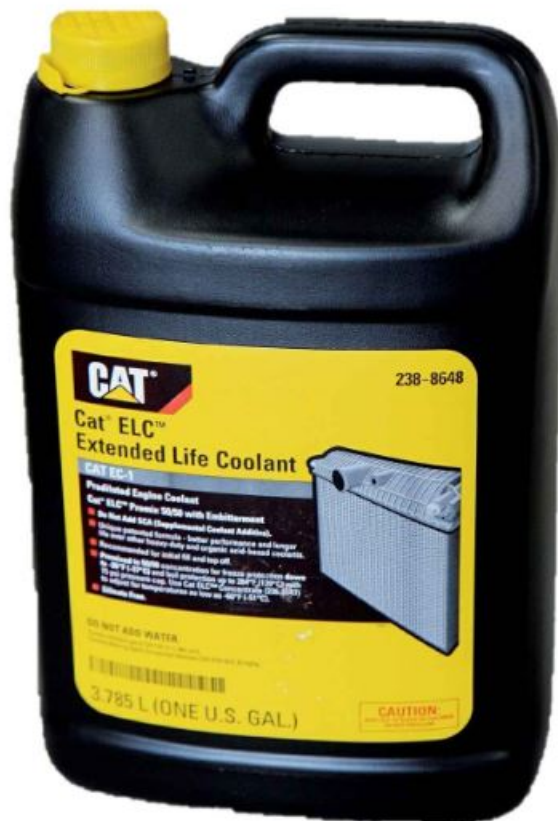


Caterpillar®

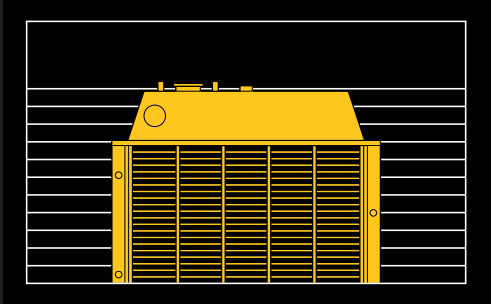
(ELC)

Extended Life Coolant



Extended Life Coolant (ELC)

For all Caterpillar® and most OEM diesel, gasoline, and natural gas engines



Developed, tested, and approved by Caterpillar, Cat® Extended Life Coolant lasts at least twice as long as Diesel Engine Antifreeze/Coolant (DEAC) in Cat machines and commercial engines and three times as long in Cat truck engines. It requires no supplemental coolant additives (SCAs); instead, Cat Extender is added once, at half the life of the coolant.

Recommended use

Cat ELC can be used in all Cat diesel engines and most OEM diesel, gasoline, and natural gas engines, allowing you to inventory one coolant for your entire mixed fleet. It meets ASTM D4985 and ASTM D5345 standards for heavy-duty, low-silicate antifreeze/coolants and ASTM D3306 and ASTM D4656 for automotive applications.

Cat ELC Premixed contains 50% ELC and 50% deionized water and is intended for initial fill and top-off. This formula ensures that water quality does not compromise engine coolant life and performance—so there’s no guessing about correct antifreeze-to-water mix or worrying about hard water scale. **Cat ELC Concentrate** can be used to lower the coolant’s freezing point temperature below that of Premixed, which is -34°F (-37°C).

Cat Extender should be added at 300,000 miles for truck engines and 3,000 hours for machines and commercial engines. The system should be drained and flushed with clean water at 600,000 miles for truck engines and 6,000 hours for machines and commercial engines (no cleaning agents are required if you are already using ELC).

We can help you determine the right coolant for your Cat machines and engines, or you can refer to your “Operation and Maintenance Manual” or Service Publications SEBU6250 (Caterpillar Machines), SEBU6251 (Caterpillar Commercial Engines), or SEBU6385 (Caterpillar On-Highway Trucks).

Conventional Characteristics*

Appearance		Strawberry Red
Specific gravity, 60/60 F	ASTM D1122	1.110
pH (33% solution)	ASTM D1287	8.3
Reserve alkalinity	ASTM D1121	5.5
Ash content, % max.	ASTM D1119	5.0
Boiling protection, °F (°C) 15 lb. pressure cap		
60% (Cat ELC Concentrate)		270 (132)
50% (Cat ELC Concentrate)		265 (129)
Freezing protection, °F (°C)		
60% (Cat ELC concentrate)		-65 (-54)
50% (Cat ELC concentrate)		-34 (-37)
Nitrites		550 ppm
Molybdates		950 ppm
Silicate, %		0
Phosphate, %		0
Amine, %		0
Borate, %		0
Nitrates, %		0

* The values shown are typical values and should not be used as quality control parameters either to accept or reject product. Specifications are subject to change without notice.

