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## Molecular Crystals and Liquid Crystals

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## Tolanes derivatives

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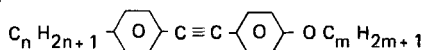
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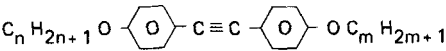
TOLANES DERIVATIVES

• 4-n-alkyl 4'-n-alkoxy-tolanes



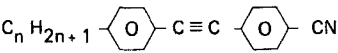
| n | m | K    |             | N |               | I | Ref. |
|---|---|------|-------------|---|---------------|---|------|
| 3 | 1 | •    | 66<br>5.01  | • | [61]<br>0.45  | • | 7,8  |
| 3 | 2 | •    | 90<br>4.9   | • | 98.5<br>0.27  | • | 7,8  |
| 3 | 6 | I •  | 59.5<br>5.6 | • | 75.6<br>0.25  | • | 7,8  |
|   |   | II • | 56.5<br>5.3 | • | 75.5<br>0.22  | • | 7,8  |
| 3 | 7 | •    | 48<br>5.6   | • | 70.5<br>0.22  | • | 7,8  |
| 5 | 1 | •    | 43<br>4.2   | • | 55<br>0.14    | • | 7,8  |
| 5 | 5 | •    | 42.5<br>3.8 | • | 68.5<br>0.19  | • | 7,8  |
| 6 | 1 | •    | 39<br>6.2   | • | 42<br>0.11    | • | 7,8  |
| 6 | 4 | •    | 46.5<br>3.7 | • | 69.5<br>0.18  | • | 7,8  |
| 7 | 1 | •    | 39<br>5.1   | • | 54<br>0.12    | • | 7,8  |
| 7 | 3 | •    | 41<br>5.38  | • | 63<br>0.22    | • | 7,8  |
| 8 | 2 | •    | 47.5<br>4.1 | • | 73.5<br>0.22  | • | 7,8  |
| 9 | 1 | •    | 41<br>7.45  | • | 53.5<br>0.214 | • | 7,8  |

• 4-4'n-alkoxy-tolanes



| n  | m  | K |               | N              |               | I              |              | Ref. |             |   |     |
|----|----|---|---------------|----------------|---------------|----------------|--------------|------|-------------|---|-----|
| 1  | 9  | • | 88.5<br>8.79  | •              | [88]<br>0.23  | •              |              | 7,8  |             |   |     |
| 1  | 11 | • | 91<br>13.3    | •              | [85]<br>0.087 | •              |              | 7,8  |             |   |     |
| 2  | 8  | • | 91<br>5.4     | •              | 113<br>0.40   | •              |              | 7,8  |             |   |     |
| 2  | 10 | • | 85.5<br>6.66  | •              | 108.5<br>0.46 | •              |              | 7,8  |             |   |     |
| 3  | 7  | • | 95<br>5.40    | •              | 94<br>0.24    | •              |              | 7,8  |             |   |     |
| 3  | 8  | • | 85.5<br>5.26  | •              | 101<br>0.30   | •              |              | 7,8  |             |   |     |
| 3  | 9  | • | 80<br>10.13   | •              | 96<br>0.27    | •              |              | 7,8  |             |   |     |
| 4  | 6  | • | 102<br>5.97   | •              | 112<br>0.41   | •              |              | 7,8  |             |   |     |
| 4  | 8  | • | 82<br>4.32    | •              | 106.5<br>0.36 | •              |              | 7,8  |             |   |     |
| 5  | 5  | • | 106.5<br>6.71 | •              | [106]<br>0.22 | •              |              | 7,8  |             |   |     |
| 7  | 7  | • | 96<br>4.40    | •              | 99<br>0.3     | •              |              | 7,8  |             |   |     |
| 8  | 8  | • | 92<br>4.0     | •              | 103<br>0.53   | •              |              | 7,8  |             |   |     |
| 10 | 10 | K | 86.5<br>12.5  | S <sub>C</sub> | 89<br>0.7     | S <sub>A</sub> | 95.5<br>0.85 | N    | 101<br>0.79 | I | 219 |

• 4-n-alkyl 4'-cyano-tolane



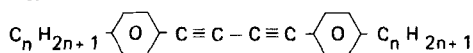
| n | K <sub>2</sub> | K <sub>1</sub> | S <sub>2</sub> | S <sub>1</sub> | N                | I | Ref. |
|---|----------------|----------------|----------------|----------------|------------------|---|------|
| 1 | —              | • 160<br>6.5   | —              | —              | • [65]           | • | 13   |
| 2 | —              | • 110<br>6.2   | —              | —              | • [62]           | • | 13   |
| 3 | —              | • 87<br>7.2    | —              | —              | • [78]           | • | 13   |
| 4 | —              | • 84<br>5.9    | —              | —              | • [57]           | • | 13   |
| 5 | —              | • 79.5<br>6.9  | —              | —              | • [70.5]         | • | 13   |
|   | —              | • 76.5<br>4.9  | —              | —              | • [58.5]<br>0.21 | • | 14   |
| 6 | —              | • 57.5<br>9.0  | —              | —              | • 57.9           | • | 13   |
|   | —              | • 62.9<br>7.0  | —              | —              | • [57.1]<br>0.13 | • | 14   |
| 7 | —              | • 59<br>5.5    | —              | —              | • 67.5           | • | 13   |
|   | { • 56.6       | —              | —              | —              | • 64.6<br>0.21   | • | 14   |
|   | —              | • 57.9<br>4.8  | —              | —              | •                |   |      |
| 8 | —              | • 63.5<br>8.1  | —              | —              | • [60]           | • | 13   |
|   | —              | • 62.3<br>7.2  | —              | —              | • [59.5]<br>0.21 | • | 14   |
| 9 | { —            | • 57.8<br>8.8  | —              | —              | • 63.8<br>0.24   | • | 14   |
|   | • 54.0         | —              | —              | —              | •                | • |      |
|   |                | • 60<br>8.4    | —              | —              | • 66.5           | • | 13   |

