

# Fleetguard®



## Coolant Products

LT36504



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## Getting Started

Engine manufacturers always recommend using a fully formulated coolant. Fully formulated coolants contain the appropriate amounts of glycol, de-ionized water and coolant additives mixed together as a complete coolant package. There are *standard service, extended service, and extended life coolants*. Water filters containing SCA can provide a convenient and reliable method for delivering supplemental additives and coolant extenders which replenish the additive chemistries used during the respective service interval.

## Protecting Your Cooling System

Estimates project that more than 40% of heavy duty engine repair costs are related to the cooling system. It is critical that you receive maximum protection for your cooling system – with minimum maintenance hassle – to prevent downtime and lower your total operating costs. Our comprehensive line of cooling system products includes everything you need to ensure a trouble-free cooling maintenance program.

The benefits of using Fleetguard® coolant products as a regular part of your cooling system maintenance program include:

- Extended water pump life
- Maximized cavitation corrosion protection
- Extended coolant life
- Improved heat transfer
- Improved thermostat durability
- Lower cooling system maintenance costs

The Fleetguard line of coolant products includes a variety of technologies to meet our customers' diverse needs. All coolants are designed to work in conjunction with Fleetguard water filters, supplemental coolant additives, radiator cleaners and test strips.

- Customers seeking extended service or extended life coolant should consider ES Compleat™, Fleetcool EX, ES Compleat NOAT, or ES Compleat OAT. All of these products are Life-of-the-Engine, 1,000,000-mile products when properly maintained.
- Customers seeking a phosphate-free maintenance program should consider ES Compleat OAT, Fleetcool™ EX, Fleetcool, or ES Compleat NOAT.
- Customers seeking more environmentally friendly coolants should consider either Propylene Glycol (PG) based coolants or glycerin base coolants.

Although we recommend the use of fully formulated heavy duty coolants, Supplemental Coolant Additives (SCA) can be used in water-only cooling systems like marine and railroad applications. The chemistry contained in our SCA is necessary to prevent liner pitting, corrosion and scale build-up on your cooling system components.

DCA4 chemistry is composed of a unique blend of phosphate, nitrite and molybdate, resulting in superior competitive advantages:

- More liner pitting protection
- Better aluminum and solder protection
- Less silicate gel
- Less solder bloom
- Fewer water pump leaks

DCA2 chemistry provides good engine protection in heavy duty diesel applications where glycol-based coolants are used.

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. Restore, an alkaline-based cleaner, is most effective in cleaning silicate gel, oil contamination and solder bloom. Restore Plus, an acid-based cleaner, is best at removing scale and oil and fuel fouling.

For coolant testing, we have a line of field test equipment such as test strips, a refractometer or expert laboratory analysis with on-line reporting, updated hourly.

**Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.**



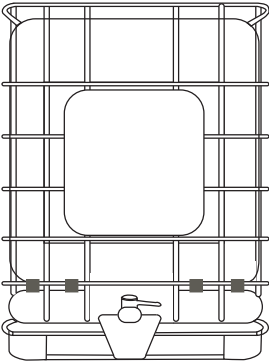
# Introduction

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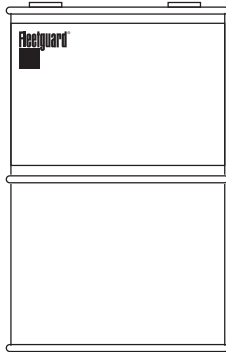
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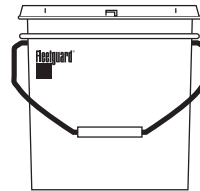
# Coolants



