

Dynalene HC

Low Temperature Water-Based Heat Transfer Fluid

Dynalene® HC is a water-based heat transfer fluid engineered to deliver high performance throughout its temperature range. This user friendly fluid, poses little risk to the environment, equipment or personnel. Five concentrations of Dynalene HC are available to serve a wide range of applications.

Custom formulations are available to satisfy special applications at any temperature between ambient and -55°C (-67°F).

Typical Properties of Dynalene HC

Composition: Dissolved ionic solids/ water
Appearance and Color: clear to light blue

| Property | SI units | US units |
|----------------|----------|----------|
| Freeze Point: | | |
| HC-10 | < -20°C | < -4°F |
| HC-20 | < -30°C | < -22°F |
| HC-30 | < -40°C | < -40°F |
| HC-40 | < -50°C | < -58°F |
| HC-50 | < -55°C | < -67°F |
| Boiling Point: | | |
| HC-10 | 108°C | 226°F |
| HC-20 | 110°C | 230°F |
| HC-30 | 112°C | 234°F |
| HC-40 | 115°C | 239°F |
| HC-50 | 118°C | 244°F |
| Flash Point: | None | None |
| Fire Point: | None | None |

Benefits at a glance

- ◆ Non-toxic
- ◆ Non-flammable
- ◆ Aqueous-based
- ◆ Superior heat transfer characteristics
- ◆ Attractive alternative to glycols and brines

Recommended Temperature Ranges (Closed System)

HC-50: -50°C (-58°F) to 218°C (425°F)
HC-40: -40°C (-40°F) to 218°C (425°F)
HC-30: -30°C (-22°F) to 218°C (425°F)
HC-20: -20°C (-4°F) to 218°C (425°F)
HC-10: -10°C (14°F) to 218°C (425°F)

For Open Systems, please contact us...

For more technical, health and safety information or to request a Material Safety Data Sheet (MSDS), contact our Dynalene sales representative at:

Phone: 610-262-9686

Fax: 610-262-7437

E-mail: info@dynalene.com

Dynalene HC-50

| Temperature °F | Viscosity cP | Thermal Conductivity Btu/hr•ft•°F | Specific Heat Btu/lb•°F | Density lb/ft ³ |
|-------------------|-----------------|--------------------------------------|----------------------------|-------------------------------|
| -58 | 38.435 | 0.2556 | 0.612 | 85.9 |
| -50 | 28.333 | 0.2582 | 0.615 | 85.7 |
| -40 | 20.357 | 0.2615 | 0.617 | 85.6 |
| -20 | 11.872 | 0.2680 | 0.622 | 85.2 |
| 0 | 7.736 | 0.2745 | 0.628 | 84.8 |
| 20 | 5.428 | 0.2811 | 0.633 | 84.4 |
| 40 | 4.235 | 0.2876 | 0.638 | 84.0 |
| 60 | 3.432 | 0.2942 | 0.643 | 83.6 |
| 80 | 2.857 | 0.3007 | 0.649 | 83.3 |
| 100 | 2.426 | 0.3072 | 0.654 | 82.9 |
| 120 | 2.093 | 0.3138 | 0.659 | 82.5 |
| 140 | 1.829 | 0.3203 | 0.664 | 82.1 |
| 160 | 1.615 | 0.3268 | 0.669 | 81.7 |
| 180 | 1.438 | 0.3334 | 0.675 | 81.3 |
| 200 | 1.291 | 0.3399 | 0.680 | 80.9 |
| 220 | 1.166 | 0.3464 | 0.685 | 80.6 |
| 240 | 1.060 | 0.3530 | 0.690 | 80.2 |
| 260 | 0.968 | 0.3595 | 0.696 | 79.8 |
| 280 | 0.888 | 0.3660 | 0.701 | 79.4 |
| 300 | 0.818 | 0.3726 | 0.706 | 79.0 |
| 320 | 0.756 | 0.3791 | 0.711 | 78.6 |
| 340 | 0.701 | 0.3857 | 0.717 | 78.3 |
| 360 | 0.652 | 0.3922 | 0.722 | 77.9 |
| 380 | 0.608 | 0.3987 | 0.727 | 77.5 |
| 400 | 0.569 | 0.4053 | 0.732 | 77.1 |
| 420 | 0.533 | 0.4118 | 0.737 | 76.7 |
| 425 | 0.525 | 0.4134 | 0.739 | 76.6 |