Extended Life Coolant

How Cat ELC compares to Cat DEAC

Feature	Cat ELC	Cat DEAC
Coolant change interval	600,000 miles/6000 hours	200,000 miles/3000 hours
Inhibitor addition	Cat Extender at 300,000 miles/3000 hours	Cat SCA Every 15,000 miles/250 hours
Ethylene glycol base	Yes	Yes
Additive technology	Carboxylic Acid Tolytriazole (some) Nitrites (some) Molybdates (some)	Nitrites, Silicates (some) Borates (some) Nitrates (some) Molybdates (none)
Meets Cat EC-1	Yes	No
Aluminum compatible	Yes	Yes
Mixed fleet use	Yes	Limited
SCA required	No	Yes
Color	Strawberry Red	Pink
SCA test kit required	No	Yes
Initial fill	No Cat Extender required	No Cat SCA required

Better protection for longer life



KLLM Transport Services, Inc. tested Cat ELC in its truck engines. The thermostat on the left is from an engine with 69,000 miles that used conventional coolant. The thermostat on the right is from an engine with 174,000 miles that used Cat ELC. KLLM's results demonstrate the longer life and better protection available with Cat ELC.

New chemical technology for long life

Cat Extended Life Coolant incorporates an advanced formula technology with organic additive corrosion inhibitors. It is free of nitrates, silicates, phosphates, borates, and amines. Instead, Cat ELC uses mono- and dibasic organic acid salts to provide maximum protection of the six basic metal alloys—copper, solder, brass, steel, cast iron, and aluminum—found in most heat transfer systems. Some nitrites and molybdates are added to help protect the iron components in the cooling system.

Since Cat ELC doesn't contain phosphates or silicates, hard water deposits in the cooling system are practically eliminated, and the low level of total dissolved solids improves water pump seal life. ELC's advanced technology also prevents gel formation and provides excellent protection against cylinder liner cavitation corrosion.

Plus, additives used in ELC don't deplete as fast as those in conventional coolants. Coolant life in heavy-duty diesel engines is limited by the depletion of the corrosion inhibitors. In conventional coolants, supplemental coolant additives (SCAs) deplete, so heavy-duty diesel engine manufacturers require that you add SCAs at every oil change. With Cat ELC, however, additives deplete much more slowly—so you don't need to add any SCAs.

Less old coolant for disposal

Used coolant disposal requirements have become more stringent and costly in recent years. Disposal of used coolants can be difficult and expensive and must be done in accordance with local, state, or federal laws. Cat ELC reduces coolant disposal volume by 50% or more—cutting disposal costs.

New standards for performance

Cat ELC exceeds the new EC-1 industry standard developed by Caterpillar for cooling the engine and protecting the cooling system.

EC-1 defines the performance requirements an engine coolant must meet to be sold as an extended life coolant for Cat engines. One of these requirements is extensive field testing, and Cat ELC has successfully completed over 50 million miles of testing in Cat engines.

Note: Caterpillar does not monitor or approve any products that claim to meet Cat EC-1 standards. Individual suppliers are responsible for the quality and performance of their own products, including any associated liabilities.

Proper use for optimum results

Mixing Cat ELC with other antifreeze/coolants

While Cat ELC is compatible with conventional antifreeze/coolants, we recommend you do not mix the two. Cat ELC is ethylene-glycol based for anti-boil and freeze protection, but its corrosion chemical system is different than that of conventional antifreeze/coolants.

ELC's anti-corrosion package contains aliphatic mono- and dicarboxylic acids with tolytriazole, nitrites, and molybdates. Conventional antifreeze/coolants contain silicate, nitrate, borate, phosphate, and molybdate packages. Because of these differences, Cat ELC doesn't provide the full extended life when mixed with conventional antifreeze/coolants.

If they are mixed, don't add more than 10% of the conventional coolant. If you exceed 10%, treat the system as if it contains conventional coolant or drain and flush the system and refill with ELC.

Using test kits for Cat ELC

The Contamination Test Kit (172-8851) for Cat ELC provides a pass/fail result based on inhibitors present in the coolant sample. Using this kit confirms whether ELC inhibitors are within an acceptable limit for continued use of the coolant. If the coolant has had water or standard coolant added, there may not be enough of the ELC additives present for adequate protection.