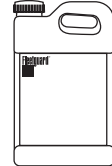
**275 Gallon  
(1040.99 Liter)  
Tote**



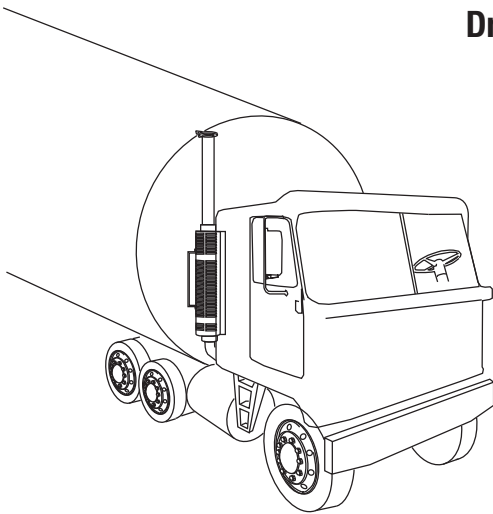
**55 Gallon  
(208.20 Liter)  
Drum**



**5 Gallon  
(18.93 Liter)  
Pail**



**1 Gallon  
(3.78 Liter)  
Bottle**



**Bulk**

**Note:** Not all container sizes are available in all countries.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



<b>Type</b>	ES Compleat™ EG Antifreeze/Coolants are Life-of-the-Engine, 1,000,000-mile formulations that contain Ethylene Glycol (EG) base fluids and are designed specifically for Extended Service use in heavy duty diesel engines. ES Compleat is specifically designed for use with ES Slow Release coolant filters or DCA4 to provide simplified coolant maintenance while extending coolant test intervals to 150,000 miles (260,000 km) or 4000 hours of operation.
<b>Composition</b>	ES Compleat EG Concentrate mixes readily with demineralized water, while ES Compleat EG Premix is formulated with demineralized water and is ready to use. Both EG antifreeze products are low silicate, contain a full charge of heavy duty chemical inhibitors and are compatible with SCA chemical filters. ES Compleat EG Antifreezes are formulated with a dual buffer system and nitrite/molybdate chemistry recommended for use in heavy duty diesel engines
<b>Application</b>	ES Compleat EG antifreezes are universal products highly recommended for use in all Cummins and similar types of heavy duty diesel engines.
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Compatible with other coolants</li><li>• Lifetime coolant with service interval at 150,000 miles, 260,000 kilometers or 4000 hours</li><li>• Provides freeze protection up to -34° F (-37° C) at 50/50 premix and -65 ° F (-54° C) at 60/40 premix</li><li>• Fully formulated coolant – does not require SCA precharge</li><li>• Maximum corrosion protection with conventional heavy duty chemical inhibitors and organic acids</li><li>• Maximum liner pitting protection</li><li>• Eliminate hard water scale deposits</li><li>• Low TDS and silicate levels</li></ul>

ES Compleat EG Antifreeze/Coolants meet or exceed the performance requirements of ASTM D 3306, ASTM D 6210, CES14603, CES14439, and the requirements of other OEMs.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

## Specifications

Specification	Performance Standard	EG Concentrate	EG Premix 50/50	EG Premix 60/40
Color	Visual	Blue	Blue	Blue
Specific Gravity @ 60° F (15.56° C) @ 68° F (20° C)	D1122 D1122	1.13	1.072 1.070	1.084 1.082
Density	–	9.43 lb/gal (1.13 kg/L)	8.944 lb/gal (1.072 kg/L)	9.044 lb/gal (1.084 kg/L)
pH (undiluted)	D1287	10.5	10.0	10.5
Reserve Alkalinity Typical (undiluted)	D1121	13.3	6.6	8.0
Freeze Point (undiluted)	D1177	8° F (-13.33° C) min.	-35.8° F (-37.68° C) min.	-54° F (-47.78° C) min.
Boiling Point (undiluted)	D1120	330° F (165.56° C)	226° F (107.78° C)	231° F (110.56° C)
Water by Weight (approx.)	D1123	4.0%	48.99% max.	40.18%
Total Glycol by Weight	–	95.0% min.	50.19% min.	58.87%
Glassware Corrosion Test	D1384	Pass	Pass	Pass
Water Pump Cavitation Test	D2809	Pass	Pass	Pass
Aluminum Corrosion Test	D4340	Pass	Pass	Pass
Simulated Service Test	D2570	Pass	Pass	Pass
Ash Content by Mass	D1119	1.8%	0.9%	1.1%
Chloride by Weight	D5827	< 25 ppm	< 25 ppm	< 25 ppm

## Ordering Information

Part Number	Product	Package Size	Case Qty.
CC2822	ES Compleat™ EG Concentrate	Bulk	N/A
CC2823	ES Compleat EG Concentrate	275 gal (1040.99 L)	1
CC2821	ES Compleat EG Concentrate	55 gal (208.20 L)	1
CC2847	ES Compleat EG Concentrate	5 gal (18.93 L)	1
CC2820	ES Compleat EG Concentrate	1 gal (3.78 L)	3
CC2827	ES Compleat EG Premix 50/50	Bulk	N/A
CC2826	ES Compleat EG Premix 50/50	55 gal (208.20 L)	1
CC2848	ES Compleat EG Premix 50/50	5 gal (18.93 L)	1
CC2825	ES Compleat EG Premix 50/50	1 gal (3.78 L)	3
CC2862	ES Compleat EG Premix 60/40	Bulk	N/A
CC2863	ES Compleat EG Premix 60/40	55 gal (208.20 L)	1
CC2907USR	ES Compleat EG Premix 60/40	275 gal (1040.99 L)	1
CC8983	ES Compleat EG Premix 50/50	275 gal (1040.99 L)	1
CC8984	ES Compleat EG Conc	275 gal (1040.99 L)	1

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

<b>Type</b>	ES Compleat™ PG Antifreeze/Coolants are Life-of-the-Engine, 1,000,000-mile formulations that contain Propylene Glycol (PG) base fluids that are environmentally safer, and are designed specifically for Extended Service use in heavy duty diesel engines. ES Compleat is specifically designed for use with ES Slow Release coolant filters or DCA4 to provide simplified coolant maintenance while extending coolant test intervals to 150,000 miles (260,000 km) or 4000 hours of operation.
<b>Composition</b>	ES Compleat PG Concentrate mixes readily with demineralized water, while ES Compleat PG Premix is formulated with demineralized water and is ready to use. Both PG coolant products are low silicate, contain a full charge of heavy duty chemical inhibitors, and are compatible with ES Coolant chemical filters and conventional SCAs.
<b>Application</b>	ES Compleat PG antifreezes are universal products highly recommended for use in all Cummins and similar types of heavy duty diesel engines.
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Compatible with other coolants</li><li>• Lifetime coolant with service interval at 150,000 miles, 260,000 kilometers or 4000 hours</li><li>• Provides freeze protection up to -26° F (-32° C) at 50/50 premix and -60° F (-51° C) at 60/40 premix</li><li>• Fully formulated coolant – does not require SCA precharge</li><li>• Maximum corrosion protection with conventional heavy duty chemical inhibitors and organic acids</li><li>• Maximum liner pitting protection</li><li>• Eliminate hard water scale deposits</li><li>• Low TDS and silicate levels</li></ul>

