



# DURATHERM HTO

Engineered for precise and efficient temperature control up to 315°C (600°F) and is a budget solution where heat transfer applications require an environmentally friendly, low cost fluid to meet today's fast paced production demands.

## APPLICATION

Duratherm HTO is engineered for many years of service and it's ideal for a wide range of closed to atmosphere (inertly sealed) applications including paint, rubber, paper mill calendars, board plants, roofing, textiles, laundry, refineries and asphalt production.

## THE DIFFERENCE

Duratherm HTO's use of highly refined base stocks ensures excellent thermal stability. Its low volatility also minimizes vapor pressure at elevated temperatures and unlike most other fluids in its class, Duratherm HTO contains antioxidants\*, metal deactivators and corrosion inhibitors to further enhance the fluid's longevity and help protect your system.

\*For critical applications where high levels of oxidation are prevalent please consider Duratherm 600.

## ENVIRONMENTAL

Duratherm HTO is environmentally friendly, non-toxic, non-hazardous and non-reportable. Duratherm HTO poses no ill effect to worker safety.

## DISPOSAL

After its long service life Duratherm HTO can easily be disposed of with other waste oils. Duratherm supports recycling and encourages oil reclamation programs where possible.

## SYSTEM CLEANING

If your existing fluid has let you down and left you with a system full of sludge or carbon, we've developed a full line of heat transfer system cleaners to get your system back to like-new condition. Contact us for complete details.

# DURATHERM HTO

- Maximum temperature: 315°C / 600°F
- High flash point 207°C / 425°F
- Budget fluid for closed systems
- Non-toxic/non-hazardous
- Includes free fluid analysis and tech support



[www.fluidesduratherm.fr](http://www.fluidesduratherm.fr)

## TEMPERATURE RATINGS

|                        |       |       |
|------------------------|-------|-------|
| Maximum Bulk/Use Temp. | 315°C | 600°F |
| Maximum Film Temp.     | 332°C | 630°F |
| Pour Point ASTM D97    | -15°C | 5°F   |

## SAFETY DATA

|                            |       |       |
|----------------------------|-------|-------|
| Flash Point ASTM D92       | 207°C | 425°F |
| Fire Point ASTM D92        | 223°C | 448°F |
| Autoignition ASTM E-659-78 | 360°C | 680°F |

## THERMAL PROPERTIES

|                               |             |             |
|-------------------------------|-------------|-------------|
| Thermal Expansion Coefficient | 0.1011 %/°C | 0.0564 %/°F |
| Thermal Conductivity          | W/m K       | BTU/hr F ft |
| 38°C / 100°F                  | 0.136       | 0.079       |
| 260°C / 500°F                 | 0.124       | 0.072       |
| 316°C / 600°F                 | 0.121       | 0.070       |
| Heat Capacity                 | kJ/kg K     | BTU/lb F    |
| 38°C / 100°F                  | 1.892       | 0.452       |
| 260°C / 500°F                 | 2.587       | 0.618       |
| 316°C / 600°F                 | 2.763       | 0.659       |

## PHYSICAL PROPERTIES

|                                     |                   |                    |
|-------------------------------------|-------------------|--------------------|
| Appearance: clear and bright liquid |                   |                    |
| Viscosity ASTM D445                 |                   |                    |
| cSt at 40°C / 104°F                 | 39.35             |                    |
| cSt at 100°C / 212°F                | 6.34              |                    |
| cSt at 315°C / 600°F                | 0.74              |                    |
| Density ASTM D1298                  | kg/m <sup>3</sup> | lb/ft <sup>3</sup> |
| 38°C / 100°F                        | 810.72            | 50.62              |
| 260°C / 500°F                       | 667.33            | 41.66              |
| 316°C / 600°F                       | 631.15            | 39.41              |
| Vapor Pressure ASTM D2879           | kPa               | psi                |
| 38°C / 100°F                        | 0.00              | 0.00               |
| 260°C / 500°F                       | 2.33              | 0.34               |
| 316°C / 600°F                       | 9.91              | 1.43               |
| Distillation Range ASTM D2887       | 10%               | 372°C (702°F)      |
|                                     | 90%               | 455°C (852°F)      |
| Average Molecular Weight            | 371               |                    |

