



# 9 • Coolant Products



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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 (also known as supplemental coolant additives or SCAs) mixed together as a complete coolant package. There are *standard service interval coolants* and *extended service interval 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 interval coolants should consider ES Compleat™ OAT or ES Compleat. Both 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, or Fleetcool.
- 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.**



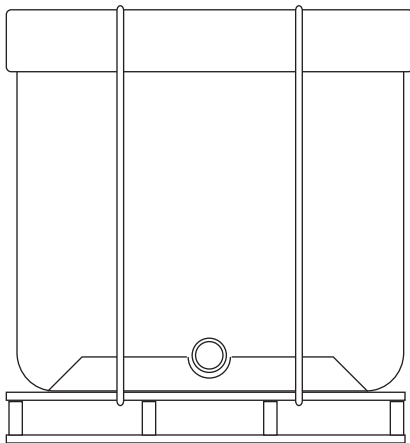
# Introduction

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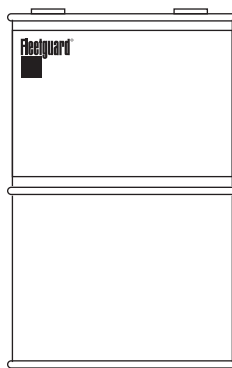
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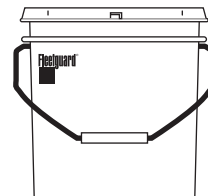
# Coolants



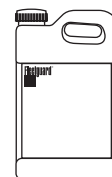
**275 Gallon  
(1040.99 Liter)  
Tote**



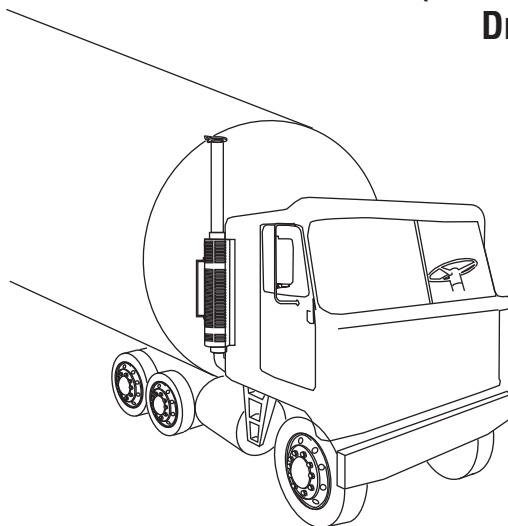
**55 Gallon  
(208.20 Liter)  
Drum**



**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, and also for use in automobile and light duty applications.
<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>• 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 are considered Lifetime Coolants, meet or exceed the performance requirements of the following specifications, and meet the low silicate limits of GM6038M antifreeze formulation requirements:

TMC RP 338 Extended Life  
 TMC RP 329  
 ASTM D-6210  
 ASTM D-4985  
 ASTM D-3306  
 CID-A-A-52624  
 GM® 1899

Cummins® CES 14603  
 Cummins SB 3666132  
 Caterpillar®  
 Detroit Diesel® 7SE298  
 John Deere® 8650-5  
 Thermo-King®  
 Case New Holland®

Navistar®  
 Freightliner® 48-22880  
 Volvo®  
 PACCAR®  
 Mack® 014G817004  
 EMD® M.I. 1748E  
 Waukesha® 4-1974D

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)	D1127	10.5	10.0	10.5
Reserve Alkalinity (undiluted)	D1121	5.0	3.0	3.8
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	0.80%	0.40%	0.40%
Chloride by Weight	D2570	< 25 ppm	< 25 ppm	< 25 ppm

## Ordering Information

Part Number	Product	Package Size	Case Qty.
<b>CC2822</b>	ES Compleat™ EG Concentrate	Bulk	N/A
<b>CC2823</b>	ES Compleat EG Concentrate	275 gal (1040.99 L)	1
<b>CC2821</b>	ES Compleat EG Concentrate	55 gal (208.20 L)	1
<b>CC2847</b>	ES Compleat EG Concentrate	5 gal (18.93 L)	1
<b>CC2820</b>	ES Compleat EG Concentrate	1 gal (3.78 L)	6
<b>CC2827</b>	ES Compleat EG Premix 50/50	Bulk	N/A
<b>CC2834</b>	ES Compleat EG Premix 50/50	275 gal (1040.99 L)	1
<b>CC2826</b>	ES Compleat EG Premix 50/50	55 gal (208.20 L)	1
<b>CC2848</b>	ES Compleat EG Premix 50/50	5 gal (18.93 L)	1
<b>CC2825</b>	ES Compleat EG Premix 50/50	1 gal (3.78 L)	6
<b>CC2862</b>	ES Compleat EG Premix 60/40	Bulk	N/A
<b>CC2863</b>	ES Compleat EG Premix 60/40	55 gal (208.20 L)	1