| Temperature °C | Viscosity mPa•s | Thermal Conductivity W/m•K | Specific Heat kJ/kg•K | Density kg/m ³ |
|-------------------|--------------------|-------------------------------|--------------------------|------------------------------|
| -50 | 38.435 | 0.4345 | 2.563 | 1378.8 |
| -40 | 20.357 | 0.4445 | 2.583 | 1373.3 |
| -30 | 12.458 | 0.4545 | 2.602 | 1367.7 |
| -20 | 8.371 | 0.4645 | 2.622 | 1362.2 |
| -10 | 5.999 | 0.4745 | 2.642 | 1356.6 |
| 0 | 4.652 | 0.4845 | 2.661 | 1351.1 |
| 10 | 3.798 | 0.4945 | 2.681 | 1345.6 |
| 20 | 3.181 | 0.5045 | 2.701 | 1340.0 |
| 30 | 2.715 | 0.5145 | 2.720 | 1334.5 |
| 40 | 2.353 | 0.5245 | 2.740 | 1328.9 |
| 50 | 2.064 | 0.5345 | 2.760 | 1323.4 |
| 60 | 1.829 | 0.5445 | 2.780 | 1317.8 |
| 70 | 1.634 | 0.5545 | 2.799 | 1312.3 |
| 80 | 1.471 | 0.5645 | 2.819 | 1306.7 |
| 90 | 1.333 | 0.5745 | 2.839 | 1301.2 |
| 100 | 1.214 | 0.5845 | 2.858 | 1295.7 |
| 110 | 1.111 | 0.5945 | 2.878 | 1290.1 |
| 120 | 1.021 | 0.6045 | 2.898 | 1284.6 |
| 130 | 0.943 | 0.6145 | 2.917 | 1279.0 |
| 140 | 0.873 | 0.6245 | 2.937 | 1273.5 |
| 150 | 0.811 | 0.6345 | 2.957 | 1267.9 |
| 160 | 0.756 | 0.6445 | 2.977 | 1262.4 |
| 170 | 0.706 | 0.6545 | 2.996 | 1256.8 |
| 180 | 0.661 | 0.6645 | 3.016 | 1251.3 |
| 190 | 0.621 | 0.6745 | 3.036 | 1245.7 |
| 200 | 0.584 | 0.6845 | 3.055 | 1240.2 |
| 210 | 0.551 | 0.6945 | 3.075 | 1234.7 |
| 218 | 0.526 | 0.7025 | 3.091 | 1230.2 |

Dynalene HC-40

| Temperature °F | Viscosity cP | Thermal Conductivity Btu/hr•ft•°F | Specific Heat Btu/lb•°F | Density lb/ft ³ |
|-------------------|-----------------|--------------------------------------|----------------------------|-------------------------------|
| -40 | 14.966 | 0.2641 | 0.669 | 84.0 |
| -20 | 8.826 | 0.2707 | 0.675 | 83.6 |
| 0 | 6.075 | 0.2772 | 0.681 | 83.2 |
| 20 | 4.530 | 0.2837 | 0.687 | 82.8 |
| 40 | 3.549 | 0.2903 | 0.693 | 82.5 |
| 60 | 2.877 | 0.2968 | 0.699 | 82.1 |
| 80 | 2.391 | 0.3033 | 0.705 | 81.7 |
| 90 | 2.196 | 0.3066 | 0.708 | 81.5 |
| 100 | 2.025 | 0.3099 | 0.711 | 81.3 |
| 120 | 1.742 | 0.3164 | 0.717 | 80.9 |
| 140 | 1.517 | 0.3229 | 0.723 | 80.5 |
| 160 | 1.335 | 0.3295 | 0.729 | 80.1 |
| 180 | 1.185 | 0.3360 | 0.735 | 79.8 |
| 200 | 1.060 | 0.3425 | 0.741 | 79.4 |
| 220 | 0.954 | 0.3491 | 0.747 | 79.0 |
| 240 | 0.864 | 0.3556 | 0.753 | 78.6 |
| 260 | 0.786 | 0.3622 | 0.759 | 78.2 |
| 280 | 0.719 | 0.3687 | 0.765 | 77.8 |
| 300 | 0.660 | 0.3752 | 0.771 | 77.4 |
| 320 | 0.609 | 0.3818 | 0.777 | 77.0 |
| 340 | 0.563 | 0.3883 | 0.784 | 76.7 |
| 360 | 0.522 | 0.3948 | 0.790 | 76.3 |
| 380 | 0.486 | 0.4014 | 0.796 | 75.9 |
| 400 | 0.453 | 0.4079 | 0.802 | 75.5 |
| 420 | 0.424 | 0.4144 | 0.808 | 75.1 |
| 425 | 0.417 | 0.4161 | 0.809 | 75.0 |

