



# Cooling System Products





# Fleetguard Cooling System Maintenance Products

Estimates project up to **40% of total engine repair costs** are related to problems that originate in the cooling system. Repairs are costly and create unnecessary downtime that affects equipment operations and customer deadlines. Fleetguard cooling system products provide unmatched protection with various maintenance programs to meet your needs and keep your engines running longer with less downtime.

## One Stop Shop

Our comprehensive line of cooling system products includes everything you need to ensure an easy, trouble-free cooling maintenance program:

- Fully Formulated Heavy Duty Antifreeze Coolants
- Supplemental Coolant Additives (SCAs)
- Cooling System Cleaners
- Coolant Filters – Standard and Chemically Charged
- Field and Laboratory Testing

## Easy Maintenance

Fleetguard cooling system maintenance is as simple as 1, 2, 3.

- STEP 1

1
- Fill with long life coolant that meets your needs.
- STEP 2

2
- Properly top off system using the pre-diluted coolant.
- STEP 3

3
- Test with our simple dip and read test strips and maintain as needed.

All Fleetguard coolants are compatible with other coolants available and are suitable for use in all gasoline, diesel, and natural gas engines.

## Unmatched Protection


In addition to providing superior freeze and boil over protection, Fleetguard products protect your engine from the most damaging cooling system problems, including:

- Corrosion
- Liner Pitting/Cavitation
- Scale & Deposits
- Acidification

Fleetguard coolants are manufactured to the highest standards and meet the performance specifications of most major OEMs. You can depend on Fleetguard cooling system products to provide unmatched protection to your engine.

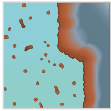
## Corrosion

With Fleetguard Protection:




Protective layer created by Fleetguard Fully Formulated Coolant prevents corrosion and erosion.

Without Fleetguard Protection:



Corrosion affects all metal parts, especially aluminium.

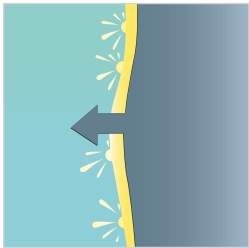


Corrosion products and tiny metal particles begin to circulate in the cooling system, causing erosion damage to mechanical parts.

## Liner Pitting/Cavitation

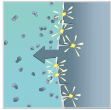
When the liner vibrates, bubbles collapse under an enormous pressure and take small chunks out of the liner.

With Fleetguard Protection:

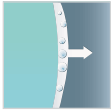


Fleetguard Fully Formulated Coolant can prevent the fatal effect on your engine by creating a protective layer on the liner wall: implosions now take place on this layer and spare the liner surface.

Without Fleetguard Protection:



Piston-slap causes liner vibration, which creates a vacuum and formation of tiny vapor bubbles.

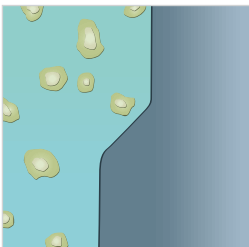


The liner slams back into the coolant causing the bubbles to implode. As this process repeats many times per second, small chunks are kicked out of the liner.

## Scale & Deposits

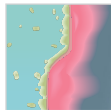
Scale causes detrimental effects to the hot surfaces of your engine cooling system (the liners and the cylinder heads). The consequences are worn piston rings, higher oil consumption and, in the worst cases, total engine failure.

With Fleetguard Protection:




Fleetguard Fully Formulated Coolants contain a proprietary polymer system that 'wraps up' the scale particles so that they can't attach themselves to the hot metal surfaces.

Without Fleetguard Protection:



As the engine functions, the heat causes the formation of scale on the hot surfaces.



The scale layer acts as an insulator, preventing the coolant from absorbing the heat of the engine.

## Acidification

Coolants acidify due to the degradation of antifreeze and combustion gases entering the cooling system, which can damage cooling system components. Fleetguard Fully Formulated Coolants buffer the coolant to prevent and neutralize the formation of acids.