ES Compleat EG Antifreeze/Coolants meet or exceed the performance requirements of ASTM D 3306, ASTM D 6210, CES14603, CES14439, and the requirements of other OEMs.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



## Specifications

Specification	PG Concentrate	PG Premix 50/50	PG Premix 60/40
Color	Blue	Blue	Blue
Specific Gravity @ 60° F (15.56° C)	1.048	1.046	1.052
Specific Gravity @ 68° F (20° C)	1.046	1.044	1.050
Density	8.744 lb/gal (1.048 kg/L)	8.727 lb/gal (1.046 kg/L)	8.777 lb/gal (1.052 kg/L)
pH (undiluted)	10.6	10.5	10.5
Reserve Alkalinity Typical (undiluted)	12.4	6.3	7.7
Freeze Point (undiluted)	-48° F (-44.44° C) min.	-27° F (-32.78° C) min.	-56° F (-48.89° C) min.
Boiling Point (undiluted)	305° F (151.67° C) min.	219° F (103.89° C) min.	224° F (106.67° C) min.
Water by Weight (approx.)	4.0%	47.0% max.	37.0% max.
Total Glycol by Weight	95.0% min.	51.0% min.	61.0% min.
Glassware Corrosion Test	Pass	Pass	Pass
Water Pump Cavitation Test	Pass	Pass	Pass
Aluminum Corrosion Test	Pass	Pass	Pass
Simulated Service Test	Pass	Pass	Pass
Ash Content by Mass	1.8%	0.90%	1.1%
Chloride by Weight	< 25 ppm	< 25 ppm	< 25 ppm

## Ordering Information

Part Number	Product	Package Size	Case Qty.
CC2832	ES Compleat™ PG Concentrate	Bulk	N/A
CC2833USR	ES Compleat PG Concentrate	275 gal (1040.99 L)	1
CC2831	ES Compleat PG Concentrate	55 gal (208.20 L)	1
CC2849	ES Compleat PG Concentrate	5 gal (18.93 L)	1
CC2830	ES Compleat PG Concentrate	1 gal (3.78 L)	3
CC2837	ES Compleat PG Premix 50/50	Bulk	N/A
CC2837USR	ES Compleat PG Premix 50/50	275 gal (1040.99 L)	1
CC2836	ES Compleat PG Premix 50/50	55 gal (208.20 L)	1
CC2850	ES Compleat PG Premix 50/50	5 gal (18.93 L)	1
CC2835	ES Compleat PG Premix 50/50	1 gal (3.78 L)	3
CC2864	ES Compleat PG Premix 60/40	Bulk	N/A
CC2872USR	ES Compleat PG Premix 60/40	275 gal (1040.99 L)	1

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



<b>Type</b>	ES Compleat™ OAT (Organic Acid Technology) is an organic acid fully formulated Life-of-the-Engine, 1,000,000-mile Ethylene Glycol (EG) antifreeze/coolant. It is our answer to the maintenance demands of heavy duty diesel cooling systems. ES Compleat OAT EG may be used with Extended Service Interval (ESI) water filters and has a test interval of 300,000 miles (500,000 km), or 6,000 hours. Generally, the product can be maintained by simply topping up with premixed ES Compleat OAT coolant.
<b>Composition</b>	ES Compleat OAT Extended Life Antifreeze/Coolant utilizes patented organic acid technology. It provides superior diesel engine protection against freezing, boil-over, cavitation, liner pitting, erosion, corrosion, elastomer gasket degradation, and scaling.
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Compatible with other coolants</li><li>• Lifetime coolant with service interval at 300,000 miles, 500,000 kilometers or 6000 hours</li><li>• Provides freeze protection up to -34° F (-37° C) at 50/50 premix and -65° F (-54° C) at 60/40 premix</li><li>• Fully formulated coolant – does not require SCA precharge</li><li>• Maximum corrosion protection with organic acids</li><li>• Maximum liner pitting protection</li><li>• Improved water pump life through a Borate/Phosphate/Silicate free formula</li><li>• Best aluminum and solder protection through the use of proprietary organic inhibitors</li><li>• Compatible with other coolants and SCAs – less concern with contamination</li><li>• Lasts a lifetime – does not need to be replaced except in unusual circumstances</li></ul>

ES Compleat OAT EG meets or exceeds the requirements of ASTM 3306, ASTM 6210, CES14603, CES14439, Detroit Diesel 93D217, Navistar and the requirements of other OEMs.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

## Specifications

Specification	Performance Standard	OAT Concentrate	OAT Premix 50/50	OAT Premix 60/40
Color	Visual	Red	Red	Red
Specific Gravity @ 60° F (15.56° C)	D1122	1.130	1.070	1.090
Density	–	9.43 lb/gal (1.13 kg/L)	8.93 lb/gal (1.07 kg/L)	9.07 lb/gal (1.09 kg/L)
pH (undiluted)	D1287	8.6	8.6	8.6
Reserve Alkalinity (undiluted)	D1121	9.3	4.6	5.5
Freeze Point (undiluted)	D1177	8° F (-13.33° C) min.	-34° F (-36.67° C) min.	-65° F (-53.89° C) min.
Boiling Point (undiluted)	D1120	338° F (170.00° C) min.	226° F (107.78° C) min.	230° F (110.00° C) min.
Water by Weight (approx.)	D1123	4.0%	47.0% max.	37.0% max.
Total Glycol by Weight	–	95.0% min.	51.0% min.	61.0% min.
Glassware Corrosion Test	D1384	Pass	Pass	Pass
Aluminum Corrosion Test	D4340	Pass	Pass	Pass
Simulated Service Test	D2570	Pass	Pass	Pass
Aluminum Water Pump Test	D2809	Pass	Pass	Pass
Silicates	–	None	None	None