| Temperature °C | Viscosity mPa•s | Thermal Conductivity W/m•K | Specific Heat kJ/kg•K | Density kg/m ³ |
|-------------------|--------------------|-------------------------------|--------------------------|------------------------------|
| -40 | 14.966 | 0.4490 | 2.798 | 1348 |
| -30 | 9.222 | 0.4590 | 2.820 | 1343 |
| -20 | 6.495 | 0.4690 | 2.843 | 1337 |
| -10 | 4.916 | 0.4790 | 2.866 | 1332 |
| 0 | 3.894 | 0.4890 | 2.889 | 1326 |
| 10 | 3.184 | 0.4990 | 2.912 | 1321 |
| 20 | 2.665 | 0.5090 | 2.934 | 1315 |
| 30 | 2.271 | 0.5190 | 2.957 | 1309 |
| 40 | 1.963 | 0.5290 | 2.980 | 1304 |
| 50 | 1.717 | 0.5390 | 3.003 | 1298 |
| 60 | 1.517 | 0.5490 | 3.026 | 1293 |
| 70 | 1.351 | 0.5590 | 3.048 | 1287 |
| 80 | 1.213 | 0.5690 | 3.071 | 1281 |
| 90 | 1.095 | 0.5790 | 3.094 | 1276 |
| 100 | 0.994 | 0.5890 | 3.117 | 1270 |
| 110 | 0.907 | 0.5990 | 3.140 | 1265 |
| 120 | 0.832 | 0.6090 | 3.162 | 1259 |
| 130 | 0.765 | 0.6190 | 3.185 | 1253 |
| 140 | 0.707 | 0.6290 | 3.208 | 1248 |
| 150 | 0.655 | 0.6390 | 3.231 | 1242 |
| 160 | 0.609 | 0.6490 | 3.254 | 1237 |
| 165 | 0.587 | 0.6540 | 3.265 | 1234 |
| 170 | 0.567 | 0.6590 | 3.276 | 1231 |
| 180 | 0.530 | 0.6690 | 3.299 | 1225 |
| 190 | 0.496 | 0.6790 | 3.322 | 1220 |
| 200 | 0.466 | 0.6890 | 3.345 | 1214 |
| 210 | 0.438 | 0.6990 | 3.368 | 1209 |
| 218 | 0.418 | 0.7070 | 3.386 | 1204 |

