



## Hydroclear Diamond Class<sup>®</sup> Heat Transfer Fluids

Conoco<sup>®</sup> Hydroclear Diamond Class Heat Transfer Fluids are premium quality fluids specifically developed for use in liquid-phase heat transfer systems. They are available in two different formulations, designated "O/S" for use in open systems and "C/S" for use in closed systems.

Hydroclear Diamond Class Heat Transfer Fluids O/S and C/S each are available in two viscosity grades: ISO 32 and 46. They are formulated with premium hydrocracked paraffinic base oils and advanced additive chemistry to provide outstanding thermal stability and low sludge-forming tendency for long service life and outstanding overall performance.

Hydroclear Diamond Class Heat Transfer Fluids O/S are optimized for use in pressure-relieved, liquid-phase heat transfer systems with expansion tanks, where there is the possibility of contact between the heat transfer fluid and air in the expansion tank. These fluids are fortified with oxidation and corrosion inhibitors to prevent fluid degradation and deposit buildup in the system. They are recommended for use in systems operating with continuous maximum bulk oil temperatures up to 550°F (290°C), intermittent maximum temperatures as high as 650°F (343°C), and a maximum skin film temperature of 600°F (316°C).

Hydroclear Diamond Class Heat Transfer Fluids C/S are optimized for use in pressure-relieved, expansion tank-equipped liquid-phase heat transfer systems that are closed to the atmosphere and potential air contamination. The system must be nitrogen-purged, with no possibility of contact between the heat transfer fluid and air during operation. These fluids are fortified with special additives to prevent thermal degradation. They are recommended for use in systems operating with continuous maximum bulk oil temperatures up to 620°F (327°C) and maximum skin film temperatures up to 650°F (343°C).

### **Applications**

- Liquid-phase heat transfer systems<sup>(1)</sup>
- Heat transfer medium for industrial manufacturing processes
- Heat transfer equipment used in the manufacture of resins and coatings
- Asphalt heating

**Premium Quality  
Heat Transfer  
Fluids**

**U.S. Technical  
Services Hot Line:  
1-800-255-9556**

**U.S. Customer  
Service:  
1-800-640-1956**

**International:  
+1-832-486-3363**

**E-mail address:  
*conocolubricants@  
conocophillips.com***

***www.lubes.conoco.com***

600 N. Dairy Ashford • 2W9000 • Houston, TX 77079



- Die casting
- Plastic injection molding and extrusion
- Wax coating equipment

<sup>(1)</sup> **Caution:** These fluids are **not** to be used in "vapor-phase" heat transfer units, nor should they come into contact with water, which can cause steam and pressure to build up in the system and create the potential for an explosion. Also, under no circumstances should the bulk oil be exposed to continuous high temperatures without the presence of an expansion tank, as the fluid will degrade quickly.

### Features/Benefits

- Outstanding performance in closed or open systems
- Outstanding thermal stability to minimize deposits
- Long service life
- Less waste oil disposal
- Reduced operating costs

### Hydroclear Diamond Class<sup>®</sup> Heat Transfer Fluids

#### Typical Properties

Grade	O/S 32	O/S 46	C/S 32	C/S 46
<b>ISO Grade</b>	<b>32</b>	<b>46</b>	<b>32</b>	<b>46</b>
Specific Gravity				
@ 15.6°C (60°F)	0.862	0.865	0.862	0.865
@ 204°C (400°F)	0.759	0.761	0.759	0.761
@ 260°C (500°F)	0.733	0.736	0.733	0.736
@ 316°C (600°F)	0.709	0.711	0.709	0.711
Color, ASTM D1500	0.5	0.5	0.5	0.5
Flash Point (COC), °C (°F)	235 (455)	249 (480)	235 (455)	246 (475)
Autoignition Temperature, ASTM E659, °C (°F)	357 (675)	362 (684)	364 (687)	373 (703)
Pour Point, °C (°F)	-42 (-44)	-42 (-44)	-42 (-44)	-42 (-44)
Viscosity,				
cSt @ 40°C (104°F)	33.5	44.5	33.5	43.9
cSt @ 100°C (212°F)	5.6	6.7	5.6	6.7
cSt @ 204°C (400°F)	1.38	1.54	1.38	1.55
cSt @ 260°C (500°F)	0.90	0.99	0.90	1.00
cSt @ 316°C (600°F)	0.65	0.71	0.65	0.72

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## Hydroclear Diamond Class® Heat Transfer Fluids

### Typical Properties

Grade	O/S 32	O/S 46	C/S 32	C/S 46
<b>ISO Grade</b>	<b>32</b>	<b>46</b>	<b>32</b>	<b>46</b>
Acid Number, ASTM D974, mg KOH/g	0.00	0.00	0.01	0.01
Carbon Residue, ASTM D524, wt %	<0.1	<0.1	<0.1	<0.1
Copper Corrosion, ASTM D130	1a	1a	1a	1a
Coefficient of Thermal Expansion,				
vol %/°F	0.056	0.056	0.056	0.056
vol %/°C	0.102	0.102	0.102	0.102
Oxidation Stability, RPVOT,				
ASTM D2272, minutes	875	875	448	448
Specific Heat, Btu/lb-°F				
@ 100°F (38°C)	0.467	0.466	0.467	0.466
@ 400°F (204°C)	0.612	0.611	0.612	0.611
@ 500°F (260°C)	0.660	0.659	0.660	0.659
@ 600°F (316°C)	0.709	0.708	0.709	0.708
Thermal Conductivity, Btu/hr-ft-°F				
@ 100°F (38°C)	0.082	0.082	0.082	0.082
@ 400°F (204°C)	0.077	0.077	0.077	0.077
@ 500°F (260°C)	0.075	0.075	0.075	0.075
@ 600°F (316°C)	0.074	0.074	0.074	0.074
Vapor Pressure, psia				
@ 100°F (38°C)	0.022	0.022	0.022	0.022
@ 400°F (204°C)	0.078	0.078	0.078	0.078
@ 500°F (260°C)	0.78	0.78	0.78	0.78
@ 600°F (316°C)	2.71	2.71	2.71	2.71

### Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3.conocophillips.com/NetMSDS>.

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