Medium-temperature

heat transfer fluids for the EMEA region

Proven solutions. **Precise** temperature control. **Peace of mind.**

Stay up and running with innovative solutions for mid-temperature ranges.

THERMINOL®
Heat Transfer Fluids by Eastman

MARLOTHERM®
Heat transfer fluids by Eastman

The solution to trust when **the heat is on you**

Looking for a medium-temperature heat transfer fluid that safeguards system reliability and stability, and is an excellent alternative to mineral oils? Eastman's synthetic heat transfer fluids provide precise temperature control in a variety of applications. When used as directed, they provide years of trouble-free service with minimal downtime.

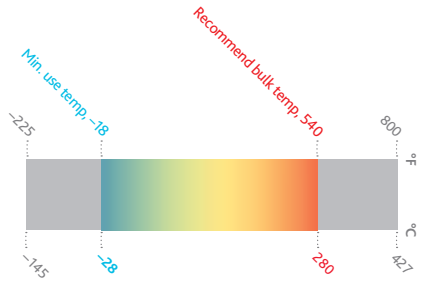
Available in various formulations and operating ranges, Therminol® and Marlotherm® heat transfer fluids provide incredible benefits—economy, efficient operation, and minimum maintenance. Our heat transfer fluids are trusted to perform in complex systems across the globe, satisfying the operating needs of virtually every single- or multiple-station heat-using system. As the leading brand of high-performance fluids for precise temperature control, Eastman heat transfer fluids are coursing through more than 20,000 systems worldwide.

Our broad product family includes fluids specifically engineered for medium-temperature ranges, including:

THERMINOL 54

Provides an excellent alternative to mineral oil-based fluids by capturing the highly desired performance and nonfouling attributes of synthetic fluids

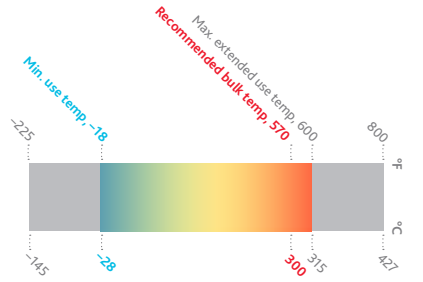
Recommend bulk temperature: 280°C (540°F)



THERMINOL SP

A unique, synthetic fluid designed to provide reliable, consistent heat transfer performance over a long life

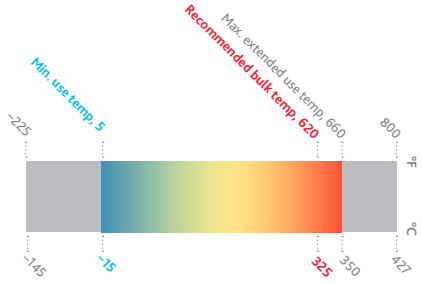
Recommended bulk temperature: 300°C (575°F)
Max. extended use temperature: 315°C (600°F)



MARLOTHERM SH

A synthetic heat transfer fluid that offers outstanding performance during both low-temperature start-ups and high-temperature operation

Recommended bulk temperature: 325°C (620°F)
Max. extended use temperature: 350°C (660°F)



Therminol and Marlotherm deliver the advantages of optimal fluid life.

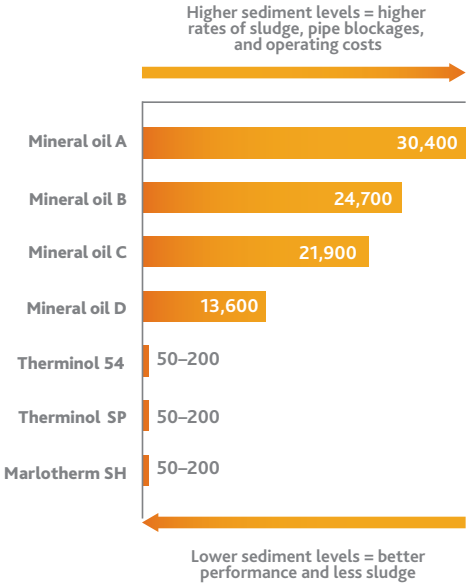
Avoid unnecessary downtime and work stoppages.

The generation of high solids can lead to unplanned downtime, pump seal replacements, and other maintenance and refill costs. The chemistry of Eastman heat transfer fluids prevents the formation of significant solids, which helps you avoid fouling, pump seal failures, and downtime.

