



Technical Data Sheet

DOWCAL™ 100

Inhibited Ethylene Glycol-based Heat Transfer Fluid

Recommended Usage

DOWCAL™ 100 is an ethylene glycol-based heat transfer fluid for use in a wide range of industrial, pharmaceutical, HVAC and heat recovery applications. It is also suitable for applications requiring corrosion protection at lower glycol concentrations, such as ground source heat pumps.

Recommended use temperature range:

-50°C(-60°F) to 175°C (350°F)

Key Benefits of DOWCAL™ 100

- Improved corrosion protection, in particular for aluminum alloys
- Suitable for use at a minimum 20% concentration for high and low temperatures
- Hard water stability to enable use with local tap water
- Compatible with commonly used elastomers
- Long fluid lifetime, lowering maintenance cost
- Free of nitrite, borax and CMR (carcinogenic, mutagenic, and reprotoxic)

Geographical Availability

DOWCAL™ 100 is available in Europe, Middle-East, Africa and India

Typical Properties of DOWCAL™ 100 † Heat Transfer Fluid

| | |
|---------------------------|---------------|
| Composition (% by weight) | |
| Ethylene Glycol | 91 |
| Inhibitors and Water | 9 |
| Color | Colorless |
| Density at 20°C | |
| g/cm ³ | 1.130 – 1.140 |
| pH of Solution | |
| (50% vol. in Water) | 7.6 - 8.2 |
| (33% vol. in Water) | 7.9 - 8.4 |
| Reserve Alkalinity (min.) | 10.0 ml |

† Typical properties, not to be construed as specifications.
Complete Sales Specifications are available on request.

Typical Freezing, Boiling Points and Other Properties of DOWCAL™ 100†

| DOWCAL™ 100 | DOWCAL™ 100 | Freezing Point | Refractive Index | Boiling Point | Density | Dyn. Viscosity | Kin. Viscosity |
|-------------|-------------|----------------|------------------|---------------|--------------------------|----------------|---------------------------|
| Vol.% | Wt. | °C | @ 20°C | °C @ 1bara | g/cm ³ @ 20°C | mPa.s @ 20°C | mm ² /s @ 20°C |
| 5.0 | 5.6 | -2.1 | 1.3386 | 100.5 | 0.983 | 1.07 | 1.03 |
| 10.0 | 11.2 | -4.3 | 1.3442 | 101.1 | 1.001 | 1.26 | 1.22 |
| 15.0 | 16.7 | -6.7 | 1.3498 | 101.7 | 1.016 | 1.49 | 1.43 |
| 20.0 | 22.1 | -9.4 | 1.3554 | 102.4 | 1.029 | 1.77 | 1.69 |
| 21.0 | 23.2 | -10.0 | 1.3565 | 102.5 | 1.031 | 1.83 | 1.75 |
| 22.0 | 24.3 | -10.6 | 1.3576 | 102.7 | 1.033 | 1.89 | 1.81 |
| 23.0 | 25.3 | -11.3 | 1.3588 | 102.8 | 1.036 | 1.96 | 1.87 |
| 24.0 | 26.4 | -11.9 | 1.3599 | 102.9 | 1.038 | 2.03 | 1.93 |
| 25.0 | 27.5 | -12.6 | 1.3610 | 103.1 | 1.040 | 2.09 | 1.99 |
| 26.0 | 28.5 | -13.2 | 1.3621 | 103.2 | 1.042 | 2.17 | 2.06 |
| 27.0 | 29.6 | -14.0 | 1.3632 | 103.3 | 1.044 | 2.24 | 2.13 |
| 28.0 | 30.6 | -14.7 | 1.3643 | 103.5 | 1.046 | 2.32 | 2.20 |
| 29.0 | 31.7 | -15.4 | 1.3654 | 103.6 | 1.048 | 2.40 | 2.27 |
| 30.0 | 32.7 | -16.2 | 1.3665 | 103.8 | 1.050 | 2.48 | 2.35 |
| 31.0 | 33.8 | -17.0 | 1.3676 | 103.9 | 1.052 | 2.57 | 2.43 |
| 32.0 | 34.8 | -17.8 | 1.3687 | 104.0 | 1.053 | 2.65 | 2.51 |
| 33.0 | 35.9 | -18.7 | 1.3698 | 104.2 | 1.055 | 2.75 | 2.59 |
| 34.0 | 36.9 | -19.5 | 1.3709 | 104.3 | 1.057 | 2.84 | 2.68 |
| 35.0 | 38.0 | -20.4 | 1.3720 | 104.5 | 1.059 | 2.94 | 2.77 |
| 36.0 | 39.0 | -21.4 | 1.3731 | 104.6 | 1.060 | 3.04 | 2.86 |
| 37.0 | 40.0 | -22.3 | 1.3742 | 104.8 | 1.062 | 3.14 | 2.96 |
| 38.0 | 41.0 | -23.3 | 1.3752 | 104.9 | 1.064 | 3.25 | 3.06 |
| 39.0 | 42.1 | -24.3 | 1.3763 | 105.1 | 1.065 | 3.36 | 3.16 |
| 40.0 | 43.1 | -25.4 | 1.3774 | 105.2 | 1.067 | 3.48 | 3.27 |
| 41.0 | 44.1 | -26.4 | 1.3785 | 105.4 | 1.068 | 3.60 | 3.38 |
| 42.0 | 45.1 | -27.5 | 1.3796 | 105.5 | 1.070 | 3.72 | 3.49 |
| 43.0 | 46.1 | -28.7 | 1.3806 | 105.7 | 1.071 | 3.85 | 3.60 |
| 44.0 | 47.2 | -29.9 | 1.3817 | 105.9 | 1.073 | 3.98 | 3.73 |
| 45.0 | 48.2 | -31.1 | 1.3828 | 106.0 | 1.074 | 4.12 | 3.85 |
| 46.0 | 49.2 | -32.3 | 1.3838 | 106.2 | 1.076 | 4.26 | 3.98 |
| 47.0 | 50.2 | -33.6 | 1.3849 | 106.4 | 1.077 | 4.41 | 4.11 |
| 48.0 | 51.2 | -34.9 | 1.3859 | 106.5 | 1.079 | 4.56 | 4.25 |
| 49.0 | 52.2 | -36.3 | 1.3870 | 106.7 | 1.080 | 4.71 | 4.39 |
| 50.0 | 53.2 | -37.7 | 1.3880 | 106.9 | 1.081 | 4.88 | 4.54 |
| 51.0 | 54.2 | -39.1 | 1.3891 | 107.1 | 1.083 | 5.04 | 4.69 |
| 52.0 | 55.2 | -40.6 | 1.3901 | 107.3 | 1.084 | 5.22 | 4.85 |
| 53.0 | 56.2 | -42.1 | 1.3912 | 107.5 | 1.085 | 5.40 | 5.01 |
| 54.0 | 57.1 | -43.7 | 1.3922 | 107.7 | 1.087 | 5.58 | 5.18 |
| 55.0 | 58.1 | -45.3 | 1.3932 | 107.9 | 1.088 | 5.77 | 5.35 |
| 56.0 | 59.1 | -46.9 | 1.3943 | 108.2 | 1.089 | 5.97 | 5.53 |
| 57.0 | 60.1 | -48.6 | 1.3953 | 108.4 | 1.090 | 6.18 | 5.71 |
| 58.0 | 61.1 | -50.3 | 1.3963 | 108.7 | 1.092 | 6.39 | 5.90 |
| 59.0 | 62.0 | <-51 | 1.3973 | 108.9 | 1.093 | 6.61 | 6.10 |
| 60.0 | 63.0 | <-51 | 1.3983 | 109.2 | 1.094 | 6.84 | 6.31 |
| 65.0 | 67.8 | <-51 | 1.4033 | 110.8 | 1.100 | 8.10 | 7.43 |
| 70.0 | 72.6 | <-51 | 1.4082 | 112.8 | 1.105 | 9.59 | 8.76 |
| 75.0 | 77.3 | <-51 | 1.4130 | 115.4 | 1.111 | 11.4 | 10.3 |
| 80.0 | 82.0 | <-51 | 1.4176 | 118.8 | 1.116 | 13.4 | 12.2 |
| 85.0 | 86.6 | -50.9 | 1.4220 | 123.2 | 1.120 | 15.9 | 14.4 |
| 90.0 | 91.1 | -40.8 | 1.4264 | 128.9 | 1.125 | 18.8 | 16.9 |
| 95.0 | 95.6 | -34.5 | 1.4305 | 136.1 | 1.129 | 22.3 | 19.9 |
| 100.0 | 100.0 | -28.7 | 1.4345 | 145.1 | 1.134 | 26.4 | 23.5 |