## Ordering Information

Part Number	Product	Package Size	Case Quantity
CC36070	ES Compleat™ OAT Concentrate	Bulk	N/A
CC36070USR	ES Compleat OAT Concentrate	275 gal (1040.99 L)	1
CC36072	ES Compleat OAT Concentrate	55 gal (208.20 L)	1
CC36073	ES Compleat OAT Concentrate	1 gal (3.78 L)	3
CC36074	ES Compleat OAT Premix 50/50	Bulk	N/A
CC36074USR	ES Compleat OAT Premix 50/50	275 gal (1040.99 L)	1
CC36076	ES Compleat OAT Premix 50/50	55 gal (208.20 L)	1
CC36077	ES Compleat OAT Premix 50/50	1 gal (3.78 L)	3
CC36078	ES Compleat OAT Premix 60/40	55 gal (208.20 L)	1
CC2908USR	ES Compleat OAT Premix 60/40	275 gal (1040.99 L)	1

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

<b>Type</b>	ES Compleat™ NOAT (Nitrited Organic Acid Technology) is an extended life fully formulated Life-of-the-Engine, 1,000,000-mile Ethylene Glycol (EG) antifreeze/coolant. ES Compleat NOAT is the ideal solution for extended life coolant systems in HD applications that require nitrite. ES Compleat NOAT may be used with Extended Service Interval (ESI) water filters and has a test interval of 300,000 miles (500,000 km), or 6,000 hours. To reach the full 1,000,000 product life, ES NOAT Extender should be used at the 600,000 mile interval. Always top up with premixed ES Compleat NOAT coolant.
<b>Composition</b>	ES Compleat NOAT uses a combination of organic additives and nitrite to provide maximum liner pitting protection. Protects against freezing, boil-over, cavitation, erosion, corrosion, elastomer/gasket degradation, and scaling.
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Compatible with other coolants including ELC</li><li>• Lifetime coolant with use of extender at 600,000 miles, 1,000,000 kilometers or 12,000 hours</li><li>• Provides freeze protection up to -34° F (-37° C) at 50/50 premix</li><li>• Fully formulated coolant – does not require SCA precharge</li><li>• Maximum corrosion protection with organic additives</li><li>• Maximum liner protection with nitrite/molybdate</li><li>• Improved water pump life through a Borate/Phosphate/Silicate free formula</li><li>• Less susceptible to contamination than hybrid and conventional technologies</li><li>• Compatible with gasket and hose materials (including silicone seals and hoses)</li><li>• For use in both On and Off Highway applications</li></ul>

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

## Specifications

Specification	Performance Standard	NOAT Concentrate	NOAT Premix 50/50
Color	Visual	Red	Red
Specific Gravity @ 60° F (15.56° C)	D1122	1.13	1.08
Density	–	9.43 lb/gal (1.13 kg/L)	9.04 lb/gal (1.08 kg/L)
pH (undiluted)	D1287	8.58	8.58
Reserve Alkalinity Typical (undiluted)	D1121	3.4	1.8
Freeze Point (undiluted)	D1177	–	-36°F (-37.8°C) min.
Boiling Point (undiluted)	D1120	339.3° F (170.7° C) min.	226.9° F (108.3° C) min.
Water by Weight (approx.)	D1123	3.1%	49.0% max.
Glassware Corrosion Test	D1177	Pass	Pass
Aluminum Corrosion Test	D4340	Pass	Pass
Simulated Service Test	D2570	Pass	Pass
Aluminum Water Pump Test	D2809	Pass	Pass
Silicates	–	None	None

## Ordering Information

Part Number	Product	Package Size	Case Quantity
CC36161 USJ	ES Compleat™ NOAT Premix 50/50	1 gal (3.78 L)	3
CC36161 USJ X	ES Compleat NOAT Premix 50/50	1 gal (CAN)	3
CC36161 USD	ES Compleat NOAT Premix 50/50	55 gal (208.20 L)	1
CC36161 UST	ES Compleat NOAT Premix 50/50	275 gal (1040.99 L)	N/A
CC36161 US	ES Compleat NOAT Premix 50/50	Bulk	N/A
CC36166 USJ	ES Compleat NOAT Concentrate	1 gal (3.78 L)	3
CC36166 USJ X	ES Compleat NOAT Concentrate	1 gal (CAN)	3
CC36166 USD	ES Compleat NOAT Concentrate	55 gal (208.20 L)	1
CC36166 UST	ES Compleat NOAT Concentrate	275 gal (1040.99 L)	1
CC36166 US	ES Compleat NOAT Concentrate	Bulk	N/A

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



**Type** Fleetcool™ products contain Ethylene Glycol (EG) base fluids and are designed for use in heavy duty diesel engines.

