase thickness: 0. 45 um; Data type: Kovats RI; Authors: Tudor, E.; Moldovan, D.; Zarna, N., Temperature dependence of the retention index for perfumery compounds on two carbowax-20M glass capillary columns with different film thickness. 2, Rev. Roum. Chim., 44(7), 1999, 665-675.)NIST Spectranist ri |

## Retention Index (Linear):

|  |
| --- |
| 1124. 6 (Program type: Ramp; Column cl… (show more)ass: Standard non-polar; Column diameter: 0. 25 mm; Column length: 30 m; Column type: Capillary; Heat rate: 2 K/min; Start T: 50 C; End T: 300 C; CAS no: 100867; Active phase: DB-1; Data type: Linear RI; Authors: Chang, L. P.; Sheng, L. S.; Yang, M. Z.; An, D. K., Retention index of essential oil in temperature-programmed capillary column gas chromatography, Acta Pharm. Sin., 24(11), 1989, 847-852.)NIST Spectranist ri |
| 1126. 7 (Program type: Ramp; Column cl… (show more)ass: Standard non-polar; Column diameter: 0. 25 mm; Column length: 30 m; Column type: Capillary; Heat rate: 2 K/min; Start T: 50 C; End T: 300 C; CAS no: 100867; Active phase: DB-1; Data type: Linear RI; Authors: Chang, L. P.; Sheng, L. S.; Yang, M. Z.; An, D. K., Retention index of essential oil in temperature-programmed capillary column gas chromatography, Acta Pharm. Sin., 24(11), 1989, 847-852.)NIST Spectranist ri |
| 1751. 4 (Program type: Ramp; Column cl… (show more)ass: Standard polar; Column diameter: 0. 25 mm; Column length: 30 m; Column type: Capillary; Heat rate: 2 K/min; Start T: 50 C; End T: 240 C; CAS no: 100867; Active phase: DB-Wax; Data type: Linear RI; Authors: Chang, L. P.; Sheng, L. S.; Yang, M. Z.; An, D. K., Retention index of essential oil in temperature-programmed capillary column gas chromatography, Acta Pharm. Sin., 24(11), 1989, 847-852.)NIST Spectranist ri |
| 1753. 9 (Program type: Ramp; Column cl… (show more)ass: Standard polar; Column diameter: 0. 25 mm; Column length: 30 m; Column type: Capillary; Heat rate: 2 K/min; Start T: 50 C; End T: 240 C; CAS no: 100867; Active phase: DB-Wax; Data type: Linear RI; Authors: Chang, L. P.; Sheng, L. S.; Yang, M. Z.; An, D. K., Retention index of essential oil in temperature-programmed capillary column gas chromatography, Acta Pharm. Sin., 24(11), 1989, 847-852.)NIST Spectranist ri |

Predicted data is generated using the ACD/Labs Percepta Platform – PhysChem Module

|  |  |
| --- | --- |
| Density: | 1. 0±0. 1 g/cm 3 |
| Boiling Point: | 215. 0±8. 0 °C at 760 mmHg |
| Vapour Pressure: | 0. 1±0. 4 mmHg at 25°C |
| Enthalpy of Vaporization: | 47. 7±3. 0 kJ/mol |
| Flash Point: | 81. 1±0. 0 °C |
| Index of Refraction: | 1. 521 |
| Molar Refractivity: | 46. 6±0. 3 cm 3 |
| #H bond acceptors: | 1 |
| #H bond donors: | 1 |
| #Freely Rotating Bonds: | 2 |
| #Rule of 5 Violations: | 0 |

|  |  |
| --- | --- |
| ACD/LogP: | 2. 06 |
| ACD/LogD (pH 5. 5): | 2. 27 |
| ACD/BCF (pH 5. 5): | 31. 37 |
| ACD/KOC (pH 5. 5): | 410. 08 |
| ACD/LogD (pH 7. 4): | 2. 27 |
| ACD/BCF (pH 7. 4): | 31. 37 |
| ACD/KOC (pH 7. 4): | 410. 08 |
| Polar Surface Area: | 20 Å 2 |
| Polarizability: | 18. 5±0. 5 10 -24 cm 3 |
| Surface Tension: | 36. 4±3. 0 dyne/cm |
| Molar Volume: | 152. 8±3. 0 cm 3 |

Predicted data is generated using the US Environmental Protection Agency’s EPISuite™