Dynalene HC-30

| Temperature °F | Viscosity cP | Thermal Conductivity Btu/hr•ft•°F | Specific Heat Btu/lb•°F | Density lb/ft ³ |
|-------------------|-----------------|--------------------------------------|----------------------------|-------------------------------|
| -22 | 6.995 | 0.2756 | 0.708 | 81.0 |
| -20 | 6.809 | 0.2762 | 0.708 | 81.0 |
| 0 | 5.269 | 0.2828 | 0.714 | 80.6 |
| 20 | 4.166 | 0.2893 | 0.721 | 80.3 |
| 40 | 3.356 | 0.2958 | 0.727 | 79.9 |
| 60 | 2.749 | 0.3024 | 0.733 | 79.6 |
| 80 | 2.285 | 0.3089 | 0.739 | 79.2 |
| 100 | 1.925 | 0.3155 | 0.745 | 78.9 |
| 120 | 1.641 | 0.3220 | 0.751 | 78.5 |
| 140 | 1.413 | 0.3285 | 0.757 | 78.2 |
| 160 | 1.229 | 0.3351 | 0.763 | 77.8 |
| 180 | 1.079 | 0.3416 | 0.770 | 77.5 |
| 200 | 0.954 | 0.3481 | 0.776 | 77.1 |
| 220 | 0.850 | 0.3547 | 0.782 | 76.8 |
| 240 | 0.762 | 0.3612 | 0.788 | 76.4 |
| 260 | 0.688 | 0.3677 | 0.794 | 76.0 |
| 280 | 0.624 | 0.3743 | 0.800 | 75.7 |
| 300 | 0.569 | 0.3808 | 0.806 | 75.3 |
| 320 | 0.521 | 0.3874 | 0.812 | 75.0 |
| 340 | 0.480 | 0.3939 | 0.819 | 74.6 |
| 360 | 0.443 | 0.4004 | 0.825 | 74.3 |
| 380 | 0.411 | 0.4070 | 0.831 | 73.9 |
| 400 | 0.383 | 0.4135 | 0.837 | 73.6 |
| 420 | 0.357 | 0.4200 | 0.843 | 73.2 |
| 425 | 0.351 | 0.4217 | 0.845 | 73.1 |

| Temperature °C | Viscosity mPa•s | Thermal Conductivity W/m•K | Specific Heat kJ/kg•K | Density kg/m ³ |
|-------------------|--------------------|-------------------------------|--------------------------|------------------------------|
| -30 | 6.995 | 0.4685 | 2.961 | 1300 |
| -20 | 5.537 | 0.4785 | 2.984 | 1295 |
| -10 | 4.461 | 0.4885 | 3.007 | 1290 |
| 0 | 3.651 | 0.4985 | 3.031 | 1285 |
| 10 | 3.031 | 0.5085 | 3.054 | 1280 |
| 20 | 2.548 | 0.5185 | 3.077 | 1275 |
| 30 | 2.167 | 0.5285 | 3.100 | 1270 |
| 40 | 1.862 | 0.5385 | 3.123 | 1265 |
| 50 | 1.615 | 0.5485 | 3.146 | 1260 |
| 60 | 1.413 | 0.5585 | 3.169 | 1255 |
| 70 | 1.246 | 0.5685 | 3.192 | 1250 |
| 80 | 1.107 | 0.5785 | 3.215 | 1244 |
| 90 | 0.989 | 0.5885 | 3.238 | 1239 |
| 100 | 0.889 | 0.5985 | 3.262 | 1234 |
| 110 | 0.804 | 0.6085 | 3.285 | 1229 |
| 120 | 0.731 | 0.6185 | 3.308 | 1224 |
| 130 | 0.667 | 0.6285 | 3.331 | 1219 |
| 140 | 0.612 | 0.6385 | 3.354 | 1214 |
| 150 | 0.564 | 0.6485 | 3.377 | 1209 |
| 160 | 0.521 | 0.6585 | 3.400 | 1204 |
| 170 | 0.484 | 0.6685 | 3.423 | 1199 |
| 180 | 0.450 | 0.6785 | 3.446 | 1193 |
| 190 | 0.420 | 0.6885 | 3.469 | 1188 |
| 200 | 0.394 | 0.6985 | 3.493 | 1183 |
| 210 | 0.370 | 0.7085 | 3.516 | 1178 |
| 218 | 0.352 | 0.7165 | 3.534 | 1174 |

