**Physical Propierties of Tyfocor LS**

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**Abstract**

Polynomial fit of the density, heat capacity, thermal conductivity, vapour pressure and kinematic viscosity of Tyfocor LS (Tyforop Chemie Hamburg).

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# Data

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**Proprietés thermophysiques de TYFOCOR® LS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **T**  **[°C]** | **Chaleur massique**  **[J/kgK]** | **Densité**  **[kg/m3]** | **Viscosité**  **cinématique**  **[mm2/s]** | **Conductivité**  **thermique**  **[W/mK]** | **Coefficient d’ex- pansion cubique**  **[x 10-5/K]** |
| -30 | - | - | - | - | - |
| -25 | 3420 | 1055 | 85.0 | 0.382 | 41.5 |
| -20 | 3440 | 1053 | 57.1 | 0.385 | 43 |
| -10 | 3480 | 1049 | 26.9 | 0.392 | 46 |
| 0 | 3520 | 1045 | 14.5 | 0.399 | 49 |
| 10 | 3560 | 1040 | 7.90 | 0.406 | 52.5 |
| 20 | 3600 | 1034 | 4.95 | 0.413 | 56 |
| 30 | 3640 | 1029 | 3.40 | 0.420 | 59 |
| 40 | 3860 | 1021 | 2.52 | 0.427 | 62.5 |
| 50 | 3720 | 1015 | 1.91 | 0.434 | 66 |
| 60 | 3760 | 1008 | 1.66 | 0.442 | 69 |
| 70 | 3800 | 1001 | 1.42 | 0.449 | 72 |
| 80 | 3840 | 993 | 1.08 | 0.456 | 75 |
| 90 | 3880 | 986 | 0.81 | 0.462 | 78 |
| 100 | 3920 | 977 | 0.59 | 0.469 | 81 |
| 110 | 3960 | 969 | 0.38 | 0.476 | 84 |
| 120 | 3990 | 959 | 0.19 | 0.483 | 87 |

|  |  |
| --- | --- |
| **T**  **[°C]** | **Pression de vapeur**  **[bar]** |
| 20 | - |
| 30 | - |
| 40 | 0.04 |
| 50 | 0.12 |
| 60 | 0.19 |
| 70 | 0.29 |
| 80 | 0.42 |
| 90 | 0.62 |
| 100 | 0.90 |
| 110 | 1.40 |
| 120 | 1.80 |
| 130 | 2.50 |
| 140 | 3.20 |
| 150 | 4.20 |
| 160 | 5.60 |
| 170 | 7.10 |
| 180 | 9.20 |
| 190 | 12.0 |
| 200 | 14.9 |

# Results

## Density



## Heat capacity



## Thermal Conductivity



## Kinematic Viscosity





## Vapour pressure





## Tables

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **T**  **[°C]** | **Heat Capacity**  **[J/kgK]**  **DATA** | **Heat Capacity**  **[J/kgK]**  **FIT** |  | **Density**  **[kg/m3]**  **DATA** | **Density**  **[kg/m3]**  **FIT** |
| -25 | 3420 | 3421,0 |  | 1055 | 1055,1 |
| -20 | 3440 | 3440,8 |  | 1053 | 1053,2 |
| -10 | 3480 | 3480,6 |  | 1049 | 1049,1 |
| 0 | 3520 | 3520,4 |  | 1045 | 1044,6 |
| 10 | 3560 | 3560,2 |  | 1040 | 1039,6 |
| 20 | 3600 | 3599,9 |  | 1034 | 1034,1 |
| 30 | 3640 | 3639,7 |  | 1029 | 1028,2 |
| 40 | 3860 | 3679,5 |  | 1021 | 1022,0 |
| 50 | 3720 | 3719,3 |  | 1015 | 1015,3 |
| 60 | 3760 | 3759,0 |  | 1008 | 1008,3 |
| 70 | 3800 | 3798,8 |  | 1001 | 1000,9 |
| 80 | 3840 | 3838,6 |  | 993 | 993,3 |
| 90 | 3880 | 3878,4 |  | 986 | 985,3 |
| 100 | 3920 | 3918,1 |  | 977 | 977,0 |
| 110 | 3960 | 3957,9 |  | 969 | 968,4 |
| 120 | 3990 | 3997,7 |  | 959 | 959,6 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **T**  **[°C]** | **Viscosité**  **cinématique**  **[mm2/s]**  **DATA** | **Viscosité**  **cinématique**  **[mm2/s]**  **FIT** |  | **Conductivité**  **thermique**  **[W/mK]**  **DATA** | **Conductivité**  **thermique**  **[W/mK]**  **FIT** |
| -25 | 85.0 | 84,69 |  | 0.382 | 0,382 |
| -20 | 57.1 | 57,25 |  | 0.385 | 0,385 |
| -10 | 26.9 | 27,33 |  | 0.392 | 0,392 |
| 0 | 14.5 | 14,10 |  | 0.399 | 0,399 |
| 10 | 7.90 | 7,973 |  | 0.406 | 0,406 |
| 20 | 4.95 | 4,966 |  | 0.413 | 0,413 |
| 30 | 3.40 | 3,393 |  | 0.420 | 0,420 |
| 40 | 2.52 | 2,514 |  | 0.427 | 0,427 |
| 50 | 1.91 | 1,983 |  | 0.434 | 0,434 |
| 60 | 1.66 | 1,627 |  | 0.442 | 0,441 |
| 70 | 1.42 | 1,350 |  | 0.449 | 0,448 |
| 80 | 1.08 | 1,097 |  | 0.456 | 0,455 |
| 90 | 0.81 | 0,844 |  | 0.462 | 0,462 |
| 100 | 0.59 | 0,592 |  | 0.469 | 0,469 |
| 110 | 0.38 | 0,366 |  | 0.476 | 0,476 |
| 120 | 0.19 | 0,193 |  | 0.483 | 0,483 |

|  |  |  |
| --- | --- | --- |
| **T**  **[°C]** | **Vapour pressure**  **[bar]**  **DATA** | **Vapour pressure**  **[bar]**  **FIT** |
| 20 | - |  |
| 30 | - |  |
| 40 | 0.04 | 0,050 |
| 50 | 0.12 | 0,096 |
| 60 | 0.19 | 0,169 |
| 70 | 0.29 | 0,278 |
| 80 | 0.42 | 0,434 |
| 90 | 0.62 | 0,652 |
| 100 | 0.90 | 0,947 |
| 110 | 1.40 | 1,338 |
| 120 | 1.80 | 1,849 |
| 130 | 2.50 | 2,504 |
| 140 | 3.20 | 3,335 |
| 150 | 4.20 | 4,376 |
| 160 | 5.60 | 5,666 |
| 170 | 7.10 | 7,250 |
| 180 | 9.20 | 9,179 |
| 190 | 12.0 | 11,51 |
| 200 | 14.9 | 14,30 |