



TEXACO EXTENDED LIFE COOLANT SYSTEM

CPS 227997 (MSDS 10300) TEXACO EXTENDED LIFE COOLANT/ ANTI-FREEZE

Texaco Extended Life Coolant/Anti-Freeze is a single-phase, ethylene glycol type heavy duty diesel engine coolant based on Texaco's enhanced and patented extended life organic corrosion inhibitor system with nitrite and molybdate added. This product is recommended for freeze point adjustment and initial fill (dilute 50/50).

CPS 227998 (MSDS 10309) TEXACO EXTENDED LIFE PREDILUTED 50/50 COOLANT/ANTI-FREEZE

Texaco Extended Life Prediluted 50/50 Coolant/Anti-Freeze is a 50/50 mixture of Texaco Extended Life Coolant/Anti-Freeze with deionized water. Texaco ELC 50/50 can be used for initial fill or top up.

CPS 227999 (MSDS 10317) TEXACO EXTENDER

Texaco Extender is the prescribed recharge for Texaco Extended Life Coolant/Anti-Freeze. It should be used to extend service life to 1,000,000 miles/20,000 hours/8 years. Extender should be added at 500,000 miles/10,000 hours/4 years.

PRODUCT APPLICATION

Texaco Extended Life Coolant System is a heavy-duty, ethylene glycol based engine coolant system which incorporates patented organic corrosion inhibitor technology. The Texaco ELC formula has been recently enhanced to provide longer service life, enhanced corrosion protection and lower electrical conductivity. Texaco Extended Life Prediluted 50/50 Coolant/Anti-Freeze meets ASTM D 6310 and D 3306. Texaco ELC is a nitrate-, borate-, phosphate-, silicate-, and amine-free formulation which uses Texaco's patented carboxylate technology to provide maximum protection of the six basic metal alloys found in most heat transfer systems. Since the coolant contains no phosphates or silicates, hard water deposits in the cooling system are reduced. Water pump seal wear is reduced as a result of fewer abrasive dissolved solids in Texaco Extended Life Coolant and that results in improved water pump seal life.

The newly enhanced formula and patented carboxylate corrosion inhibitors in Texaco Extended Life Coolant/Anti-Freeze have been shown to remain at effective levels up to 750,000 miles/15,000 hours/8 years with no addition of Extender needed.

Note: These products are not to be used to protect the inside of potable water systems against freezing.

PRODUCT DESCRIPTIONS AND FEATURES

The Texaco Extended Life Coolant/Anti-Freeze family is made up of three products:

- *Texaco Extended Life Coolant/Anti-freeze* concentrate is a glycol based product that contains patented carboxylate inhibitors. This product is recommended for use to adjust freeze point and for initial fill. For initial fill this product must be diluted.
- *Texaco Extended Life Prediluted 50/50 Coolant/Anti-Freeze* is a 50/50 dilution of Texaco ELC concentrate with deionized water. This product should be used as sold. The freeze point of Texaco ELC 50/50 is -34°F (-37°C). This product is recommended mainly for top-up.
- *Texaco Extender* is a re-charge for Texaco ELC in service coolant. It is to be added if a service life of greater than 750,000 miles/15,000 hours/8 years is needed. Addition of Texaco Extender at 500,000 miles/10,000 hours/4 years will extend service life out to 1,000,000 miles/20,000 hours/8 years.

How to Convert to Texaco Extended Life Coolant

Conversion to extended life coolant can be accomplished by using one of three methods. The first method is to do a complete drain of the coolant in service, flush of the entire cooling system and refill of the cooling system with a fresh dose of Texaco Extended Life Coolant/Antifreeze as per manufacturers recommendations. The second recommended method for conversion to Texaco ELC is to do a drain of the old coolant and a refill of the cooling system with a fresh dose of Texaco ELC Prediluted 50/50. When using this method about 10% of the old coolant will remain in the system and this should be taken into consideration since Delo ELC is tolerant to dilution with other coolants up to 25%. The third recommended method for conversion is to use FleetFix Conversion. FleetFix Conversion is part of a complete program that will allow conversion of conventional coolant that is in acceptable condition to extended life coolant without the need to drain the present coolant in use. The first

and second methods should carefully follow the OEM's recommended procedure. Users desiring to use FleetFix Conversion should consult their local Texaco distributor for information.