Select Fully Formulated Coolant

ES Compleat™



ES Compleat OAT

- Organic Additive Technology coolant for use in all heavy duty and light duty diesel and gas engines.
- Life-of-the-Engine, 1,000,000-mile coolant.
- Protects against liner pitting and provides solid corrosion protection for aluminum, cast iron, copper, brass, and solder. Contains proprietary scale inhibitors. Compatible with gaskets, elastomers, non-metallics including silicon seals/hoses.
- OEM approved formulation free of nitrite, amine, phosphate, borate, silicate, and 2-ethylhexonic acid.
- Compatible with Fleetguard non-chemical filters.
- Available in Ethylene Glycol based 50/50, 60/40 premix or concentrate.
- Meets ASTM D3306, ASTM D6210, TMC RP 329.

ES Compleat OAT	OAT EG Concentrate	OAT EG PreMix 50/50	OAT EG PreMix 60/40
Bulk	CC36070	CC36074	CC2908
55 Gallon Drum (208 L)	CC36072	CC36076	CC36078
3/1 Gallon Bottle (3.78 L)	CC36073	CC36077	
55 Gallon Drum (208 L)			
275 Gallon Plastic Tote (1040 L)	CC36070USR	CC36074USR	CC2908USR



ES Compleat NOAT

- Nitrited Organic Additive Technology for use in Heavy Duty applications
- Life-of-the-Engine, 1,000,000-mile coolant with use of Extender at 600,000 miles
- Provides maximum liner pitting protection with nitrite/molybdate
- Improved water pump life through a borate/phosphate/silicate free formula
- Less susceptible to contamination than hybrid and conventional technologies
- Compatible with gasket and hose materials (including silicone seals and hoses)
- Compatible with ELC, NOAT, and EC-1 systems

ES Compleat NOAT	NOAT EG Concentrate	NOAT EG Premix
3/1 Gallon Bottle	CC36166USJ	CC36161USJ
55 Gallon Drum	CC36166USD	CC36161USD
275 Gallon Plastic Tote	CC36166UST	CC36161UST
Bulk	CC36166US	CC36161US



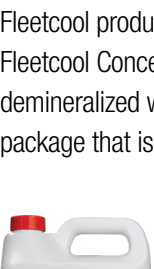
ES Compleat

- Fully formulated hybrid coolant (antifreeze) with dual borate, phosphate buffer and low silicate formulation for use in all heavy duty diesel and gas engines.
- Life-of-the-Engine, 1,000,000-mile coolant.
- Protects against liner pitting and provides solid corrosion protection for aluminum, cast iron, copper, brass, and solder. Contains proprietary scale inhibitors.
- Compatible with Fleetguard DCA4 liquid, or DCA4 chemical filters.
- Available in both ethylene or propylene glycol base as either a 50/50, 60/40, premix or concentrate.
- Meets ASTM D3306, ASTM D6210, TMC RP 329.

ES Compleat	EG Concentrate	EG PreMix	PG Concentrate	PG PreMix
Bulk		CC2827		
55 Gallon Drum (208 L)	CC2821	CC2826	CC2831	CC2836
55 Gallon Drum (208 L)		CC2863 60/40		CC2865 60/40
5 Gallon Pail (19 L)	CC2847	CC2848	CC2849	CC2850
3/1 Gallon Bottle (3.78 L)	CC2820	CC2825	CC2830	CC2835
275 Gallon Plastic Tote (1040 L)	CC8984	CC8983	CC2833USR	CC2837USR

Select Fully Formulated Coolant

Fleetcool™



Fleetcool EX

- Fully formulated phosphate-free hybrid coolant (antifreeze) for use in all heavy duty diesel and gas engines.
- Life-of-the-Engine, 1,000,000-mile coolant.
- Protects against liner pitting and provides solid corrosion protection for aluminum, cast iron, copper, brass, and solder. Contains proprietary scale inhibitors.
- Compatible with Fleetguard DCA2 liquid, or DCA2 chemical filters.
- Available in Ethylene Glycol based 50/50, premix or concentrate.
- Meets ASTM D3306, ASTM D6210, TMC RP 329.

