

# FRAGOLTHERM® X-76-A

**Heat Transfer Fluid**  
-40 °C to 430 °C

## Application

**FRAGOLTHERM® X-76-A** is designed as a heat transfer fluid for application in high temperature processes. In a liquid condition the product can be used between -40 °C and 430 °C.

## Quality

**FRAGOLTHERM® X-76-A** is a synthetic heat transfer fluid based on specially modified polydimethylsiloxane.

In new condition **FRAGOLTHERM® X-76-A** shows a low vapor pressure and a viscosity of approx. 15 mm<sup>2</sup>/s @40 °C. Depending on temperature and time, vapour pressure and viscosity change until an equilibrium state is reached (table page 2).

A contamination with foreign objects such as e.g. water has negative impact on **FRAGOLTHERM® X-76-A** and has to be avoided.

Pipes which are not permanently flowed need a trace heating to avoid a crystallization of decomposition products.

**FRAGOLTHERM X-76-A** is not classified as a hazardous material.

**FRAGOLTHERM® X-76-A** is almost odourless and is characterised by low toxicity.

## Packaging

**FRAGOLTHERM® X-76-A** is available as standard in steel drums.

## Note

Please expressly note that it is possible in general terms, when using heat transfer fluids (also below the maximum specified bulk temperature), that low and high-boiling substances may arise due to thermal or oxidative decomposition.

When handling the product it is essential to observe the safety data sheet.

Please get in touch with us if you require further information or general technical advice.

## Properties

| FRAGOLTHERM® X-76-A                       |                      |      | Method    |
|-------------------------------------------|----------------------|------|-----------|
| Density @ 25 °C                           | [kg/m <sup>3</sup> ] | 932  |           |
| Viscosity @ 40 °C                         | [mm <sup>2</sup> /s] | 7.7  |           |
| Thermal capacity @ 25 °C                  | [kJ/kgK]             | 1.60 |           |
| Thermal conductivity @ 25 °C              | [W/mK]               | 0.13 |           |
| Pourpoint                                 | [°C]                 | -60  | ISO 3016  |
| Flashpoint                                | [°C]                 | >200 | ISO 2719  |
| Boiling point @ 1013 mbar                 | [°C]                 | >200 | DIN 51356 |
| Film temperature max.                     | [°C]                 | 460  |           |
| Bulk temperature max.                     | [°C]                 | 430  |           |
| Dangerous good according to IATA/IMDG/ADR | [-]                  | no   |           |