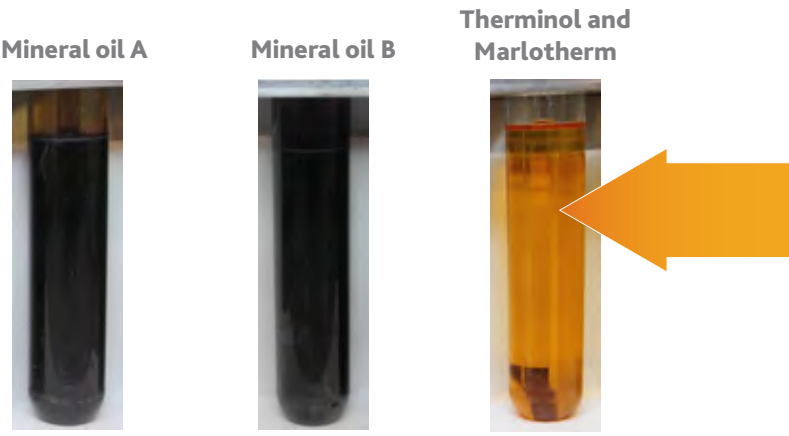
Superior oxidation stability enables less degradation and sludge buildup than mineral oils

Product longevity: Oxidation test results

Sediment mass/fluid mass (ppm)



Compared to mineral oil, Therminol and Marlotherm in your system will result in less sediment mass, which translates to less sludge formation and pipe blockage.



After testing 50-mL sample at 200°C for two 6-hour periods @ 100 mL/min airflow

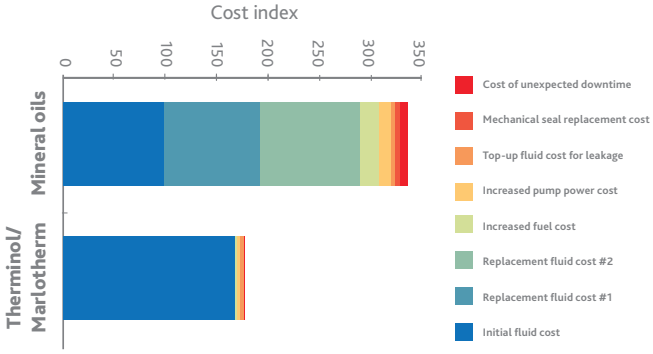
As demonstrated by their greater clarity, Therminol and Marlotherm heat transfer fluids have less degradation and sludge buildup over time than mineral oil.

Lower total cost of ownership across fluid lifetime

Choosing the right fluid for the job can add up to true cost savings over the life cycle of the system. Simply put, less degradation means less fluid maintenance compared to mineral oil chemistry:

- Up to 50% reduction in costs over total life cycle of your system by eliminating the need for extra refills
- Less degradation helps minimize sludge formation
- Less wear on equipment
- As much as 55% lower fluid usage, eliminating the need for excessive top-ups

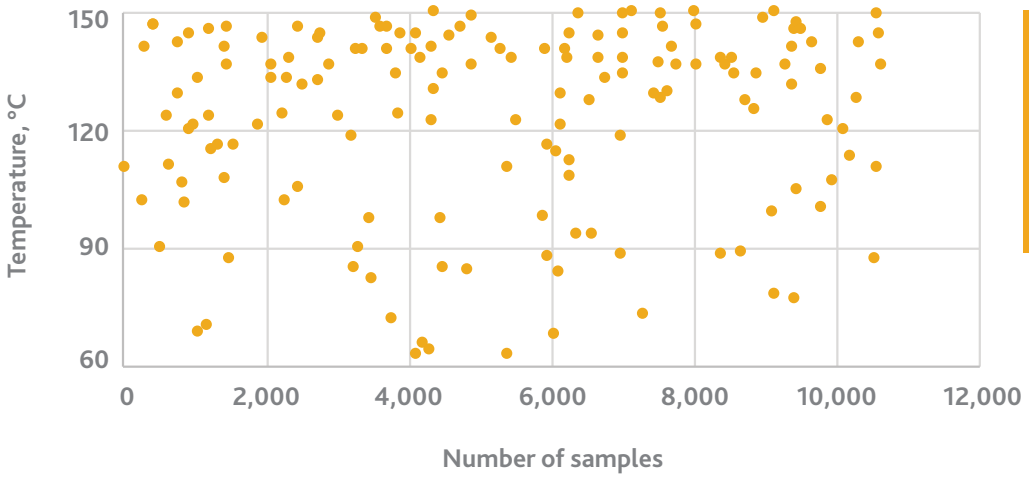
Comparison of long-term operating costs



How engineers and process managers keep their cool

Synthetic fluids last longer than mineral oils and perform more safely over time. Over years of usage, it is typical for a fluid's flash point to drop; so it is essential to consider how the flash point will change over time. Significant drops can lead to fire risk. With flash points above 100°C, your system is safer with Therminol and Marlotherm.