Fleetcool EX	EX EG Concentrate	EX EG PreMix
Bulk	CC2739	CC2743
55 Gallon Drum (208 L)	CC2741	CC2745
3/1 Gallon Bottle (3.78 L)	CC2742	CC2746
275 Gallon Plastic Tote (1040 L)	CC2739USR	CC2743USR



Fleetcool

- Cost-effective standard life coolant (antifreeze) with borate buffer and low silicate formulation for use in all heavy duty diesel and gas engines.
- Product need not be drained and replaced until condemnation limits are reached.
- Protects against liner pitting and provides solid corrosion protection for aluminum, cast iron, copper, brass, and solder. Contains proprietary scale inhibitors.
- Compatible with Fleetguard DCA2 liquid or DCA2 chemical filters.
- Available in an Ethylene Glycol (EG) base as 50/50 premix or concentrate.
- Meets ASTM D3306, ASTM D6210, TMC RP 329.

Fleetcool	EG Concentrate	EG PreMix
Bulk	CC8965	CC8970
55 Gallon Drum (208 L)	CC8967	CC8972
5 Gallon Pail (19 L)	CC8968	CC8973
3/1 Gallon Bottle (3.78 L)		CC8974
275 Gallon Plastic Tote (1040 L)	CC8965USR	CC8970USR



# Maintain Additive Levels

## Coolant Additives



### Liquid Supplemental Coolant Additives (SCAs)

#### DCA2

- Standard Corrosion Protection Using Borate/Nitrite Based Inhibitor Package

#### DCA4

- Superior Liner Pitting, Scale & Corrosion Protection Using Phosphate/Molybdate Based Inhibitor Package

Liquid Supplemental Coolant Additives (SCAs)	DCA2	DCA4
12/1 Pint Bottle (.47 L)	DCA30L	DCA60L
6/1/2 Gallon Bottle (1.89 L)	DCA35L	DCA65L
3/1 Gallon Bottle (3.78 L)	DCA40L	DCA70L
5 Gallon Pail (19 L)	DCA45L	DCA75L
55 Gallon Drum (208 L)	DCA50L	DCA80L

## Coolant Filtration

Coolant filtration is proven to reduce wear and to maintain all cooling system components. Additionally, water filters can provide a convenient and reliable method for delivering supplemental coolant additives into the cooling system to improve performance and extend coolant service life.



### Standard Service Water Filters

- For use at OEM recommended standard service intervals
- Immediate Release SCA for Use with Any Coolant at Standard Service Interval
- High quality cellulous media, which is 95% efficient at 60 microns
- For use up to 1500 hours or 75,000 miles

Standard Service Water Filters	Immediate Release Coolant Additive	Thread Size	Standard Service Water Filer	Immediate Release Coolant Additive	Thread Size
WF2070	2 units DCA4	11/16-16 UN- 2B	WF2126	8 units DCA4	M36 X 2-6G INT
WF2071	4 units DCA4	11/16-16 UN- 2B	WF2022	8 units DCA4	1-16 UN-2B
WF2072	6 units DCA4	11/16-16 UN- 2B	WF2082	6 units DCA4	1-16 UN-2B
WF2073	8 units DCA4	11/16-16 UN- 2B	WF2051	4 units DCA2	11/16-16 UN- 2B
WF2087	9 units DCA4	11/16-16 UN- 2B	WF2088	6 units DCA2	11/16-16 UN- 2B
WF2151	4 units DCA4	11/16-16 UN- 2B	WF2054	15 units DCA2	11/16-16 UN- 2B
WF2015	8 units DCA4	3/4-20 UNEF- 2B	WF2144	12 units DCA2	11/16-16 UN- 2B
WF2074	12 units DCA4	11/16-16 UN- 2B	WF2096	8 units DCA2	M16 X 1.5-6H INT
WF2075	15 units DCA4	11/16-16 UN- 2B	WF2145	18 units DCA2	11/16-16 UN- 2B
WF2076	23 units DCA4	11/16-16 UN- 2B	WF2053	8 units DCA2	11/16-16 UN- 2B
WF2083	4 units DCA4	3/4-20 UNF-2B	WF2055	23 units DCA2	11/16-16 UN- 2B
WF2104	15 units DCA4	11/16-16 UN- 2B	WF2091	14 units DCA2	11/16-16 UN- 2B
WF2106	4 units DCA4	11/16-16 UN- 2B	WF2056	34 units DCA2	11/16-16 UN- 2B
WF2108	8 units DCA4	M16 X 1.5-6H INT			

