

THERMINOL.

Heat Transfer Fluids by Eastman

Long service life

Heat transfer fluids for the oil and gas industry



EASTMAN

Heat transfer fluid systems are an integral part of the entire system of oil and gas processing. Initial production, transport, refining, and recycling all require the use of heat transfer fluids.

Operators of oil and gas plants select Eastman Therminol® heat transfer fluids because of their excellent thermal stability which gives long service life. This is particularly important when Therminol fluid is installed in remote locations where a costly fluid change needs to be avoided. Here are some of the applications where Therminol heat transfer fluids are used to secure system reliability and trouble-free performance.

- Oil exploration and processing
- Natural gas processing
- Liquefied natural gas
- Floating LNG
- Oil refining
- Gas to liquid

Offshore platforms

Use Therminol liquid phase heat transfer fluids for facility heating and regeneration of glycols and molecular sieves that are used to remove water from the natural gas produced.

Refineries

Use Therminol liquid phase heat transfer fluids to heat reboilers of columns for the distillation of oil and oil-based products.

Natural gas processing

Use Therminol heat transfer fluid in liquid phase for dehydration, sweetening, extraction, and fractionation stages to control temperature, maintain phase, and heat reboilers.

Pumping stations placed along oil pipelines

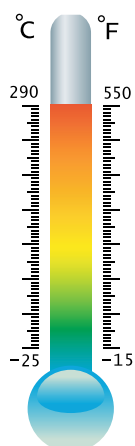
Use Therminol heat transfer fluids in their systems with heavy oil pumping to help control the viscosity of oil as it is moved through the line.





Depending on the specific application, several different Therminol liquid phase heat transfer fluids are suitable for use in the oil and gas industry.

Offshore platforms

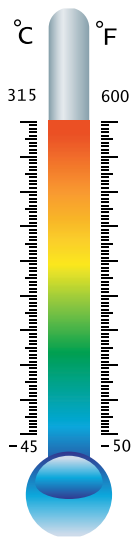


THERMINOL 55 *cost-effective, long-term performance*
Optimum temperature use range: -25° to 290°C (-15° to 550°F)

BENEFIT	FEATURE
Long life	Provides years of reliable performance even when operating continuously at 290°C (550°F). No need to over specify your fluid.
Nonfouling	A synthetic fluid that can resist the effects of oxidation 10 times better than mineral oils. Less solids formation.
Superb low-temperature pumpability	Pumpable at -25°C (-15°F) long after mineral oils have become jelly-like. Heat-transfer systems start up quickly and easily.



Low temperature climates (such as the North Sea, Canada, or Alaska)



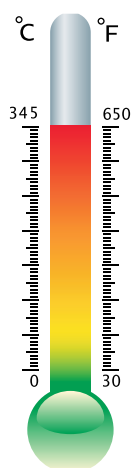
THERMINOL 59 *excellent low-temperature pumpability characteristics*
Optimum temperature use range: -45° to 315°C (-50°F to 600°F)

BENEFIT	FEATURE
Superb low-temperature pumpability	Low viscosity at exceptionally cold temperatures makes this an ideal fluid for northern climates. In fact, Therminol 59 was originally developed for use on the North Slope in Alaska, a supreme test of low temperature pumpability.
Long life	Expect many years of reliable, trouble-free operation even when operating continuously at the recommended upper temperature limit of 315°C (600°F). Fewer fluid change outs means low operating costs, which is critical in today's highly competitive business environment.
Superior heat transfer coefficients	The excellent low-temperature viscosity of Therminol 59 heat transfer fluid makes it uniquely capable of providing effective heat transfer coefficients at lower temperatures than other fluid options, enabling its support of single-fluid heating and cooling requirements.



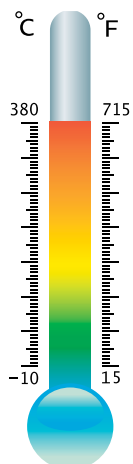


Very high processing temperatures



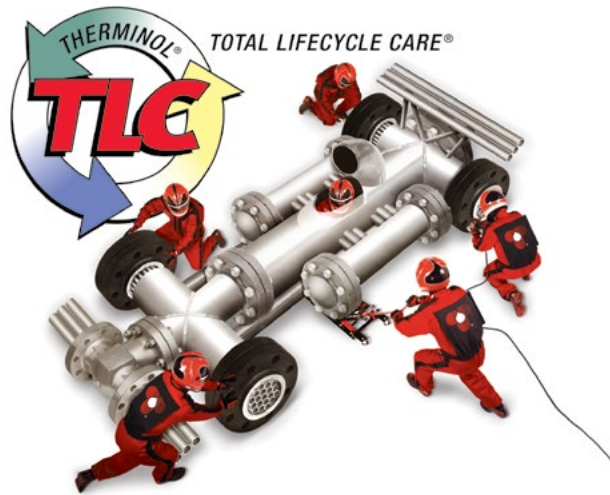
THERMINOL 66 *superior thermal stability over a long fluid life*
Optimum temperature use range: 0° to 345°C (30° to 650°F)

