

## High Flash, Non-Toxic, Low Temperature Heat Transfer Fluid

### Process Applications

- Ultra-low temperature applications
- Pharmaceutical
- Food and beverage
- Process cooling & heating
- Cryogenic
- Reactor cooling
- Refrigeration systems
- Freeze-drying
- Lyophilization

### ■ Dynalene HF-LO Overview

Dynalene HF-LO is a non-toxic, thermally-efficient, odorless aliphatic hydrocarbon heat transfer fluid. Due to the non-aqueous nature of the fluid, it can be used with water-sensitive chemicals to reduce process hazards. Additionally, its high flash point provides improved safety with regards to transportation and electrical hazards.

Dynalene HF-LO is a food-safe product used in pharmaceutical, food & beverage, refrigeration, and ultra-low temperature applications. This fluid meets several Food & Drug Administration 21 CFR requirements. Contact our sales personnel for more information.

### ■ Materials Compatibility

#### Polymer and Gasket Compatibility:

- Acetal
- Aramid Fiber
- Chemraz (FFKM)
- Epoxy
- Fluorocarbon (FILM)
- Fluoroelastomer
- Glass Fiber
- Gylon
- Kalrez
- Kel-F (CTFE)
- Peek
- PTFE
- Teflon (All)
- PTFE-Silicone
- PTFE-Viton
- PTFE-Fiberglass
- Viton
- Resin-Graphite

#### Metal Compatibility:

- Aluminum
- Brass
- Bronze (All)
- Carbon Steel
- Copper
- Copper-Nickel
- Monel
- Nickel
- Stainless Steel (All)
- Stainless Steel Clad
- Tantalum
- Titanium

### ■ Benefits of Choosing Dynalene HF-LO

- Non-toxic
- High flash point
- Available worldwide
- Cost-effective
- Total fluid care option
- Proven performance
- Food safe
- Environmentally friendly
- Wide operating temperature range

#### Recommended Temperature Range:

Closed Systems:

-73°C (-100°F) to 204°C (400°F)

Open Systems:

-52°C (-60°F) to 58°C (135°F)

### ■ Properties of Dynalene HF-LO

A comprehensive list of all thermo-physical properties of Dynalene HF-LO can be found on page 2. For health and safety information or to request a Safety Data Sheet, contact our Dynalene sales representatives.

Composition:	Aliphatic hydrocarbon blend
Appearance:	Clear
Odor:	Little or none
Freezing Point:	<-118°C (<-180°F)
Boiling Point:	>191°C (>376°F)
Flash Point (Closed):	>61°C (>141°F)
Flash Point (Open):	68°C (156°F)
Fire Point:	72°C (162°F)
Autoignition Temp:	>337°C (>640°F)
Critical Temp:	394°C (741°F)
Critical Pressure:	27 bar (26.7 atm)
Molecular Weight	162
Dielectric Constant	2.1 to 2.2

### ■ Quantity & Availability

Dynalene LO products are usually purchased in 1, 5, and 55-gallon containers, but bulk tankers are also available. Pricing depends on quantity, and Dynalene, Inc. will work with you to try to fit your budget.

### ■ Dynalene's Fluid Care Program

Coupling our Dynalene fluids with a fluid care program can extend the life of your systems significantly. We offer yearly testing of the heat transfer fluid in your system and can track changes in the fluid year to year so adjustments can be made to keep your system working at its best.

## US Units

## SI Units

Temp °F	Viscosity cP	Thermal Cond. BTU/hr-ft·°F	Specific Heat BTU/lb·°F	Density lb/ft <sup>3</sup>
-100	72.5	0.0749	0.416	51.9
-80	28.0	0.0736	0.426	51.4
-60	14.1	0.0722	0.436	50.9
-40	8.40	0.0709	0.446	50.3
-20	5.50	0.0696	0.456	49.8
0	3.90	0.0683	0.466	49.3
20	2.90	0.0670	0.476	48.8
40	2.30	0.0657	0.487	48.2
60	1.80	0.0644	0.497	47.7
80	1.50	0.0631	0.507	47.2
100	1.20	0.0618	0.517	46.7
120	1.00	0.0605	0.527	46.1
140	0.87	0.0592	0.537	45.6
160	0.76	0.0579	0.547	45.1
180	0.66	0.0566	0.557	44.6
200	0.58	0.0553	0.567	44.0
220	0.52	0.0539	0.577	43.5
240	0.46	0.0526	0.587	43.0
260	0.41	0.0513	0.598	42.5
280	0.37	0.0500	0.608	41.9
300	0.34	0.0487	0.618	41.4
320	0.31	0.0474	0.628	40.9
340	0.28	0.0461	0.638	40.3
350	0.27	0.0455	0.643	40.1

Temp °C	Viscosity mPa·s	Thermal Cond. W/m·K	Specific Heat kJ/kg·K	Density kg/m <sup>3</sup>
-73	70.2	0.1272	1.742	833
-70	52.7	0.1266	1.753	831
-60	23.9	0.1246	1.791	823
-50	13.3	0.1226	1.829	816
-40	8.40	0.1206	1.867	808
-30	5.80	0.1186	1.905	800
-20	4.20	0.1166	1.943	793
-10	3.20	0.1146	1.981	785
0	2.50	0.1126	2.019	778
10	2.00	0.1106	2.057	770
20	1.60	0.1086	2.095	762
30	1.40	0.1066	2.133	755
40	1.20	0.1046	2.171	747
50	1.00	0.1026	2.209	740
60	0.87	0.1006	2.247	732
70	0.77	0.0986	2.285	724
80	0.68	0.0966	2.323	717
90	0.60	0.0946	2.361	709
100	0.54	0.0926	2.399	702
110	0.49	0.0906	2.437	694
120	0.44	0.0886	2.475	686
130	0.40	0.0866	2.513	679
140	0.37	0.0846	2.551	671
150	0.34	0.0826	2.589	664
160	0.31	0.0806	2.627	656
170	0.29	0.0786	2.665	649
177	0.27	0.0772	2.692	643

## Vapor Pressure

Temp °F	Temp °C	Pressure mmHg	Pressure kPa	Pressure psi
60	15.6	0.40	0.05	0.01
70	21.1	0.60	0.08	0.01
80	26.7	0.87	0.12	0.02
90	32.2	1.25	0.17	0.02
100	37.8	1.77	0.24	0.03
110	43.3	2.48	0.33	0.05
120	48.9	3.44	0.46	0.07
130	54.4	4.71	0.63	0.09
140	60.0	6.38	0.85	0.12
150	65.6	8.55	1.14	0.17
160	71.1	11.4	1.52	0.22
170	76.7	15.0	2.00	0.29
180	82.2	19.6	2.61	0.38
190	87.8	25.3	3.38	0.49
200	93.3	32.5	4.34	0.63
220	104.4	52.6	7.01	1.02
240	115.6	82.6	11.0	1.60
260	126.7	126.5	16.9	2.45
280	137.8	189.5	25.3	3.66
300	148.9	277.8	37.0	5.37

$$P_{\text{mmHg}} = 3.863 \times 10^8 \times e^{\frac{-5869.9}{T_K}}$$

## Product Disclaimer

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