We recommend testing annually for freeze protection in case water (rather than ELC) has been used for top up.

Cleaning your cooling system

When draining ELC from your cooling system, just flush the system with clean water—no cleaning agents are required when you drain Cat ELC for a new batch.

Converting to Cat ELC

It's easy to convert to Cat ELC. If you've been using a conventional heavy-duty, low-silicate antifreeze/coolant, first clean your system with Cat Cooling System Cleaner 6V4511 or 4C4611 or a similar commercial cleaner at the change interval.

After draining the cleaner, flush the system *thoroughly* with water three times to remove the cleaning agent. It is imperative to remove all the cleaning agent from the system.

Cat Extender for maximum coolant life

Cat Diesel Engine Antifreeze/Coolant



Cat SCA Every 250 Hours or 15,000 Miles

Cat Extended Life Coolant (Machines and Commercial Engines)



Cat Extender Every 3000 Hours

Cat Extended Life Coolant (Truck Engines)



Cat Extender Every 300,000 Miles

Caterpillar developed Cat Extender exclusively for use with Cat ELC. It exceeds Cat EC-1 performance requirements and contains nitrites and molybdates that help protect against cylinder liner and block pitting, as well as cavitation erosion.

Cat Extender should be added at 300,000 miles for Cat on-highway truck engines and at 3,000 hours for Cat machines and commercial engines. This ensures that Cat ELC performs to its maximum life of 600,000 miles in truck engines or 6,000 hours in machine and commercial engines.

Quantity of Extender Needed at Cat Extended Life Coolant Half-Life*

Cooling System Capacity		Approximate Amount at 300,000 Miles or 3000 Hours**
Gallons	(Liters)	Quantity (Bottle: 119-5152)
6-8	(22-30)	0.5
8-13	(30-49)	1
13-22	(49-83)	1.5
22-30	(83-114)	2
30-41	(114-155)	3
41-52	(155-197)	4
52-64	(197-243)	5

* Cat Extender is not required for initial fill or top-off since Cat ELC already contains the appropriate level of all inhibitors.

** A clear view strip on the side of the quart bottle makes measurement easier.

Cat ELC benefits

- Improves water pump seal life.
- Eliminates gel formation.
- Contains no silicates, phosphates, or borates.
- Allows you to inventory one coolant for entire mixed fleet (can be used in most OEM diesel, gasoline, and natural gas engines).
- Requires no SCAs (one maintenance intervention required using Cat Extender at coolant midlife).
- Provides excellent protection for all cooling system metals, including aluminum.
- Offers excellent protection against cylinder liner cavitation corrosion.
- Ensures quality make-up water (Premixed).
- Ensures correct antifreeze-to-water mix (Premixed).
- Eliminates hard water scale (Premixed).
- Requires no coolant conditioner test kit to check nitrite level.
- Lets you adjust coolant freeze point temperature.
- Reduces disposal volume and is recyclable.
- Reduces engine coolant and additives costs from a minimum of **42% to as much as 80%** over Cat DEAC.

Cat ELC & Extender ordering information

Part No.	Package Size	Description
119-5148	Bulk (5,000 Gallons)	Premixed (50/50)
101-2845	55 Gallons	Premixed (50/50)
101-2844	1 Gallon	Premixed (50/50)
119-5150	1 Gallon	Concentrate*
119-5152	Quart Bottle	Coolant Extender**



* ELC Concentrate is used to adjust the coolant for temperatures below -34°F (-37°C).

** ELC Extender is added at the half life of the coolant (300,000 miles for truck engines and 3,000 hours for other engines).

S-O-SSM Services for early detection

Protect your investment with our S-O-S Services Program. It's the ultimate detection and diagnostic tool for your equipment—helping you head off potential problems before they can lead to major failures and costly unscheduled downtime. It's also the best way to determine the optimum oil and coolant change intervals for Cat engines. We recommend S-O-S Coolant Analysis at least annually on all your Caterpillar equipment.

Proper use for health and safety

According to toxicology information, Cat Extended Life Coolant has little or no adverse effects if handled and used properly. No special precautions are suggested beyond attending to good personal hygiene and avoiding prolonged, repeated skin contact. For more information, refer to the Material Safety Data Sheet, located on the Caterpillar website at www.cat.com/products/custserv/msds