BENEFIT	FEATURE
Proven experience	Reliable and superior performance in high temperature, low-operating pressure installations around the globe, providing great customer satisfaction.
Long life at high temperatures	Users can expect many years of reliable, trouble-free operation even when operating continuously at the recommended maximum temperature—a true 345°C (650°F) heat transfer fluid.
Reliability	A chemistry which resists solids formation and system fouling, allowing your system to operate more reliably and help you save money.



THERMINOL 72 *high temperature, excellent stability*
Optimum temperature use range: -10° to 380°C (15° to 715°F)

BENEFIT	FEATURE
High-temperature stability	Therminol 72 is ideally suited for high-temperature heat recovery applications that also require low-temperature fluidity.
Reduced operating and capital costs	The use of Therminol 72 in high-temperature heat transfer systems can result in a significant reduction in capital investment due to reduced freeze-protection requirements and lower pumping energy costs at low temperatures as compared to other very high-temperature alternatives.
Nonfouling	Therminol 72 has been carefully formulated to minimize the formation of low boilers and eliminate the risk of insoluble high-boilers formation and fouling, provided proper attention is given to system design and operation within the maximum bulk and film temperatures specified.



Eastman's TLC Total Lifecycle Care[®] Program is designed to support Therminol customers throughout their systems' lifecycle.

This comprehensive program includes system design support, start-up assistance, training, sample analysis, flush fluids and refill fluids, and our fluid trade-in program. In North America, call our hotline: 1-800-433-6997 or contact your local sales or technical representative.

In-service heat transfer fluid sample analysis

When Therminol heat transfer fluids are used within suggested temperature limits, they can provide years of trouble-free service. To help users get maximum life, Eastman offers testing of in-service heat transfer fluids to detect contamination, moisture, thermal degradation, and other conditions that may impact system performance. This comprehensive analysis includes: acid number, kinematic viscosity, acetone insoluble solids, low boilers, high boilers, and moisture content. Additional special analyses are available on request. Sample analysis includes all-inclusive sample kits that are easy to use. Most systems should be sampled annually. Users should also sample any time a fluid-related problem is suspected.

Results of the test are presented in a detailed report that provides suggestions for corrective action. Test results are stored in a database for future reference. Customers can access their specific test information via the myTherminol site portal.

myTHERMINOL

Technical service hotline

Experienced technical service specialists can help answer your questions regarding heat transfer fluid selection, system start-ups, system design, and operational issues.

System design support

Eastman regularly assists some of the world's largest engineering, chemical, and equipment manufacturing companies on the design and operation of heat transfer systems. Our liquid phase and vapor phase design guide information and system design data have been field tested in numerous installations. Eastman also conducts engineering seminars for customers, engineering firms, and equipment manufacturers to cover a wide range of heat transfer fluid system design and operation issues. Customers can request a technical service visit to audit heat transfer systems for fluid loss and leak prevention opportunities.



Operational training

Eastman believes that by sharing our experience with customers, we can help improve system design, promote safety, and reduce overall cost. Customers can take advantage of Eastman's heat transfer system operation and product training programs. These programs are customized to suit the varied needs of front line technicians, operations supervisors, and maintenance technicians to design engineers. Customers can also receive training assistance for dealing with important topics like fluid safety and handling.

Safety awareness training

At Eastman, we're "All in for Safety". We provide our customers safety awareness training that focuses on the design, start-up, operation and maintenance of heat transfer fluid systems.

Start-up assistance

Eastman provides start-up assistance by reviewing procedures and making suggestions to reduce typical problems. Customers can also receive help via our toll-free technical service hotline or through on-site assistance.

Flush fluid and fluid refill

Liquid phase heat transfer systems can be cleaned with Therminol® FF Flush Fluid. After the system is flushed, the appropriate liquid phase Therminol heat transfer fluid can be added.



Fluid trade-in program*

As part of our commitment to sustainability and the environment, Eastman offers a trade-in program for used Therminol and competitive heat transfer fluids. Depending on the fluid and its condition, it can be turned in for potential credit towards the purchase of new Therminol heat transfer fluid.

*Available in North America. Contact your local sales representative for more information.

EASTMAN

The results of insight™

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