Do not add traditional coolants or SCAs to Texaco Extended Life Coolant/Anti-Freeze products, since doing so will reduce the extended life benefits.

BENEFITS

- 750,000 miles on-road use (8 years or 15,000 hours off-highway use) on initial fill with no Extender needed
- Additional Extended service life of 1,000,000 miles/20,000 hours/8 years with Extender added at 500,000 miles/10,000 hours/8 years.
- Improved corrosion protection and lower electrical conductivity.
- Reduced maintenance and related costs.
- No addition of supplemental coolant additives (SCAs) needed.
- No inhibitor testing required needed.
- Excellent protection against pitting, corrosion and erosion even on hard to protect metals like aluminum.
- Excellent heat transfer compared to silicate containing coolants.
- Improved water pump life due to no silicate formula.
- Excellent protection for all heavy duty engines including engines using EGR and ACERT technology.
- Protection against winter freeze-up and summer boil-over.
- Biodegradable in its unused form.
- Outstanding hot surface aluminum protection
- Suitable for gasoline powered automotive and industrial engines
- Compatible with conventional antifreeze. Dilution with conventional antifreeze will reduce extended life benefits. Texaco recommends that this product not be diluted by more than 25% with conventional coolants.

PRODUCT RECOMMENDATIONS AND APPROVALS

Texaco Extended Life Coolant System is recommended for all heavy duty engines using all fuel types including **Caterpillar, International, Cummins, Detroit Diesel, Mack, MTU, John Deere, JI Case, Ford, GM, Volvo**, and other original equipment manufacturers (OEMs). Texaco Extended Life Coolant System is

recommended for use in the cooling systems of all types of industrial internal combustion engines.

Texaco Extended Life Prediluted 50/50 Coolant/Anti-Freeze and Texaco Extended Life Coolant/Anti-Freeze meet or exceed:

- **ASTM D 6210**
- **ASTM D 3306**
- **TMC RP 329, 302A, 351 (color)**
- Phosphate-free requirement of European OEMs
- Silicate-free requirement of Japanese OEMs
- **Caterpillar EC-1**
- **Navistar B1**

PRODUCT TECHNICAL DATA

Texaco ELC exhibits a lower reserve alkalinity and lower pH when compared to traditional phosphate and borate containing coolants. These differences are due to the unique inhibitor package used in Texaco ELC and does not in any way compromise corrosion protection. ASTM (American Society of Testing and Materials) has recognized that RA is not a indicator of corrosion protection effectiveness and has removed all RA requirements for coolant/antifreeze products.

A comparison of Texaco Extended Life Coolant/Anti-Freeze with traditional coolants is shown below:

| | Texaco Extended Life Coolant/ Anti-Freeze | Traditional antifreeze/ coolant |
|-----------------|--|--|
| Typical pH | 8.3 | 10.5 |
| Typical RA (mL) | 6.0 | 12.0 |

Texaco Extended Life Coolant has lower pH and RA relative to traditional coolants. The pH change profile in service is a more important performance measure than the RA level. Texaco Extended Life Coolant/Anti-Freeze shows a typical pH reduction of less than 1.5 units in 160,000-kilometer fleet tests compared with a pH reduction of up to 3 units for traditional coolants.

The freeze point of a coolant is a measure of how low the fluids temperature can go before it freezes. The ratio of glycol and water in an antifreeze/coolant will determine the freeze point. The easiest and most accurate way to measure freeze point is by using a refractometer. The freeze point of Texaco ELC should be maintained between -12°F (-37°C) and -62°F (-57.7°C).