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**FRAGOLTHERM® X-76-A**

| Temp.<br>°C | Vapor Press.<br>kPa(abs) | Density<br>kg/m³ | Heat Capacity<br>kJ/kgK | Thermal Cond.<br>W/mK | Visc. (kin)<br>mm²/s | Visc. (dyn)<br>mPas | Prantl-<br>Number |
|-------------|--------------------------|------------------|-------------------------|-----------------------|----------------------|---------------------|-------------------|
| -40         |                          | 992              | 1.49                    | 0.143                 | 51.7                 | 51.3                | 534               |
| -30         |                          | 982              | 1.50                    | 0.141                 | 36.2                 | 35.5                | 378               |
| -20         |                          | 973              | 1.52                    | 0.139                 | 26.7                 | 26.0                | 284               |
| -10         |                          | 964              | 1.54                    | 0.138                 | 20.5                 | 19.8                | 221               |
| 0           |                          | 954              | 1.56                    | 0.136                 | 16.2                 | 15.5                | 177               |
| 10          |                          | 945              | 1.57                    | 0.134                 | 13.1                 | 12.4                | 145               |
| 20          |                          | 936              | 1.59                    | 0.132                 | 10.8                 | 10.1                | 122               |
| 30          |                          | 927              | 1.61                    | 0.130                 | 9.09                 | 8.43                | 104               |
| 40          |                          | 918              | 1.62                    | 0.128                 | 7.73                 | 7.10                | 89.8              |
| 50          |                          | 909              | 1.64                    | 0.126                 | 6.66                 | 6.05                | 78.8              |
| 60          |                          | 901              | 1.66                    | 0.124                 | 5.79                 | 5.22                | 69.8              |
| 70          |                          | 892              | 1.67                    | 0.123                 | 5.07                 | 4.52                | 61.4              |
| 80          | 1                        | 883              | 1.69                    | 0.121                 | 4.48                 | 3.96                | 55.3              |
| 90          | 2                        | 874              | 1.71                    | 0.119                 | 3.98                 | 3.48                | 50.0              |
| 100         | 4                        | 865              | 1.73                    | 0.117                 | 3.56                 | 3.08                | 45.5              |
| 110         | 6                        | 856              | 1.74                    | 0.115                 | 3.20                 | 2.74                | 41.4              |
| 120         | 11                       | 847              | 1.76                    | 0.113                 | 2.89                 | 2.45                | 38.1              |
| 130         | 17                       | 839              | 1.78                    | 0.111                 | 2.62                 | 2.20                | 35.3              |
| 140         | 24                       | 830              | 1.79                    | 0.109                 | 2.38                 | 1.98                | 32.4              |
| 150         | 32                       | 821              | 1.81                    | 0.108                 | 2.18                 | 1.79                | 30.0              |
| 160         | 42                       | 811              | 1.83                    | 0.106                 | 2.00                 | 1.62                | 28.0              |
| 170         | 52                       | 802              | 1.85                    | 0.104                 | 1.84                 | 1.48                | 26.3              |
| 180         | 63                       | 793              | 1.86                    | 0.102                 | 1.69                 | 1.34                | 24.4              |
| 190         | 76                       | 784              | 1.88                    | 0.100                 | 1.57                 | 1.23                | 23.1              |
| 200         | 90                       | 774              | 1.90                    | 0.098                 | 1.46                 | 1.13                | 21.9              |
| 210         | 103                      | 765              | 1.91                    | 0.096                 | 1.36                 | 1.04                | 20.7              |
| 220         | 118                      | 755              | 1.93                    | 0.094                 | 1.27                 | 0.96                | 19.7              |
| 230         | 132                      | 745              | 1.95                    | 0.093                 | 1.18                 | 0.88                | 18.4              |
| 240         | 148                      | 735              | 1.97                    | 0.091                 | 1.11                 | 0.82                | 17.7              |
| 250         | 165                      | 725              | 1.98                    | 0.089                 | 1.05                 | 0.76                | 16.9              |
| 260         | 180                      | 715              | 2.00                    | 0.087                 | 0.99                 | 0.71                | 16.3              |
| 270         | 198                      | 704              | 2.02                    | 0.085                 | 0.93                 | 0.65                | 15.6              |
| 280         | 217                      | 694              | 2.03                    | 0.083                 | 0.88                 | 0.61                | 14.9              |
| 290         | 239                      | 683              | 2.05                    | 0.081                 | 0.84                 | 0.57                | 14.5              |
| 300         | 261                      | 672              | 2.07                    | 0.079                 | 0.80                 | 0.54                | 14.1              |
| 310         | 283                      | 661              | 2.08                    | 0.077                 | 0.76                 | 0.50                | 13.6              |
| 320         | 311                      | 649              | 2.10                    | 0.076                 | 0.73                 | 0.47                | 13.1              |
| 330         | 341                      | 637              | 2.12                    | 0.074                 | 0.70                 | 0.45                | 12.8              |
| 340         | 374                      | 625              | 2.14                    | 0.072                 | 0.67                 | 0.42                | 12.4              |
| 350         | 410                      | 613              | 2.15                    | 0.070                 | 0.65                 | 0.40                | 12.2              |
| 360         | 450                      | 601              | 2.17                    | 0.068                 | 0.62                 | 0.37                | 11.9              |

For continuation of technical data see following page

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All the above information is provided to the best of our knowledge. Any legal liability for the content of this information and the suitability of the product for certain applications is rejected. Technical data are approximate values and are subject to the usual production fluctuations.

**FRAGOLTHERM® X-76-A**

Continuation of technical data:

| Temp.<br>°C | Vapor Press.<br>kPa(abs) | Density<br>kg/m <sup>3</sup> | Heat Capacity<br>kJ/kgK | Thermal Cond.<br>W/mK | Visc. (kin)<br>mm <sup>2</sup> /s | Visc. (dyn)<br>mPas | Prantl-<br>Number |
|-------------|--------------------------|------------------------------|-------------------------|-----------------------|-----------------------------------|---------------------|-------------------|
| 370         | 494                      | 588                          | 2.19                    | 0.066                 | 0.60                              | 0.35                | 11.7              |
| 380         | 541                      | 575                          | 2.20                    | 0.064                 | 0.58                              | 0.33                | 11.5              |
| 390         | 593                      | 561                          | 2.22                    | 0.062                 | 0.56                              | 0.31                | 11.2              |
| 400         | 658                      | 548                          | 2.24                    | 0.060                 | 0.55                              | 0.30                | 11.3              |
| 410         | 731                      | 539                          | 2.25                    | 0.058                 | 0.54                              | 0.29                | 11.3              |
| 420         | 817                      | 527                          | 2.27                    | 0.056                 | 0.53                              | 0.28                | 11.3              |
| 430         | 935                      | 515                          | 2.29                    | 0.054                 | 0.53                              | 0.27                | 11.5              |

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