† Typical properties, not to be construed as specifications.

NOTE: Generally, for an extended margin of protection, you should select a temperature in this table that is at least 3°C lower than the expected lowest ambient temperature. Please contact Dow on specific cases or further assistance.

Saturation properties of DOWCAL™ 100 Fluid at 30% Volume Concentration

| Temperature °C | Specific Heat kJ / (kg) (K) | Density kg/m ³ | Thermal Conductivity W/mK | Viscosity mPa.s |
|-------------------|--------------------------------|------------------------------|------------------------------|--------------------|
| 0 | 3.619 | 1.061 | 0.468 | 4.989 |
| 25 | 3.688 | 1.047 | 0.485 | 2.151 |
| 50 | 3.756 | 1.034 | 0.497 | 1.203 |
| 100 | 3.894 | 1.010 | 0.506 | 0.566 |
| 130 | 3.976 | 0.997 | 0.501 | 0.417 |
| 160 | 4.059 | 0.986 | 0.490 | 0.328 |

Saturation properties of DOWCAL™ 100 Fluid at 40% Volume Concentration

| Temperature °C | Specific Heat kJ / (kg) (K) | Density kg/m ³ | Thermal Conductivity W/mK | Viscosity mPa.s |
|-------------------|--------------------------------|------------------------------|------------------------------|--------------------|
| 0 | 3.441 | 1.079 | 0.443 | 7.332 |
| 25 | 3.522 | 1.064 | 0.453 | 2.987 |
| 50 | 3.603 | 1.050 | 0.459 | 1.606 |
| 100 | 3.766 | 1.025 | 0.459 | 0.718 |
| 130 | 3.863 | 1.012 | 0.452 | 0.518 |
| 160 | 3.960 | 1.000 | 0.439 | 0.401 |

Saturation properties of DOWCAL™ 100 Fluid at 50% Volume Concentration

| Temperature °C | Specific Heat kJ (kg) (K) | Density kg/m ³ | Thermal Conductivity W/mK | Viscosity mPa.s |
|-------------------|------------------------------|------------------------------|------------------------------|--------------------|
| 0 | 3.254 | 1.094 | 0.419 | 10.776 |
| 25 | 3.348 | 1.078 | 0.422 | 4.148 |
| 50 | 3.441 | 1.064 | 0.423 | 2.145 |
| 100 | 3.628 | 1.038 | 0.414 | 0.912 |
| 130 | 3.740 | 1.024 | 0.403 | 0.645 |
| 160 | 3.852 | 1.012 | 0.387 | 0.491 |

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