**Composition** Fleetcool Concentrate mixes readily with demineralized water, while Fleetcool Premix is formulated with demineralized water and is ready to use. Fleetcool contains a Borate/Nitrite, low silicate fully formulated heavy duty inhibitor package that is compatible with all SCA liquids and filters. Chemistry recommended for use in heavy duty diesel engines.

**Benefits**

- Compatible with all other coolants
- Lifetime coolant with test interval at 30,000 miles, 50,000 kilometers or 700 hours
- Provides freeze protection up to -34° F (-37° C) at 50/50 premix and -65° F (-54° C) at 60/40 premix
- Fully formulated coolant – does not require SCA precharge
- Phosphate free formula

Fleetcool antifreeze/coolants meet or exceed the performance requirements of ASTM 3306, ASTM 6210, CES 14603, CES 14439, Detroit Diesel 93K217, and the conventional coolant specs of other OEMs.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

## Specifications

Specification	Performance Standard	EG Concentrate	EG Premix 50/50
Color	Visual	Green	Green
Specific Gravity @ 60° F (15.56° C)	D1122	1.120	1.071
Density	–	9.344 lb/gal (1.12 kg/L)	8.935 lb/gal (1.07 kg/L)
pH (undiluted)	D1287	10.5	10.5
Reserve Alkalinity Typical (undiluted)	D1121	5.3	2.9
Freeze Point (undiluted)	D1177	8° F (-13.33° C) min.	-34° F (-36.67° C) min.
Boiling Point (undiluted)	D1120	325° F (162.78° C)	226° F (107.78° C) min.
Water by Weight (approx.)	D1123	3.0%	48.5% max.
Total Glycol by Weight	–	95.0% min.	51.0% min.
Glassware Corrosion Test	D1384	Pass	Pass
Water Pump Cavitation Test	D2809	Pass	Pass
Aluminum Corrosion Test	D4340	Pass	Pass
Simulated Service Test	D2570	Pass	Pass

## Ordering Information

Part Number	Product	Package Size	Case Quantity
CC8965	Fleetcool™ EG Concentrate	Bulk	N/A
CC8965USR	Fleetcool EG Concentrate	275 gal (1040.99 L)	1
CC8967	Fleetcool EG Concentrate	55 gal (208.20 L)	1
CC8968	Fleetcool EG Concentrate	5 gal (18.93 L)	1
CC8969	Fleetcool EG Concentrate	1 gal (3.78 L)	3
CC8970	Fleetcool EG Premix 50/50	Bulk	N/A
CC8970USR	Fleetcool EG Premix 50/50	275 gal (1040.99 L)	1
CC8972	Fleetcool EG Premix 50/50	55 gal (208.20 L)	1
CC8973	Fleetcool EG Premix 50/50	5 gal (18.93 L)	1
CC8974	Fleetcool EG Premix 50/50	1 gal (3.78 L)	3

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



<b>Type</b>	Fleetcool EX Antifreeze/Coolants are Life-of-the-Engine, 1,000,000-mile formulations that contain Ethylene Glycol (EG) base fluids and are designed specifically for Extended Service use in heavy duty diesel engines. Fleetcool EX is specifically designed for use with ES Slow Release coolant filters or DCA 2 to provide simplified coolant maintenance while extending coolant test intervals to 150,000 miles (260,000 km) or 4000 hours of operation.
<b>Composition</b>	Fleetcool EX Concentrate mixes readily with demineralized water, while Fleetcool EX Premix is formulated with demineralized water and is ready to use. Both EG antifreeze products are low silicate, contain a full charge of heavy duty chemical inhibitors are compatible with SCA chemical filters. Fleetcool EX Antifreezes are formulated with a nitrite/molybdate chemistry recommended for use in heavy duty diesel engines.
<b>Application</b>	Fleetcool EX antifreezes are heavy-duty, hybrid products highly recommended for use in all Cummins and similar types of heavy duty diesel engines.
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Compatible with all other coolants</li><li>• Lifetime coolant with service interval at 150,000 miles, 260,000 kilometers or 4000 hours</li><li>• Provides freeze protection up to -34° F (-37° C) at 50/50 premix and -65° F (-54° C) at 60/40 premix</li><li>• Fully formulated coolant – does not require SCA precharge</li><li>• Phosphate free formula</li></ul>

Fleetcool EX antifreeze/coolants meet or exceed the performance requirements of ASTM 3306, ASTM 6210, CES 14603, CES 14439, Detroit Diesel 93K217, and the coolant specifications of other OEMs.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



## Specifications

Specification	Performance Standard	EG Concentrate	EG Premix 50/50
Color	Visual	Fushia	Fushia
Specific Gravity @ 60° F (15.56° C) @ 68° F (20° C)	D1122 D1122	1.12	1.072 1.070
Density	–	9.34 lb/gal (1.12 kg/L)	8.944 lb/gal (1.072 kg/L)
pH (undiluted)	D1287	10.5	10.0
Reserve Alkalinity Typical (undiluted)	D1121	6.1	3.0
Freeze Point (undiluted)	D1177	8° F (-13.33° C) min.	-35.8°F (-37.68° C) min.
Boiling Point (undiluted)	D1120	330° F (165.56° C)	226° F (107.78° C)
Water by Weight (approx.)	D1123	4.0%	48.99% max.
Total Glycol by Weight	–	95.0% min.	50.19% min.
Glassware Corrosion Test	D1384	Pass	Pass
Water Pump Cavitation Test	D2809	Pass	Pass
Aluminum Corrosion Test	D4340	Pass	Pass
Simulated Service Test	D2570	Pass	Pass
Chloride by Weight	D5827	< 25 ppm	< 25 ppm