# Maintain Additive Levels

## Coolant Filtration



### Extended Service Water Filters

- Easy Maintenance every 12 months, 150,000 miles (250,000 km), or 4000 hours
- Patented Slow-Release Mechanism Replenishes Chemicals Depleted by Use
- StrataPore™ Multilayer Media Offers Superior Durability, Efficiency and Capacity
- Improved Mechanical Design for Increased Durability and Corrosion Resistance

Extended Service Water Filters	Slow Release Coolant Additive	Thread Size	Extended Service Water Filter	Non-Chemical Coolant Additive	Thread Size
WF2121	15 units DCA4	11/16-16 UN- 2B	WF2122	Non-Chemical	11/16-16 UN- 2B
WF2124	15 units DCA4	3/4-20 UNEF- 2B	WF2129	Non-Chemical	M16 X 1.5-6H INT
WF2128	15 units DCA4	M16 X 1.5-6H INT	WF2134	Non-Chemical	3/4-20 UNEF- 2B
WF2131	15 units DCA2	11/16-16 UN-2B	WF2123	Non-Chemical	11/16-16 UN- 2B
WF2133	15 units DCA2	3/4-20 UNEF-2B	WF2130	Non-Chemical	M16 X 1.5-6H INT
WF2138	15 units DCA2	M16 X 1.5-6H INT	WF2127	Non-Chemical	M36 X 2-6G INT



### Non-Chemical Filters

- For Use at OEM Recommended Standard Service Intervals
- High quality cellulous media, which is 95% efficient at 60 microns
- For use up to 1500 hours or 75,000 miles

Non-Chemical Filters	Standard Service	Thread Size
WF2077	Standard Service	11/16-16 UN- 2B
WF2078	Standard Service	3/4-20 UNF-2B
WF2101	Standard Service	11/16-16 UN- 2B
WF2109	Standard Service	M16 X 1.5-6H INT
WF2084	Standard Service	11/16-16 UN- 2B
WF2107	Standard Service	11/16-16 UN- 2B



### Filter Head Assembly

- Head Assembly for Installation on Engines without Water Filtration Capability
- Assemblies Provide Everything Needed to Achieve Benefits of Coolant Filtration

Filter Head Assembly*	Description	Style	Port Size	Thread Size
204163 S	Water Filter Spin-On Head	Aluminum	3/8" NPT	11/16-16 UN- 2B
215617 S	Dual Water Filter Spin-On Heads	Aluminum	1/2" NPT	11/16-16 UN- 2B
256535 S	Filter Head Mounting Bracket	N/A	N/A	N/A
257715 S	Water Filter Head (204163 S) and Mounting Bracket Assembly	Aluminum Head	3/8" NPT	11/16-16 UN- 2B
3904378 S	Severe Duty Water Filter Head	Aluminum / Steel Insert	3/8" NPT	11/16-16 UN- 2B

\* Severe Duty Filter Head is recommended for most applications.

# Test and Maintain Coolant Regularly

## Coolant Testing

Every good cooling system maintenance program should include regular coolant testing to determine if the proper level of protection is present or if contaminants exist. A good coolant testing program eliminates guesswork and allows the cooling system to maintain peak performance.