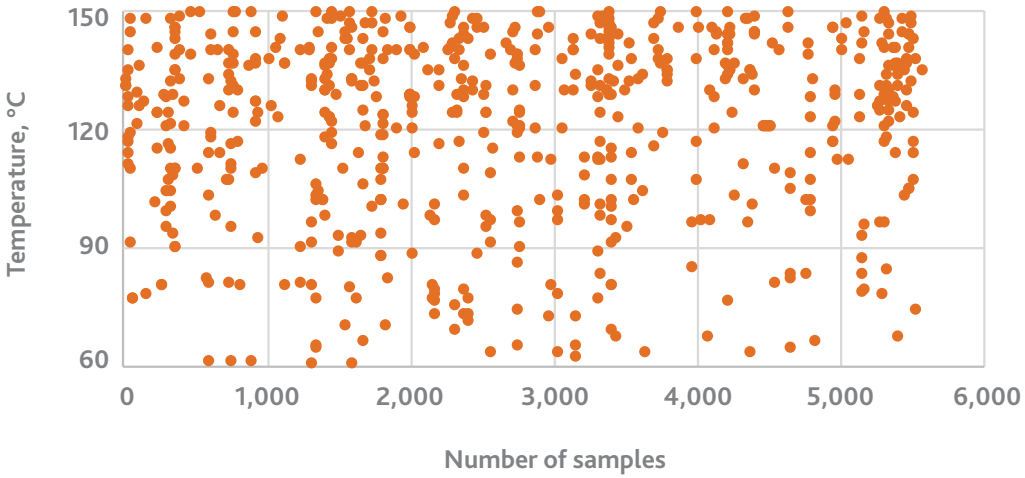
Therminol and Marlotherm samples: Flash point distribution



We measured 10,000 used samples of Therminol and Marlotherm and found only 1.5% of samples in which the flash point dropped below 150°C.

Mineral oil samples: Flash point distribution

With the same analysis, we found that 12% of 5,500 used mineral oil samples had flash points that dropped as much—making it eight times more likely in a mineral oil system.



Which Eastman heat transfer fluid fluid is right **for your system?**

Operating temperature: 280°C

Fluid	Mineral oil	Therminol 54	Therminol SP	Marlotherm SH
High-boiler generation (%/year)	1.1	30% lower[a]	60% lower[a]	80% lower[a]
Resistance to degradation (%/year)[b]	◔	◒	◕	●
Time before replacement (years)	◔	◒	◕	●
Vent makeup (metric ton[c]/year)	◔	◒	◕	●
Average fluid use (metric ton[c]/year)	1.3	20% lower[a]	20% lower[a]	55% lower[a]

Operating temperature: 300°C

Fluid	Mineral oil	Therminol SP	Marlotherm SH
High-boiler generation (%/year)	2.36	10% lower[a]	70% lower[a]
Resistance to degradation (%/year)[b]	◔	◕	●
Time before replacement (years)	◔	◒	●
Vent makeup (metric ton[c]/year)	◔	◒	●
Average fluid use (metric ton[c]/year)	2.92	10% less	85% lower[a]

Operating temperature: 320°C

Fluid	Mineral oil	Marlotherm SH
High-boiler generation (%/year)	7.53	68% lower[a]
Resistance to degradation (%/year)[b]	◔	●
Time before replacement (years)	◔	●
Vent makeup (metric ton[c]/year)	◔	●
Average fluid use (metric ton[c]/year)	20.3	95% lower[a]

[a] *Data percentage as compared to the mineral oil value*
[b] *Thermal and oxidation resistance*
[c] *Initial fluid fill size: 20 metric tons*

Poor: ◔ **Good:** ◒ **Better:** ◕ **Best:** ●

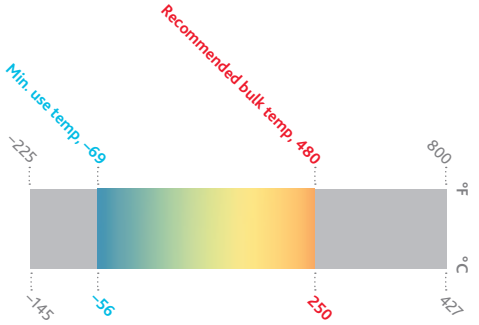
Fluids for **specialty applications**

In addition to our high-quality medium-temperature heat transfer fluids, Eastman offers a number of fluids developed for specialty applications.