Dynalene HC-20

| Temperature °F | Viscosity cP | Thermal Conductivity Btu/hr•ft•°F | Specific Heat Btu/lb•°F | Density lb/ft ³ |
|-------------------|-----------------|--------------------------------------|----------------------------|-------------------------------|
| -4 | 4.497 | 0.2838 | 0.745 | 78.4 |
| 0 | 4.287 | 0.2851 | 0.746 | 78.3 |
| 20 | 3.416 | 0.2917 | 0.752 | 77.9 |
| 40 | 2.771 | 0.2982 | 0.759 | 77.6 |
| 60 | 2.285 | 0.3047 | 0.765 | 77.2 |
| 80 | 1.911 | 0.3113 | 0.771 | 76.9 |
| 100 | 1.619 | 0.3178 | 0.777 | 76.5 |
| 120 | 1.387 | 0.3243 | 0.784 | 76.1 |
| 140 | 1.201 | 0.3309 | 0.790 | 75.8 |
| 160 | 1.049 | 0.3374 | 0.796 | 75.4 |
| 180 | 0.925 | 0.3440 | 0.803 | 75.1 |
| 200 | 0.821 | 0.3505 | 0.809 | 74.7 |
| 220 | 0.734 | 0.3570 | 0.815 | 74.3 |
| 240 | 0.661 | 0.3636 | 0.821 | 74.0 |
| 260 | 0.598 | 0.3701 | 0.828 | 73.6 |
| 280 | 0.544 | 0.3766 | 0.834 | 73.3 |
| 300 | 0.498 | 0.3832 | 0.840 | 72.9 |
| 320 | 0.458 | 0.3897 | 0.846 | 72.6 |
| 340 | 0.422 | 0.3962 | 0.853 | 72.2 |
| 360 | 0.391 | 0.4028 | 0.859 | 71.8 |
| 380 | 0.364 | 0.4093 | 0.865 | 71.5 |
| 400 | 0.339 | 0.4158 | 0.871 | 71.1 |
| 420 | 0.317 | 0.4224 | 0.878 | 70.8 |
| 425 | 0.312 | 0.4240 | 0.879 | 70.7 |

| Temperature °C | Viscosity mPa•s | Thermal Conductivity W/m•K | Specific Heat kJ/kg•K | Density kg/m ³ |
|-------------------|--------------------|-------------------------------|--------------------------|------------------------------|
| -20 | 4.497 | 0.4825 | 3.117 | 1258 |
| -10 | 3.649 | 0.4925 | 3.141 | 1253 |
| 0 | 3.007 | 0.5025 | 3.164 | 1248 |
| 10 | 2.511 | 0.5125 | 3.188 | 1242 |
| 20 | 2.123 | 0.5225 | 3.212 | 1237 |
| 30 | 1.816 | 0.5325 | 3.235 | 1232 |
| 40 | 1.568 | 0.5425 | 3.259 | 1227 |
| 50 | 1.366 | 0.5525 | 3.282 | 1222 |
| 60 | 1.201 | 0.5625 | 3.306 | 1216 |
| 70 | 1.063 | 0.5725 | 3.330 | 1211 |
| 80 | 0.948 | 0.5825 | 3.353 | 1206 |
| 90 | 0.850 | 0.5925 | 3.377 | 1201 |
| 100 | 0.767 | 0.6025 | 3.400 | 1196 |
| 110 | 0.696 | 0.6125 | 3.424 | 1191 |
| 120 | 0.634 | 0.6225 | 3.448 | 1185 |
| 130 | 0.581 | 0.6325 | 3.471 | 1180 |
| 140 | 0.535 | 0.6425 | 3.495 | 1175 |
| 150 | 0.494 | 0.6525 | 3.518 | 1170 |
| 160 | 0.458 | 0.6625 | 3.542 | 1165 |
| 170 | 0.426 | 0.6725 | 3.566 | 1159 |
| 180 | 0.397 | 0.6825 | 3.589 | 1154 |
| 190 | 0.372 | 0.6925 | 3.613 | 1149 |
| 200 | 0.349 | 0.7025 | 3.636 | 1144 |
| 210 | 0.328 | 0.7125 | 3.660 | 1139 |
| 218 | 0.313 | 0.7205 | 3.679 | 1134 |