### 4-Way ES Compleat OAT Test Kit

- Easy to use test strips measure Molybdate, Nitrite, Freeze point, and pH
- Results in 45-75 Seconds
- Designed specifically for use with ES Compleat™ OAT

#### 4-Way ES Compleat OAT Test Kit

50 Strip Test Kit

CC8997



### 3-Way SCA/Freeze Point Strips

- Measures Protection against Liner Pitting, Corrosion and Coolant Dilution
- Easy to Use Test Strips Measure Freeze Point and Molybdate/Nitrite
- Results in 45 – 75 Seconds

#### 3-Way SCA-Freeze Point Strips

50/Bottle	25 4-Packs/Box	100 Singles/Box	50/Bottle (Metric)	25 4-Packs (Metric)
CC2602	CC2602A	CC2602B	CC2602M	CC2602AM



### QuikChek Coolant Quality Strips

- Easy to Use Test Strips Measure Levels of pH, Sulfate and Chloride for Overall Coolant Quality
- Minimizes Unnecessary Draining of Coolant still within Specifications

#### QuikChek Coolant Quality Strips

10/Bottle

CC2718



### Water-Chek 3-Way Strips

- Determines if Coolant Make-Up Water Meets OEM, TMC and ASTM specifications
- Easy to Use Test Strips Measure pH, Chloride and Hardness

#### Water-Chek 3-Way Strips

100 Singles/Box

CC2609

# Test and Maintain Coolant Regularly

## Coolant Testing



### Refractometer

- Determines the Freeze Point Protection for Coolants
- More Accurate than Test Strips or Float-Type Hydrometers
- Durable Storage Case Included

#### Refractometer

Ethylene Glycol or Propylene Glycol	CC2806
Glycerin	CC36049
ES Compleat™ OAT	CC8998



### Monitor-C Laboratory Testing - Coolant Analysis

- Expert Laboratory Analysis with On-line Reporting, Results in 24 Hours
- Measures Molybdate, Nitrite, pH, Hardness, Chloride, Sulfates, Corrosion Products (iron, lead, etc), and Silicates
- Tests for Freeze/Antifreeze Points, TDS and Buffers
- Available in Both Standard Packaging and with a Prepaid Mailer

#### Monitor-C Laboratory Testing

Standard Kit	CC2700
Standard Kit with Prepaid Mailer	CC2706

## Cooling System Cleaners

Cummins Filtration offers two types of cleaners to keep your cooling system in top condition. Both Restore and Restore Plus remove contaminants without harming metal surfaces, gaskets, hoses or plastic parts. They are also approved by Cummins® as the preferred product for cleaning oil contaminated cooling systems under warranty maintenance.



### Restore

- Alkaline-Based Cleaner
- Most Effective Cooling System Oil/Fuel Contamination-Cleaning Agent on Market
- More Effective than Automotive Distributor Detergent Powders
- Safe for Use in Aluminum Radiators and Heaters
- Removes Silicate Gel
- Approved by Cummins

#### Restore

1 Gallon Bottle (3.78 L)	CC2610
5 Gallon Pail (19 L)	CC2611
55 Gallon Drum (208 L)	CC2612

# Test and Maintain Coolant Regularly

## Cooling System Cleaners



### Restore Plus

- Safely Removes Rust, Corrosion, Scale, and Solder Bloom – Without Disassembling your Cooling System
- Mild Acid-Based Chelating Cleaner

Restore Plus		
1 Gallon Bottle (3.78 L)		CC2638
55 Gallon Drum (208 L)		CC2637

# Coolant Pumps and Totes

## Plastic Totes



### Caged Plastic Tote

- Strong resistance to harsh service and weather environment
- Longer container life
- No core charge
- Compatible with coolant pumps SP1580 & SP1581

\* Totes will be removed by a third party. Contact information is provided on tote.

## Coolant Pumps



### Electric Tote Drum Pump SP1582

- Perfect for dispensing Coolant and DEF from 55-gallon plastic and steel drums
- Self-Priming Submersible Pump
- 10 ft Dispense Hose
- Flow Rates up to 5 GPM
- Integrated Nozzle Holder
- Compatible with DEF



### Electric Tote Pump

With flowmeter- **SP1580**

Without flowmeter- **SP1581**

- Self-priming
- Stainless steel motor shaft
- Polypropylene housing
- Flow rate 7-9 GPM
- 115V 60Hz, 0.44HP
- Operating pressure 1.6 bar (25 PSI)

# Coolant Product Glossary

**Antifreeze:** A mixture of glycol or glycerin base plus an additive package. The base provides freeze and boil over protection, while the additive package prevents corrosion, liner pitting, and the formation of scale and deposits.