The values quoted are typical of normal production. They do not constitute a specification.

| TEMPERATURE<br>(Celsius) | DENSITY<br>(kg/m <sup>3</sup> ) | KINEMATIC VISCOSITY<br>(Centistoke) | DYNAMIC VISCOSITY<br>(Centipoise) | THERMAL CONDUCTIVITY<br>(W/m-K) | HEAT CAPACITY<br>(kJ/kg-K) | VAPOR PRESSURE<br>(kPa) |
|--------------------------|---------------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------|-------------------------|
| 5                        | 832.04                          | 286.16                              | 250.63                            | 0.138                           | 1.788                      | 0.00                    |
| 15                       | 825.58                          | 145.23                              | 126.21                            | 0.138                           | 1.819                      | 0.00                    |
| 25                       | 819.12                          | 81.26                               | 70.06                             | 0.137                           | 1.851                      | 0.00                    |
| 35                       | 812.66                          | 49.26                               | 42.14                             | 0.136                           | 1.882                      | 0.00                    |
| 45                       | 806.20                          | 31.91                               | 27.08                             | 0.136                           | 1.913                      | 0.00                    |
| 55                       | 799.74                          | 21.83                               | 18.38                             | 0.135                           | 1.945                      | 0.00                    |
| 65                       | 793.28                          | 15.64                               | 13.06                             | 0.135                           | 1.976                      | 0.00                    |
| 75                       | 786.82                          | 11.64                               | 9.64                              | 0.134                           | 2.007                      | 0.00                    |
| 85                       | 780.37                          | 8.95                                | 7.35                              | 0.134                           | 2.039                      | 0.00                    |
| 95                       | 773.91                          | 7.07                                | 5.76                              | 0.133                           | 2.070                      | 0.00                    |
| 105                      | 767.45                          | 5.72                                | 4.62                              | 0.133                           | 2.101                      | 0.00                    |
| 115                      | 760.99                          | 4.72                                | 3.78                              | 0.132                           | 2.133                      | 0.01                    |
| 125                      | 754.53                          | 3.97                                | 3.15                              | 0.131                           | 2.164                      | 0.01                    |
| 135                      | 748.07                          | 3.38                                | 2.66                              | 0.131                           | 2.195                      | 0.02                    |
| 145                      | 741.61                          | 2.92                                | 2.28                              | 0.130                           | 2.227                      | 0.03                    |
| 155                      | 735.15                          | 2.56                                | 1.98                              | 0.130                           | 2.258                      | 0.05                    |
| 165                      | 728.69                          | 2.26                                | 1.73                              | 0.129                           | 2.290                      | 0.08                    |
| 175                      | 722.23                          | 2.01                                | 1.53                              | 0.129                           | 2.321                      | 0.12                    |
| 185                      | 715.77                          | 1.81                                | 1.36                              | 0.128                           | 2.352                      | 0.18                    |
| 195                      | 709.31                          | 1.64                                | 1.22                              | 0.128                           | 2.384                      | 0.27                    |
| 205                      | 702.85                          | 1.49                                | 1.11                              | 0.127                           | 2.415                      | 0.39                    |
| 215                      | 696.40                          | 1.37                                | 1.01                              | 0.127                           | 2.446                      | 0.55                    |
| 225                      | 689.94                          | 1.26                                | 0.92                              | 0.126                           | 2.478                      | 0.79                    |
| 235                      | 683.48                          | 1.17                                | 0.84                              | 0.125                           | 2.509                      | 1.08                    |
| 245                      | 677.02                          | 1.09                                | 0.78                              | 0.125                           | 2.540                      | 1.48                    |
| 255                      | 670.56                          | 1.02                                | 0.72                              | 0.124                           | 2.572                      | 2.00                    |
| 265                      | 664.10                          | 0.96                                | 0.67                              | 0.124                           | 2.603                      | 2.65                    |
| 275                      | 657.64                          | 0.90                                | 0.63                              | 0.123                           | 2.634                      | 3.51                    |
| 285                      | 651.18                          | 0.86                                | 0.59                              | 0.123                           | 2.666                      | 4.58                    |
| 295                      | 644.72                          | 0.81                                | 0.55                              | 0.122                           | 2.697                      | 5.94                    |
| 305                      | 638.26                          | 0.77                                | 0.52                              | 0.122                           | 2.728                      | 7.62                    |
| 315                      | 631.80                          | 0.74                                | 0.49                              | 0.121                           | 2.760                      | 9.70                    |