## Ordering Information

Part Number	Product	Package Size	Case Quantity
CC2739	Fleetcool™ EX EG Concentrate	Bulk	N/A
CC2739USR	Fleetcool EX EG Concentrate	275 gal (1040.99 L)	1
CC2741	Fleetcool EX EG Concentrate	55 gal (208.20 L)	1
CC2742	Fleetcool EX EG Concentrate	1 gal (3.78 L)	3
CC2743	Fleetcool EX EG Premix 50/50	Bulk	N/A
CC2743USR	Fleetcool EX EG Premix 50/50	275 gal (1040.99 L)	1
CC2745	Fleetcool EX EG Premix 50/50	55 gal (208.20 L)	1
CC2746	Fleetcool EX EG Premix 50/50	1 gal (3.78 L)	3

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



# Notes

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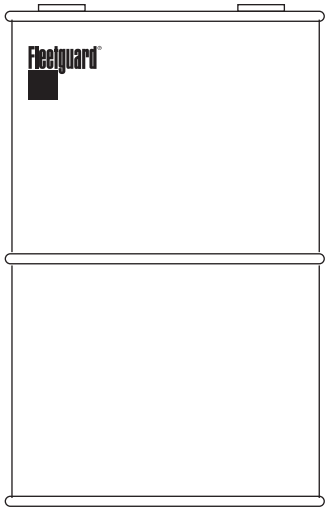
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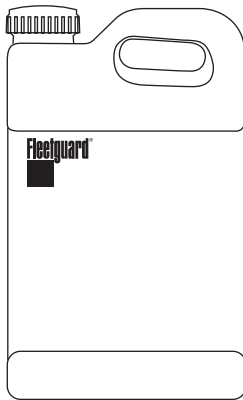
Coolant products vary by region. For product formula and availablilty, contact your local Customer Assurance Center.



# Coolant Additives and Maintenance



**55 Gallon  
(208.20 Liter)  
Drum**



**5 Gallon  
(18.93 Liter)  
Jug**



**1 Gallon  
(3.78 Liter)  
Bottle**



**0.5 Gallon  
(1.89 Liter)  
Bottle**



**1 Pint  
(0.47 Liter)  
Bottle**

**Note:** Not all container sizes are available in all countries.

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



- Type** DCA2 Supplemental Coolant Additive (SCA) provides superior engine protection in heavy duty diesel applications where glycol based coolants are used, as well as marine and railroad diesel applications where water is used as the coolant.
- Composition** DCA2 SCA contains Nitrite for liner pitting protection and Borate for acid protection.
- Benefits**
- Provides Diesel Line Pitting Protection
  - Provides Engine Metal Corrosion Protection
  - Mixes Easily with Standard Low Silicate Antifreeze

## Specifications

Specification	DCA2 SCA
Color	Blue
Specific Gravity	1.142
pH (undiluted)	11.5
pH (@ 3.1% by volume in deionized water)	10.7
Reserve Alkalinity (@ 3.1% by volume in deionized water)	3.7

## Ordering Information

Part Number	Product	Package Size
DCA 30L	DCA2 Borate/Nitrite	1 pt (0.47 L)
DCA 35L	DCA2 Borate/Nitrite	.5 gal (1.89 L)
DCA 40L	DCA2 Borate/Nitrite	1 gal (3.78 L)
DCA 45L	DCA2 Borate/Nitrite	5 gal (18.93 L)
DCA 50L	DCA2 Borate/Nitrite	55 gal (208.20 L)

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

- Type** DCA4 Supplemental Coolant Additive (SCA) provides superior engine protection in heavy duty diesel applications where glycol based coolants are used, as well as marine and railroad diesel applications where water is used as the coolant. DCA4 is less toxic and, as a result, is preferred by those concerned about skin sensitivity and coolant spills or disposal.
- Composition** DCA4 contains Nitrite and Molybdate for liner pitting protection and phosphate for acid protection.
- Benefits**
- Provides Improved Cylinder Liner Pitting Protection
  - Provides Improved Aluminum and Solder Protection
  - Less Tendency to Form Gel in Cooling System
  - Improved Tolerance to SCA Under- or Over-charging
  - Phosphate Buffers Are Less Likely to Cause Water Pump Leakage
  - Less Toxic Than Borate/Nitrite Inhibitors

## Specifications

Specification	DCA4 SCA
Color	Blue
Specific Gravity	1.148
pH (undiluted)	10.5
pH (@ 3.1% by volume in deionized water)	10.6
Reserve Alkalinity (@ 3.1% by volume in deionized water)	2.3

## Ordering Information

Part Number	Product	Package Size
DCA 60L	DCA4 Phosphate/Nitrite/Molybdate	1 pt (0.47 L)
DCA 65L	DCA4 Phosphate/Nitrite/Molybdate	.5 gal (1.89 L)
DCA 70L	DCA4 Phosphate/Nitrite/Molybdate	1 gal (3.78 L)
DCA 75L	DCA4 Phosphate/Nitrite/Molybdate	5 gal (18.93 L)
DCA 80L	DCA4 Phosphate/Nitrite/Molybdate	55 gal (208.20 L)