**ASTM:** American Society for Testing of Materials ([www.astm.org](http://www.astm.org)), the most important standards-setting organization in the world, publishes specifications most commonly cited, ASTM D-3306 for cars and ASTM D-6210 for trucks, and ASTM D-4985 for old trucks.

**Conventional Coolant:** A coolant whose additive package is made up entirely of conventional additives such as borate, molybdate, nitrite, nitrate, phosphate, and silicate.

**Coolant:** The fluid in the cooling system. Typically it will be composed of 50% antifreeze concentrate and 50% water.

**Coolant Bases:** Chemicals used in antifreeze to lower freeze point and increase boil point. The most common coolant bases include ethylene glycol (EG), diethylene glycol (DEG), propylene glycol (PG), and glycerin.

**Coolant Types:** Coolants are divided into three types depending on the chemicals used in the additive package. The three coolant types are: conventional, organic acid or OAT, plus hybrid.

**Fully Formulated Coolant:** Another term for a heavy duty antifreeze/coolant. Unlike light duty coolant, a fully formulated coolant contains additives to prevent liner pitting and scale/deposit formation.

**Heavy Duty Coolant:** Fully Formulated to provide buffering capacity, corrosion, erosion, and liner pitting protection. Also provides foam, scale, and deposit control.

**Light Duty Coolant:** Formulated to provide buffering capacity, corrosion protection, and control foam tendencies

**Molybdate:** A conventional coolant additive used in premium, long life coolants. Molybdate when used with nitrite provides optimum liner pitting protection as well as increases a coolant's ability to protect aluminum.

**Nitrite:** A conventional additive found in many heavy duty SCAs and antifreezes. Nitrite provides excellent liner pitting as well as steel and cast iron corrosion protection.

**OAT Coolant:** Organic Acid Technology Coolant. Composed primarily of organic acids with very limited or no use of conventional additives.

**Organic Acid:** Type of coolant additive that has become much more popular in the past 10 years. Organic acids are also referred to by the term carboxylate. There are several organic acids commonly used in coolants such as benzoic, sebacic, adipic, etc.

**Phosphate:** A conventional coolant additive used to provide buffering capacity plus aluminum corrosion protection. Detroit Diesel along with some European OEMs do not recommend coolants that contain phosphate.

**Precharged:** A term used to describe the addition of SCA to a light duty coolant to make it acceptable for heavy duty service. This practice is now seldom used with the wide availability of fully formulated heavy duty coolant.

**Premix Coolant:** Coolant where the antifreeze concentrated is already cut with water and delivered to the customer ready to use. Water content of premix coolant generally runs in the 40% to 60% range depending on climate and altitude.

**Reserve Alkalinity:** The measure of a coolants ability to resistant pH change caused by exhaust gas leakage into the cooling system plus the thermal breakdown of glycols.

**SCA:** Supplemental Coolant Additive. The products are available in liquid form or a solid contained within a coolant filter. SCAs are a mixture of chemicals that provide corrosion, liner pitting, and scale/deposit control similar to the additive package in an antifreeze. They can be used to replenish the additives in an antifreeze coolant or used alone in water only coolant.

**Total Hardness:** The amount of both calcium (as  $\text{CaCO}_3$ ) and magnesium (as  $\text{MgCO}_3$ ) in a make-up water which indicates the potential to form scale and deposits in the cooling system. EMA, ASTM, and TMC limit make-up water total hardness to 170 ppm.



Have a technical question about a Cummins Filtration product? From filtration to coolant products, we can answer your most pressing maintenance questions.

For detailed technical information about all products featured in this brochure, refer to the **Fleetguard Technical Information Catalog, LT32599**. Some part numbers may not be available in all countries. Contact your local customer assistance center for product availability.



**Filtration**

[cumminsfiltration.com](http://cumminsfiltration.com)

LT15108NA - Rev 19, ©2019 Cummins Filtration Inc., Printed in USA

For technical details, refer to the **Fleetguard Technical Information Catalog** or visit **Fleetschool**.