The values quoted are typical of normal production. They do not constitute a specification.

| TEMPERATURE<br>(Fahrenheit) | DENSITY<br>(lb/ft <sup>3</sup> ) | KINEMATIC VISCOSITY<br>(Centistoke) | DYNAMIC VISCOSITY<br>(Centipoise) | THERMAL CONDUCTIVITY<br>(BTU/hr-F-ft) | HEAT CAPACITY<br>(BTU/lb-F) | VAPOR PRESSURE<br>(Psia) |
|-----------------------------|----------------------------------|-------------------------------------|-----------------------------------|---------------------------------------|-----------------------------|--------------------------|
| 15                          | 52.53                            | 947.59                              | 839.77                            | 0.080                                 | 0.416                       | 0.00                     |
| 25                          | 52.30                            | 577.58                              | 509.67                            | 0.080                                 | 0.420                       | 0.00                     |
| 35                          | 52.08                            | 367.94                              | 323.29                            | 0.080                                 | 0.425                       | 0.00                     |
| 45                          | 51.85                            | 243.80                              | 213.30                            | 0.080                                 | 0.429                       | 0.00                     |
| 55                          | 51.63                            | 167.32                              | 145.75                            | 0.080                                 | 0.433                       | 0.00                     |
| 65                          | 51.41                            | 118.49                              | 102.77                            | 0.079                                 | 0.437                       | 0.00                     |
| 75                          | 51.18                            | 86.31                               | 74.53                             | 0.079                                 | 0.441                       | 0.00                     |
| 85                          | 50.96                            | 64.47                               | 55.43                             | 0.079                                 | 0.445                       | 0.00                     |
| 95                          | 50.73                            | 49.26                               | 42.17                             | 0.079                                 | 0.450                       | 0.00                     |
| 105                         | 50.51                            | 38.41                               | 32.74                             | 0.079                                 | 0.454                       | 0.00                     |
| 115                         | 50.29                            | 30.51                               | 25.89                             | 0.078                                 | 0.458                       | 0.00                     |
| 125                         | 50.06                            | 24.64                               | 20.81                             | 0.078                                 | 0.462                       | 0.00                     |
| 135                         | 49.84                            | 20.20                               | 16.98                             | 0.078                                 | 0.466                       | 0.00                     |
| 145                         | 49.61                            | 16.78                               | 14.05                             | 0.078                                 | 0.470                       | 0.00                     |
| 155                         | 49.39                            | 14.12                               | 11.76                             | 0.078                                 | 0.474                       | 0.00                     |
| 165                         | 49.17                            | 12.01                               | 9.96                              | 0.078                                 | 0.479                       | 0.00                     |
| 175                         | 48.94                            | 10.32                               | 8.52                              | 0.077                                 | 0.483                       | 0.00                     |
| 185                         | 48.72                            | 8.95                                | 7.35                              | 0.077                                 | 0.487                       | 0.00                     |
| 195                         | 48.49                            | 7.83                                | 6.40                              | 0.077                                 | 0.491                       | 0.00                     |
| 205                         | 48.27                            | 6.90                                | 5.62                              | 0.077                                 | 0.495                       | 0.00                     |
| 215                         | 48.05                            | 6.12                                | 4.96                              | 0.077                                 | 0.499                       | 0.00                     |
| 225                         | 47.82                            | 5.47                                | 4.42                              | 0.077                                 | 0.504                       | 0.00                     |
| 235                         | 47.60                            | 4.92                                | 3.95                              | 0.076                                 | 0.508                       | 0.00                     |
| 245                         | 47.37                            | 4.45                                | 3.55                              | 0.076                                 | 0.512                       | 0.00                     |
| 255                         | 47.15                            | 4.04                                | 3.21                              | 0.076                                 | 0.516                       | 0.00                     |
| 265                         | 46.93                            | 3.69                                | 2.92                              | 0.076                                 | 0.520                       | 0.00                     |
| 275                         | 46.70                            | 3.38                                | 2.67                              | 0.076                                 | 0.524                       | 0.00                     |
| 285                         | 46.48                            | 3.11                                | 2.44                              | 0.076                                 | 0.529                       | 0.00                     |
| 295                         | 46.25                            | 2.88                                | 2.25                              | 0.075                                 | 0.533                       | 0.01                     |