THERMINOL ADX-10

A low-viscosity, synthetic organic heat transfer fluid engineered for easy plant start-up (even at temperatures around –41°C); widely used in arctic regions and offshore applications; available in Europe, the Middle East, and Africa

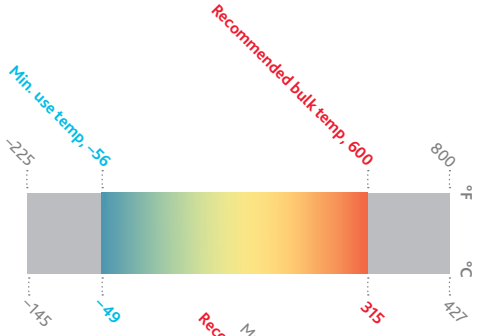
Recommended bulk temperature: 250°C (480°F)



THERMINOL 59

Featuring excellent low-temperature pumping characteristics and thermal stability for easy plant start-up (even at temperatures around –37°C); widely used in arctic regions and offshore applications

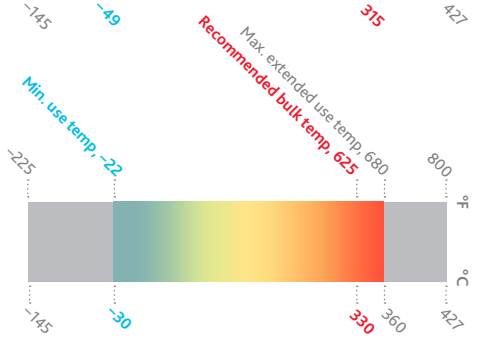
Recommended bulk temperature: 315°C (600°F)



MARLOTHERM LH

A low-viscosity, synthetic organic heat transfer medium for use in both the liquid and vapor phase for closed, forced-circulation heat transfer systems.

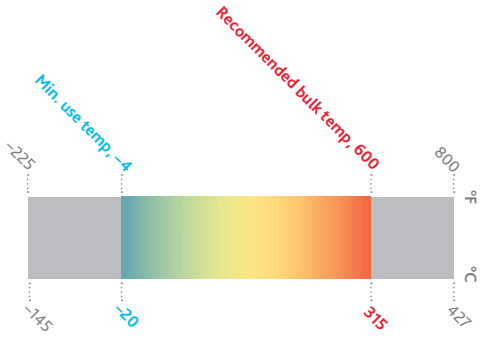
Recommended bulk temperature: 330°C (625°F)
Max. extended use temperature: 360°C (680°F)



THERMINOL XP

High-purity heat transfer fluid with NSF HT1 incidental food contact registration.

Recommended bulk temperature: 315°C (600°F)



The Eastman **advantage**

Whether on the factory floor or throughout a plant, a lot has to go right for industrial systems to work properly. And much of that can depend on the heat transfer fluid in the system. Engineers and maintenance managers trust Eastman's heat transfer fluids to help keep their processes up and running.

They trust Eastman to deliver the solutions they need when the heat is on. But it's not just about our products; it's our people, support services, and reputation that help ensure precise temperature control, building trust in complex systems.

Global **footprint**

Eastman's heat transfer fluids are the top-selling synthetic fluids in the world, with manufacturing facilities and product supply on four continents. As one of the largest heat transfer fluid producers, Eastman has the infrastructure to deliver sizable quantities of synthetic fluids.

Strong foundations

With a long, robust history of thermal fluid innovation, our high-performance fluids have a strong foundation of more than 50 years in the industry.

Expert **technical support**

Our TLC Total Lifecycle Care® program is designed to support customers throughout a system's life cycle. This comprehensive program includes sample analysis, system design support, operational training, safety awareness training, start-up assistance, and flush and refill fluids.