| n  | K <sub>2</sub>   | K <sub>1</sub> | S <sub>2</sub> | S <sub>1</sub> | N                | I | Ref. |
|----|------------------|----------------|----------------|----------------|------------------|---|------|
| 10 | {<br>-<br>• 55.5 | • 64.4<br>12.5 | -              | • [47.9]       | • [62.1]<br>0.36 | • | 14   |
|    |                  | • 65.5<br>8.5  | -              | -              | • [63.6]         | • | 13   |
|    |                  |                |                |                |                  |   |      |
| 11 | {<br>-<br>• 58.7 | • 62.5<br>9.7  | • [60.3]       | • 66.1<br>0.36 | -                | • | 14   |
|    |                  | -              | • 60.3         | • 66.1         | -                | • |      |
|    |                  | • 64<br>13.6   | •              | • [61.4]       | • 66.7           | • | 13   |
| 12 | -                | • 72<br>12.6   | -              | • [64.7]       | • [66]           | • | 13   |

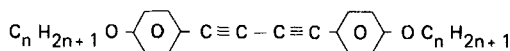
• Others tolanes

| Compounds                                                         | K <sub>2</sub> | K <sub>1</sub> | N              | I      | Ref. |
|-------------------------------------------------------------------|----------------|----------------|----------------|--------|------|
| $C_2H_5-CH-(CH_2)_2-\text{C}_6H_4-C\equiv C-C_6H_4-CN$            | -              | • 81<br>5.9    | • [28]         | •      | 13   |
| $\text{CH}_3$<br>$n-C_7H_{15}O-\text{C}_6H_4-C\equiv C-C_6H_4-CN$ | -              | • 81<br>8.3    | • 93.5         | •      | 13   |
| $(CH_3)_2-CH-(CH_2)_2O-C_6H_4-C\equiv C-C_6H_4-C_5H_{11}$         | -              | 53             | • 58.5<br>5.3  | • [52] | • 7  |
| $n-C_7H_{15}O-C_6H_4-C\equiv C-C_6H_4-C_7H_{15}-n$                | -              | • 28<br>7.0    | • 46<br>0.25   | •      | 11   |
| $n-C_7H_{15}-C_6H_4-C\equiv C-C_6H_4-OC_7H_{15}-n$                | -              | • 46<br>7.27   | • [33]<br>0.17 | •      | 11   |

• Diphenyldiacetylenes



| n | K |        |       | N |        |        | I | Ref. |
|---|---|--------|-------|---|--------|--------|---|------|
| 3 | • | 107.76 | 5.620 | • | 130.91 | 0.3303 | • | 171  |
| 4 | • | 73.77  | 3.442 | • | 98.30  | 0.2267 | • | 171  |
| 6 | • | 56.05  | 3.514 | • | 83.15  | 0.2532 | • | 171  |
| 8 | • | 64.08  | 4.212 | • | 77.62  | 0.2985 | • | 171  |



| n  | K <sub>1</sub>   | K <sub>2</sub>     | S <sub>1</sub>      | S <sub>2</sub>    | N |        |        | I | Ref. |
|----|------------------|--------------------|---------------------|-------------------|---|--------|--------|---|------|
| 2  | —                | • 188.14<br>8.402  | —                   | —                 | • | 209.09 | 0.5812 | • | 171  |
| 3  | —                | • 140.06<br>6.525  | —                   | —                 | • | 175.72 | 0.4587 | • | 171  |
| 4  | —                | • 153.33<br>10.400 | —                   | —                 | • | 175.84 | 0.5363 | • | 171  |
| 6  | —                | • 120.03<br>10.250 | —                   | —                 | • | 150.30 | 0.5854 | • | 171  |
| 8  | • 73.41<br>2.817 | • 108.23<br>6.012  | —                   | —                 | • | 133.89 | 0.4643 | • | 171  |
| 10 | • 92.91<br>2.179 | • 99.10<br>6.293   | —                   | —                 | • | 124.79 | 0.4850 | • | 171  |
| 14 | • 81.39<br>1.749 | • 95.25<br>9.423   | • 104.30<br>0.02582 | • 108.56<br>1.031 | • | 113.56 | 0.5768 | • | 171  |
| 15 | • 92.17<br>2.864 | • 93.35<br>1.004   | • 105.50            | • 108.97<br>1.851 | • | 110.89 | 1.071  | • | 171  |