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



- Type** Restore cleaner is formulated to be the most effective cooling system oil/fuel contamination-cleaning agent on the market. It is ten times more effective than automotive distributor detergent powders.
- Composition** Restore is an alkaline chelating cleaner and the only silicate gelation cleaner. Its powerful and effective chelating agents break up gel and hold it in suspension without attacking metal surfaces like strong alkaline cleaners can. Restore is safe for use in aluminum radiators and heaters
- Benefits**
- Does not harm cooling system components
  - Safe for service personnel
  - Easy disposal

## Specifications

Specification	Restore™
Color	Light Yellow
Specific Gravity	1.100
pH (undiluted)	12.4
pH (@ 10% by volume in deionized water)	11.1

## Ordering Information

Part Number	Product	Package Size
CC2610	Restore™	1 gal (3.78 L)
CC2611	Restore	5 gal (18.93 L)
CC2612	Restore	55 gal (208.20 L)

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

**Type** Restore Plus cleaner is a mild acid-based chelating cleaner formulated to remove scale, corrosion and solder bloom – without disassembling your cooling system.

**Composition** Restore Plus is an alkaline chelating cleaner with an acid base. Its powerful and effective acid and chelating agents break up scale, corrosion and solder bloom. Failure to adequately remove these problems from cooling systems results in accelerated base wear and loss of oil control, overheating, inadequate coolant flow and short engine life from overheated components.

- Benefits**
- Does not harm cooling system components
  - Removes scale, corrosion and solder bloom
  - Safe for service personnel
  - Easy disposal

## Specifications

Specification	Restore Plus™
Color	Light Yellow
Specific Gravity	1.110
pH (undiluted)	2.5
pH (@ 10% by volume in deionized water)	2.7

## Ordering Information

Part Number	Product	Package Size
CC2638	Restore Plus™	1 gal (3.78 L)
CC2637	Restore Plus	55 gal (208.20 L)

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



## 3-Way Heavy Duty Coolant Test Strips

Measuring the Freeze Point and Chemical protection in your engine’s cooling system is essential for protection against liner pitting, corrosion and coolant dilution. state-of-the-art Fleetguard® 3-Way Heavy Duty Coolant Test Strips provide a simple and effective means of checking the coolant system. It is easy to use the 3-Way DIP and READ test strips. Simply take a sample of the coolant and dip the 3-Way Test Strip. Within 45-75 seconds, read the Freeze Point and Molybdate/Nitrite levels to obtain SCA units. Record the readings and continue coolant maintenance practices according to OEM recommendations. One strip does it all. No fuss, no coolant dilution, and no chemical mixing.

### Ordering Information

Part Number	Product	Package Size
CC2602	3-Way Heavy Duty Coolant Test Strips	50 Strips/Bottle
CC2602A	3-Way Heavy Duty Coolant Test Strips	25 4-Pack Strips/Box
CC2602B	3-Way Heavy Duty Coolant Test Strips	100 Single Strips/Box
CC2602M	3-Way Heavy Duty Coolant Test Strips	50 Strips/Bottle (Metric)
CC2602AM	3-Way Heavy Duty Coolant Test Strips	25 4-Pack Strips/Box (Metric)



## Quik-Chek™ 3-Way Coolant Quality Test Kit

With proper maintenance, Fleetguard ES Compleat™ coolant can last for the major overhaul life of the engine. However, when poor quality make-up water is added to the system or when minimum coolant maintenance is not observed, pH levels can rise or fall to dangerous levels and contaminants (Sulfate and Chloride) can rise to unacceptable levels. When this occurs, coolants must be drained and replaced immediately. To help customers determine the quality of their coolants, We have developed revolutionary Quik-Chek Coolant Quality Test Strips. In a matter of minutes the pH, Sulfate and Chloride levels in a coolant can be determined. If results fall within acceptable limits, the coolant can be used until the next service interval with confidence.

### Ordering Information

Part Number	Product	Package Size
CC2718	Quik-Chek™ 3-Way Coolant Quality Test Kit	10 Strips/Bottle



Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

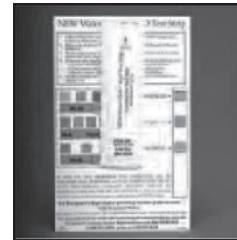


## Water-Chek™ H2O 3-Way Test Strips

The use of poor quality make-up water can drastically reduce coolant life and cooling system performance by causing additive dropout, scale build-up and metal surface corrosion. Fleetguard® Water-Chek H<sub>2</sub>O 3-Way Test Strips are the easy, effective way to determine if your coolant make-up water meets OEM, TMC and ASTM specifications. Simply dip the strip in a sample of the make-up water. In a matter of minutes, you will know the pH, Chloride and Hardness levels and be able to determine if your water meets OEM, TMC and ASTM specifications for use in heavy duty cooling systems.

### Ordering Information

Part Number	Product	Package Size
CC2609	Water-Chek™ H <sub>2</sub> O 3-Way Test Strips	100 Single Strips/Box



## Refractometer

The Fleetguard Refractometer is the fast, easy way to determine the freeze point protection in both Ethylene Glycol and Propylene Glycol coolants. It is more accurate than test strips or float-type hydrometers and is as easy as 1,2,3.