New construction

- Design support
- Operational training
- Start-up assistance

Plant maintenance

- Fluid sample analysis—whether you are an Eastman customer or not
- Refill, top-up, and fluid trade-in options
- Flush fluid

High-performance **portfolio**

Designed to provide precise temperature control in a variety of applications, Eastman's heat transfer fluids provide proven performance, superior product life, and worry-free fluid maintenance.

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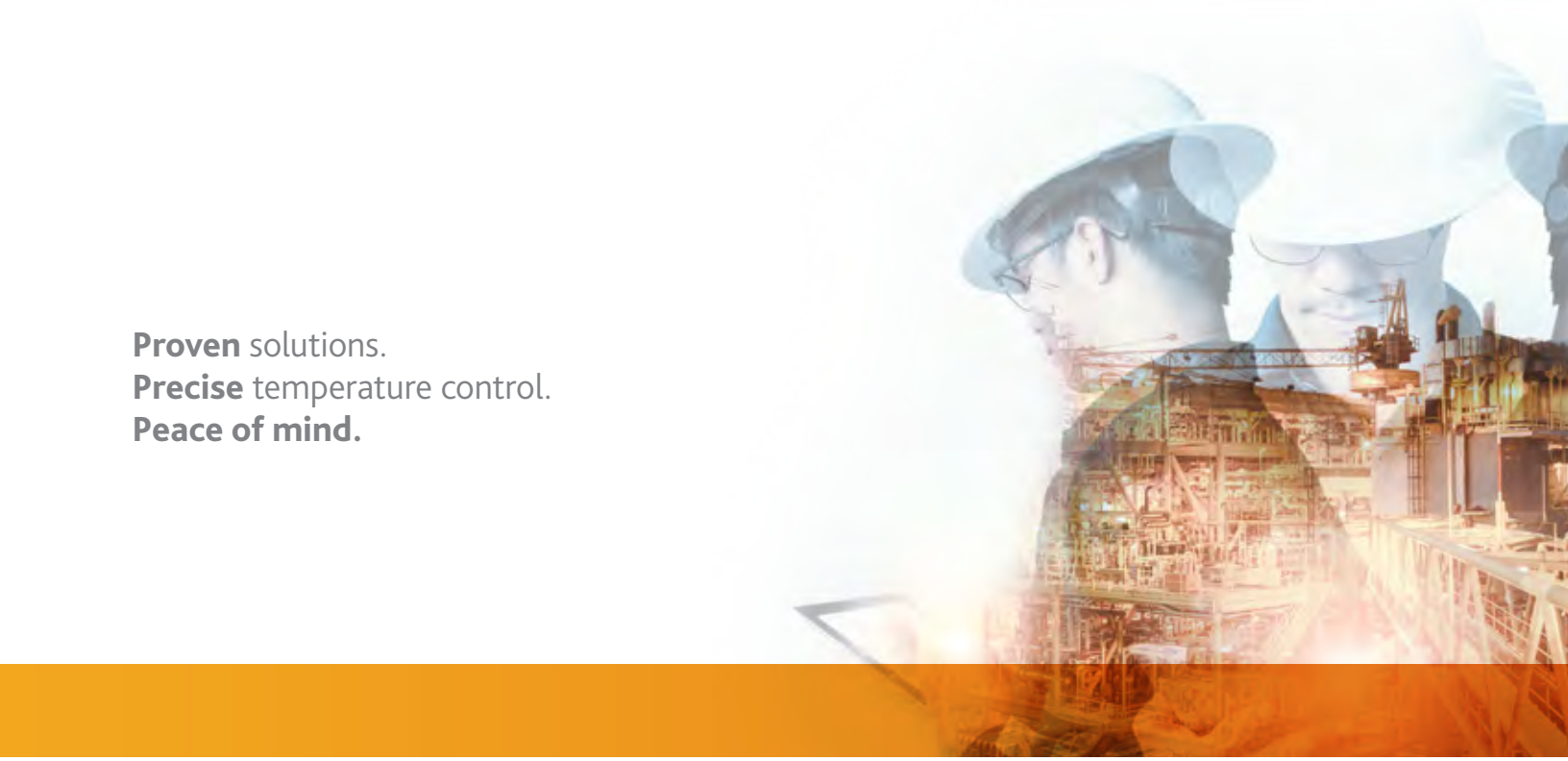

Proven solutions.
Precise temperature control.
Peace of mind.

For more information, visit **Therminol.com** or **Marlotherm.com**.

EASTMAN
The results of **insight**™

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