Boiling and Freezing Protection for Texaco Extended Life Coolant/Anti-Freeze

| Using a 15 lb. Radiator Cap | | |
|-----------------------------|--------------------|-------------------------|
| Coolant/ Water Ratio | Freeze Point | Boil Over Protection |
| 50/50 | -34°F (-36.7°C) | +265°F (129.4°C) |
| 60/40 | -62°F (-52.2°C) | +270° (132.2°C) |
| 40/60 | -12°F (-24°C) | +224°F (107°C) |

Because this product is silicate free, Texaco Extended Life Coolant/Anti-Freeze and Texaco Extended Life Prediluted 50/50 Coolant/Anti-Freeze can be stored at least 8 years with no problem provided the container integrity is maintained.

Always dispose of used coolant in accordance with local, state, provincial, and federal guidelines.

TYPICAL TEST DATA

Texaco Extended Life Coolant/Anti-Freeze

| | | |
|---------------------------------|----------------|--------|
| <i>CPS Number</i> | | 227997 |
| <i>MSDS Number</i> | | 10300 |
| Appearance | | Red |
| Specific gravity 15/15°C | | 1.130 |
| Freezing point, °C ^a | ASTM D 1177 | -37 |
| pH ^b | ASTM D 1287 | 8.3 |
| Reserve alkalinity ^c | ASTM D 1121 | 6.0 |
| Silicate, % ^d | | None |

- a. 50 vol % aqueous solution
- b. 1:2 dilution with water
- c. as received
- d. as anhydrous alkali metasilicate

Typical test data are average values only. Minor variations which do not affect product performance are to be expected in normal manufacturing.

**Texaco Extended Life Coolant/Anti-Freeze
ASTM D 1384 Glassware Corrosion Test**

| | ASTM Limit | Weight loss, mg per coupon* |
|----------|------------|-----------------------------------|
| Copper | 10 max | 2 |
| Solder | 30 max | 0 |
| Brass | 10 max | 3 |
| Steel | 10 max | -1 |
| Iron | 10 max | 1 |
| Aluminum | 30 max | 4 |

* Negative indicates net gain

Texaco Extender

| | |
|--------------------------|--------|
| <i>CPS Number</i> | 227999 |
| <i>MSDS Number</i> | 10317 |
| Appearance | Red |
| Specific gravity 15/15°C | 1.06 |
| Silicate, % | None |

HOW TO MAINTAIN TEXACO ELC

There are three simple steps to maintaining Texaco Extended Life Coolant while in service:

1. Check the coolant color and insure the product is bright red, contains no debris or any oil at every PM.
2. Test the freeze point of Texaco ELC at least two times per year. Maintain freeze point between -12°F and -62°F. Use of a refractometer is recommended.
3. Keep cooling system at full levels by topping-up using only Texaco Extended Life Coolant Prediluted 50/50.

Using these three simple steps will keep Texaco ELC performing at maximum protection levels and provide a service life of 750,000 miles/15,000 hours/8 years.

If a longer service interval is desired addition of Texaco Extender as per chart below at 500,000 miles/10,000 hours/4 years will result in total coolant service life of 1,000,000 miles/20,000 hours/8 years.

Quantity of Texaco Extender needed at 500,000 miles/10,000 hours/4 years

| Cooling system capacity, liters | Texaco Extender quantity, liters |
|---------------------------------|----------------------------------|
| 22-30 | 0.5 |
| 30-49 | 1 |
| 49-83 | 1.5 |
| 83-114 | 2 |
| 114-155 | 3 |
| 155-197 | 4 |
| 197-243 | 5 |

Texaco Extender should be added only once during the coolant service life unless specifically recommended by coolant testing and should only be used with Texaco Extended Life Coolants.

HANDLING PRACTICES

All coolants, including extended life coolants should be stored in such a manner that package integrity is maintained. It is recommended that all coolants be agitated before use to insure inhibitors have not separated in storage.

The primary limiting factor in the shelf life of a coolant is silicate instability. Since silicate will eventually polymerize to silicate gel, all traditional silicate-based coolants have a shelf life of about 18 months. Texaco Extended Life Coolant System is silicate-free and, therefore, can be stored for extended periods (up to 8 years) provided the integrity of the container is maintained.

All coolants should be disposed of in compliance with all laws, rules and regulations applicable to the this product line.