Dynalene HC-10

| Temperature °F | Viscosity cP | Thermal Conductivity Btu/hr•ft•°F | Specific Heat Btu/lb•°F | Density lb/ft ³ |
|-------------------|-----------------|--------------------------------------|----------------------------|-------------------------------|
| 14 | 3.026 | 0.2908 | 0.776 | 75.0 |
| 20 | 2.837 | 0.2928 | 0.778 | 74.9 |
| 40 | 2.314 | 0.2993 | 0.784 | 74.6 |
| 60 | 1.917 | 0.3059 | 0.791 | 74.3 |
| 80 | 1.611 | 0.3124 | 0.797 | 74.0 |
| 90 | 1.484 | 0.3157 | 0.801 | 73.8 |
| 100 | 1.370 | 0.3189 | 0.804 | 73.6 |
| 120 | 1.179 | 0.3255 | 0.811 | 73.3 |
| 140 | 1.024 | 0.3320 | 0.817 | 73.0 |
| 160 | 0.898 | 0.3385 | 0.824 | 72.7 |
| 180 | 0.794 | 0.3451 | 0.830 | 72.4 |
| 200 | 0.707 | 0.3516 | 0.837 | 72.1 |
| 220 | 0.634 | 0.3581 | 0.843 | 71.8 |
| 240 | 0.573 | 0.3647 | 0.850 | 71.5 |
| 260 | 0.520 | 0.3712 | 0.857 | 71.1 |
| 280 | 0.474 | 0.3778 | 0.863 | 70.8 |
| 300 | 0.435 | 0.3843 | 0.870 | 70.5 |
| 320 | 0.400 | 0.3908 | 0.876 | 70.2 |
| 340 | 0.370 | 0.3974 | 0.883 | 69.9 |
| 360 | 0.344 | 0.4039 | 0.890 | 69.6 |
| 380 | 0.320 | 0.4104 | 0.896 | 69.3 |
| 400 | 0.299 | 0.4170 | 0.903 | 68.9 |
| 420 | 0.280 | 0.4235 | 0.909 | 68.6 |
| 425 | 0.276 | 0.4251 | 0.911 | 68.6 |

| Temperature °C | Viscosity mPa•s | Thermal Conductivity W/m•K | Specific Heat kJ/kg•K | Density kg/m ³ |
|-------------------|--------------------|-------------------------------|--------------------------|------------------------------|
| -10 | 3.026 | 0.4944 | 3.246 | 1204 |
| 0 | 2.505 | 0.5044 | 3.271 | 1199 |
| 10 | 2.102 | 0.5144 | 3.296 | 1195 |
| 20 | 1.785 | 0.5244 | 3.320 | 1190 |
| 30 | 1.533 | 0.5344 | 3.345 | 1186 |
| 40 | 1.329 | 0.5444 | 3.370 | 1181 |
| 50 | 1.162 | 0.5544 | 3.395 | 1177 |
| 60 | 1.024 | 0.5644 | 3.420 | 1172 |
| 70 | 0.910 | 0.5744 | 3.444 | 1167 |
| 80 | 0.814 | 0.5844 | 3.469 | 1163 |
| 90 | 0.732 | 0.5944 | 3.494 | 1158 |
| 100 | 0.662 | 0.6044 | 3.519 | 1154 |
| 110 | 0.602 | 0.6144 | 3.544 | 1149 |
| 120 | 0.550 | 0.6244 | 3.568 | 1145 |
| 130 | 0.505 | 0.6344 | 3.593 | 1140 |
| 140 | 0.466 | 0.6444 | 3.618 | 1136 |
| 150 | 0.431 | 0.6544 | 3.643 | 1131 |
| 160 | 0.400 | 0.6644 | 3.668 | 1127 |
| 170 | 0.373 | 0.6744 | 3.692 | 1122 |
| 180 | 0.349 | 0.6844 | 3.717 | 1118 |
| 190 | 0.327 | 0.6944 | 3.742 | 1113 |
| 200 | 0.307 | 0.7044 | 3.767 | 1109 |
| 210 | 0.289 | 0.7144 | 3.792 | 1104 |
| 218 | 0.277 | 0.7224 | 3.811 | 1101 |