| 305                         | 46.03                            | 2.67                                | 2.07                              | 0.075                                 | 0.537                       | 0.01                     |
| 315                         | 45.81                            | 2.48                                | 1.92                              | 0.075                                 | 0.541                       | 0.01                     |
| 325                         | 45.58                            | 2.32                                | 1.78                              | 0.075                                 | 0.545                       | 0.01                     |
| 335                         | 45.36                            | 2.17                                | 1.66                              | 0.075                                 | 0.549                       | 0.02                     |
| 345                         | 45.13                            | 2.04                                | 1.55                              | 0.075                                 | 0.553                       | 0.02                     |
| 355                         | 44.91                            | 1.92                                | 1.45                              | 0.074                                 | 0.558                       | 0.02                     |
| 365                         | 44.69                            | 1.81                                | 1.36                              | 0.074                                 | 0.562                       | 0.03                     |
| 375                         | 44.46                            | 1.71                                | 1.28                              | 0.074                                 | 0.566                       | 0.03                     |
| 385                         | 44.24                            | 1.62                                | 1.21                              | 0.074                                 | 0.570                       | 0.04                     |
| 395                         | 44.01                            | 1.54                                | 1.14                              | 0.074                                 | 0.574                       | 0.05                     |
| 405                         | 43.79                            | 1.47                                | 1.08                              | 0.074                                 | 0.578                       | 0.06                     |
| 415                         | 43.57                            | 1.40                                | 1.03                              | 0.073                                 | 0.583                       | 0.08                     |
| 425                         | 43.34                            | 1.33                                | 0.98                              | 0.073                                 | 0.587                       | 0.09                     |
| 435                         | 43.12                            | 1.28                                | 0.93                              | 0.073                                 | 0.591                       | 0.11                     |
| 445                         | 42.89                            | 1.22                                | 0.88                              | 0.073                                 | 0.595                       | 0.13                     |
| 455                         | 42.67                            | 1.17                                | 0.84                              | 0.073                                 | 0.599                       | 0.16                     |
| 465                         | 42.45                            | 1.13                                | 0.81                              | 0.073                                 | 0.603                       | 0.19                     |
| 475                         | 42.22                            | 1.08                                | 0.77                              | 0.072                                 | 0.607                       | 0.23                     |
| 485                         | 42.00                            | 1.04                                | 0.74                              | 0.072                                 | 0.612                       | 0.26                     |
| 495                         | 41.77                            | 1.01                                | 0.71                              | 0.072                                 | 0.616                       | 0.31                     |
| 505                         | 41.55                            | 0.97                                | 0.68                              | 0.072                                 | 0.620                       | 0.36                     |
| 515                         | 41.33                            | 0.94                                | 0.66                              | 0.072                                 | 0.624                       | 0.43                     |
| 525                         | 41.10                            | 0.91                                | 0.63                              | 0.072                                 | 0.628                       | 0.49                     |
| 535                         | 40.88                            | 0.88                                | 0.61                              | 0.071                                 | 0.632                       | 0.57                     |
| 545                         | 40.65                            | 0.86                                | 0.59                              | 0.071                                 | 0.637                       | 0.67                     |
| 555                         | 40.43                            | 0.83                                | 0.57                              | 0.071                                 | 0.641                       | 0.77                     |
| 565                         | 40.21                            | 0.81                                | 0.55                              | 0.071                                 | 0.645                       | 0.89                     |
| 575                         | 39.98                            | 0.79                                | 0.53                              | 0.071                                 | 0.649                       | 1.02                     |
| 585                         | 39.76                            | 0.76                                | 0.51                              | 0.071                                 | 0.653                       | 1.16                     |
| 595                         | 39.53                            | 0.74                                | 0.50                              | 0.070                                 | 0.657                       | 1.34                     |
| 600                         | 39.44                            | 0.74                                | 0.49                              | 0.070                                 | 0.659                       | 1.41                     |

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