Log Octanol-Water Partition Coef (SRC): Log Kow (KOWWIN v1. 67 estimate) = 2. 44Boiling Pt, Melting Pt, Vapor Pressure Estimations (MPBPWIN v1. 42): Boiling Pt (deg C): 228. 78 (Adapted Stein & Brown method)Melting Pt (deg C): 19. 44 (Mean or Weighted MP)VP(mm Hg, 25 deg C): 0. 0296 (Mean VP of Antoine & Grain methods)MP (exp database): 24 deg CBP (exp database): 215 deg CWater Solubility Estimate from Log Kow (WSKOW v1. 41): Water Solubility at 25 deg C (mg/L): 2029log Kow used: 2. 44 (estimated)no-melting pt equation usedWater Sol Estimate from Fragments: Wat Sol (v1. 01 est) = 2706. 1 mg/LECOSAR Class Program (ECOSAR v0. 99h): Class(es) found: Neutral OrganicsHenrys Law Constant (25 deg C) [HENRYWIN v3. 10]: Bond Method : 5. 09E-007 atm-m3/moleGroup Method: 2. 18E-007 atm-m3/moleHenrys LC [VP/WSol estimate using EPI values]: 2. 884E-006 atm-m3/moleLog Octanol-Air Partition Coefficient (25 deg C) [KOAWIN v1. 10]: Log Kow used: 2. 44 (KowWin est)Log Kaw used: -4. 682 (HenryWin est)Log Koa (KOAWIN v1. 10 estimate): 7. 122Log Koa (experimental database): NoneProbability of Rapid Biodegradation (BIOWIN v4. 10): Biowin1 (Linear Model) : 0. 6749Biowin2 (Non-Linear Model) : 0. 8218Expert Survey Biodegradation Results: Biowin3 (Ultimate Survey Model): 2. 6022 (weeks-months)Biowin4 (Primary Survey Model) : 3. 4139 (days-weeks )MITI Biodegradation Probability: Biowin5 (MITI Linear Model) : 0. 3191Biowin6 (MITI Non-Linear Model): 0. 2896Anaerobic Biodegradation Probability: Biowin7 (Anaerobic Linear Model): -0. 0380Ready Biodegradability Prediction: NOHydrocarbon Biodegradation (BioHCwin v1. 01): Structure incompatible with current estimation method! Sorption to aerosols (25 Dec C)[AEROWIN v1. 00]: Vapor pressure (liquid/subcooled): 3. 59 Pa (0. 0269 mm Hg)Log Koa (Koawin est ): 7. 122Kp (particle/gas partition coef. (m3/ug)): Mackay model : 8. 36E-007 Octanol/air (Koa) model: 3. 25E-006 Fraction sorbed to airborne particulates (phi): Junge-Pankow model : 3. 02E-005 Mackay model : 6. 69E-005 Octanol/air (Koa) model: 0. 00026 Atmospheric Oxidation (25 deg C) [AopWin v1. 92]: Hydroxyl Radicals Reaction: OVERALL OH Rate Constant = 9. 5679 E-12 cm3/molecule-secHalf-Life = 1. 118 Days (12-hr day; 1. 5E6 OH/cm3)Half-Life = 13. 415 HrsOzone Reaction: No Ozone Reaction EstimationFraction sorbed to airborne particulates (phi): 4. 86E-005 (Junge, Mackay)Note: the sorbed fraction may be resistant to atmospheric oxidationSoil Adsorption Coefficient (PCKOCWIN v1. 66): Koc : 63. 74Log Koc: 1. 804 Aqueous Base/Acid-Catalyzed Hydrolysis (25 deg C) [HYDROWIN v1. 67]: Rate constants can NOT be estimated for this structure! Bioaccumulation Estimates from Log Kow (BCFWIN v2. 17): Log BCF from regression-based method = 1. 177 (BCF = 15. 03)log Kow used: 2. 44 (estimated)Volatilization from Water: Henry LC: 2. 18E-007 atm-m3/mole (estimated by Group SAR Method)Half-Life from Model River: 3293 hours (137. 2 days)Half-Life from Model Lake : 3. 603E+004 hours (1501 days)Removal In Wastewater Treatment: Total removal: 2. 95 percentTotal biodegradation: 0. 10 percentTotal sludge adsorption: 2. 84 percentTotal to Air: 0. 01 percent(using 10000 hr Bio P, A, S)Level III Fugacity Model: Mass Amount Half-Life Emissions(percent) (hr) (kg/hr)Air 0. 651 26. 8 1000 Water 21. 4 900 1000 Soil 77. 8 1. 8e+003 1000 Sediment 0. 157 8. 1e+003 0 Persistence Time: 1. 1e+003 hrLog Octanol-Water Partition Coef (SRC): Log Kow (KOWWIN v1. 67 estimate) = 2. 44Boiling Pt, Melting Pt, Vapor Pressure Estimations (MPBPWIN v1. 42): Boiling Pt (deg C): 228. 78 (Adapted Stein & Brown method)Melting Pt (deg C): 19. 44 (Mean or Weighted MP)VP(mm Hg, 25 deg C): 0. 0296 (Mean VP of Antoine & Grain methods)MP (exp database): 24 deg CBP (exp database): 215 deg CWater Solubility Estimate from Log Kow (WSKOW v1. 41): Water Solubility at 25 deg C (mg/L): 2029log Kow used: 2. 44 (estimated)no-melting pt equation usedWater Sol Estimate from Fragments: Wat Sol (v1. 01 est) = 2706. 1 mg/LECOSAR Class Program (ECOSAR v0. 99h): Class(es) found: Neutral OrganicsHenrys Law Constant (25 deg C) [HENRYWIN v3. 10]: Bond Method : 5. 09E-007 atm-m3/moleGroup Method: 2. 18E-007 atm-m3/moleHenrys LC [VP/WSol estimate using EPI values]: 2. 884E-006 atm-m3/moleLog Octanol-Air Partition Coefficient (25 deg C) [KOAWIN v1. 10]: Log Kow used: 2. 44 (KowWin est)Log Kaw used: -4. 682 (HenryWin est)Log Koa (KOAWIN v1. 10 estimate): 7. 122Log Koa (experimental database): NoneProbability of Rapid Biodegradation (BIOWIN v4. 10): Biowin1 (Linear Model) : 0. 6749Biowin2 (Non-Linear Model) : 0. 8218Expert Survey Biodegradation Results: Biowin3 (Ultimate Survey Model): 2. 6022 (weeks-months)Biowin4 (Primary Survey Model) : 3. 4139 (days-weeks )MITI Biodegradation Probability: Biowin5 (MITI Linear Model) : 0. 3191Biowin6 (MITI Non-Linear Model): 0. 2896Anaerobic Biodegradation Probability: Biowin7 (Anaerobic Linear Model): -0. 0380Ready Biodegradability Prediction: NOHydrocarbon Biodegradation (BioHCwin v1. 01): Structure incompatible with current estimation method! 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