1. Place a drop of coolant on the refractometer window and shut the lid.
2. Look through the eyepiece and focus.
3. Record the freeze point protection for either Ethylene Glycol or Propylene Glycol coolants.

### Ordering Information

Part Number	Product
CC2806	Refractometer



Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.



## Monitor-C™ Testing – Coolant Analysis

Proper coolant maintenance is vital to heavy duty engine operation. 40% of engine problems can be traced back to an improperly functioning cooling system. Fleetguard® Monitor-C Testing – Coolant Analysis program allows operators of heavy duty diesel engines to effectively monitor their cooling system maintenance practices and conditions through reliable and expedient coolant analysis. The program provides expert laboratory analysis with **on-line reporting, updated hourly**.

The kit contains a sample bottle, an outer mailing bottle and the appropriate sample ID and mailing labels.

A Monitor-C test report contains the following information:

- pH Level
- % Glycol
- Hardness, Chlorides and Sulfates
- Freeze Point
- % TDS (Total Dissolved Solids)
- Liner Pitting (Molybdate/Nitrate Levels)
- Corrosion Products
- Silicate Level
- Buffers



		Acct#: MONITC-0000-0002 Customer:				
		EG COOLANT (A/F WATER SCA Engine: CUMMINS				
Date Sampled:	07/20/00	02/12/99	03/05/98	06/19/97	04/08/97	
Date Tested:	08/01/00	03/02/99	03/16/98	06/27/97	04/15/97	
Miles on Unit:	547,601	408,828	284,217	193,090	168,251	
Miles/Hrs. on Coolant:		408,828	284,217	193,090	84,000	
Lab Sample Number:	507959	390905	014643	781017	711272	
pH:	8.7	9.4	8.7	8.8	8.6	
% Glycol:	28*	52	55	57	55	
Freeze Point F:	7*	-38	-47	-53	-47	
TDS (ppm):	0.5	1.5	2.2	3.5	2.9	
Liner Pitting						
- SCA (Units per Gallon):	0.8*	3.3*	3.4*	3.7*	4.4*	
- Nitrite (TMC RP328):	185	1973	1902	2071	2814	
- Molybdate (TMC RP328):	280	830	960	1050	990	
Corrosion Products						
- Iron:	0	0	0	0	0	
- Aluminum:	0	2	2	2	3	
- Copper:	0	3	5	8	4	
- Lead	1	0	0	0	0	
Silicate (TMC RP328):	80	100	250	120	120	
Buffers						
- Phosphate (K2HPO4):	2458	6500	12930	27900	18630	
- Borate (Na2B4O7):	851	890	730	670	520	
- Hardness:						
- Degradation Acids:						
- Chloride:						
- Sulfate:						

NOTE: Chemical analysis results are PPM except where noted.

MONITOR C TESTS ARE NOT SUFFICIENT TO EVALUATE COOLANT RECYCLING PROCESSES!!

RECOMMENDATIONS:

SCA IS UNDERCONCENTRATED. GLYCOL CONCENTRATION IS OUT OF RECOMMENDED RANGE FOR COOLANT USE (40-60%). PRECHARGE SYSTEM AT 1.5 UNITS SCA PER GALLON AND INSTALL A SERVICE FILTER. REVIEW MAINTENANCE PRACTICES.

## Ordering Information

Part Number	Product
CC2700	Monitor-C™ Testing – Coolant Analysis
CC2706	Monitor-C Testing – Coolant Analysis (Postage Prepaid)

Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

# Revisions

# Revisions

## Revisions

Revision	Date	Description
A	12-08-2017	Added Revision Block. LT36504 was LT32599
B	02-12-2018	One Gallon Case quantity 3 was 6.
C	06-13-2019	<ul style="list-style-type: none"> <li>-Added ES Compleat NOAT</li> <li>-Added Fleetcool EX</li> <li>-Removed obsolete product lines</li> <li>-Removed long lists of OE specs, replace with condensed statement of official approvals</li> <li>-Added 4 Way Test Strip</li> <li>-Fixed ES Compleat OAT part numbers and technical details</li> <li>-Removed cardboard tote number and replace with new plastic tote numbers</li> <li>-Revised Introduction</li> <li>-Coolant Ordering Information: Added CC2908USR, Removed CC36070USR</li> <li>-Revised 275 gallon Tote graphics</li> <li>-CC2872USR was CC2872</li> </ul>
D	07-23-2019	Removed "SCA Units per Gallon" from ES Compleat OAT and ES Compleat NOAT Specifications charts.
E	09-25-2019	<ul style="list-style-type: none"> <li>-Fleetcool EX "Phosphate-free formula." was phosphate and silicate free in the benefits section.</li> <li>-Corrected typos in the Fleetcool EX section</li> </ul>
F	02-03-2020	<ul style="list-style-type: none"> <li>-P 3- Fleetcool EX and ES Compleat OAT was Fleetcool Ex and Es Compleat OAT</li> <li>-P 7, 9, 11, and 15- Updated Reserve Alkalinity Typical (undiluted) with typical values determined from KOST COA data, updated mass content by mass, coolant pH, and corrected ASTM standard numbers</li> <li>-P 14- Phosphate free formula was Phosphate and silicate free formula</li> <li>-P.17- Updated Reserve Alkalinity Typical (undiluted) specs and removed EG Premix 60/40 specs and CC36114 from ordering information</li> </ul>