Part Number	Product	Package Size	Case Qty.
<b>CC2822M</b>	ES Compleat™ EG Concentrate	Bulk	N/A
<b>CC2851M</b>	ES Compleat EG Concentrate	1000 L (264.17 gal)	1
<b>CC2821M</b>	ES Compleat EG Concentrate	208 L (54.95 gal)	1
<b>CC2749M</b>	ES Compleat EG Concentrate	20 L (5.28 gal)	1
<b>CC2747M</b>	ES Compleat EG Concentrate	5 L (1.32 gal)	4
<b>CC2827M</b>	ES Compleat EG Premix 50/50	Bulk	N/A
<b>CC2852M</b>	ES Compleat EG Premix 50/50	1000 L (264.17 gal)	1
<b>CC2826M</b>	ES Compleat EG Premix 50/50	208 L (54.95 gal)	1
<b>CC2750M</b>	ES Compleat EG Premix 50/50	20 L (5.28 gal)	1
<b>CC2748M</b>	ES Compleat EG Premix 50/50	5 L (1.32 gal)	4

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 and gas 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 -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 PG Antifreeze Coolants meet or exceed the performance requirements of the following specifications, and meet the low silicate limits of GM6038M antifreeze formulation requirements:

TMC RP 338 Extended Life  
 TMC RP 330  
 ASTM D-6211  
 ASTM D-5216  
 CID-A-A-52624  
 Waukesha® 4-1974D

Cummins® CES 14603  
 Cummins SB 3666132  
 Caterpillar®  
 Detroit Diesel® 7SE298  
 John Deere® 8650-5  
 Case New Holland®

Navistar®  
 Freightliner® 48-22880  
 Volvo®  
 PACCAR®  
 Mack®  
 EMD® M.I. 1748E

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 (undiluted)	6.2	3.2	3.8
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	0.80%	0.40%	0.40%
Chloride by Weight	< 25 ppm	< 25 ppm	< 25 ppm

## Ordering Information

Part Number	Product	Package Size	Case Qty.
<b>CC2832</b>	ES Compleat™ PG Concentrate	Bulk	N/A
<b>CC2833</b>	ES Compleat PG Concentrate	275 gal (1040.99 L)	1
<b>CC2831</b>	ES Compleat PG Concentrate	55 gal (208.20 L)	1
<b>CC2849</b>	ES Compleat PG Concentrate	5 gal (18.93 L)	1
<b>CC2830</b>	ES Compleat PG Concentrate	1 gal (3.78 L)	6
<b>CC2837</b>	ES Compleat PG Premix 50/50	Bulk	N/A
<b>CC2838</b>	ES Compleat PG Premix 50/50	275 gal (1040.99 L)	1
<b>CC2836</b>	ES Compleat PG Premix 50/50	55 gal (208.20 L)	1
<b>CC2850</b>	ES Compleat PG Premix 50/50	5 gal (18.93 L)	1
<b>CC2835</b>	ES Compleat PG Premix 50/50	1 gal (3.78 L)	6
<b>CC2864</b>	ES Compleat PG Premix 60/40	Bulk	N/A
<b>CC2865</b>	ES Compleat PG Premix 60/40	55 gal (208.20 L)	1
<b>CC2872</b>	ES Compleat PG Premix 60/40	275 gal (1040.99 L)	1

Part Number	Product	Package Size	Case Qty.
<b>CC2832M</b>	ES Compleat™ PG Concentrate	Bulk	N/A
<b>CC2853M</b>	ES Compleat PG Concentrate	1000 L (264.17 gal)	1
<b>CC2831M</b>	ES Compleat PG Concentrate	208 L (54.95 gal)	1
<b>CC2753M</b>	ES Compleat PG Concentrate	20 L (5.28 gal)	1
<b>CC2751M</b>	ES Compleat PG Concentrate	5 L (1.32 gal)	4
<b>CC2837M</b>	ES Compleat PG Premix 50/50	Bulk	N/A
<b>CC2854M</b>	ES Compleat PG Premix 50/50	1000 L (264.17 gal)	1
<b>CC2836M</b>	ES Compleat PG Premix 50/50	208 L (54.95 gal)	1
<b>CC2754M</b>	ES Compleat PG Premix 50/50	20 L (5.28 gal)	1
<b>CC2752M</b>	ES Compleat PG Premix 50/50	5 L (1.32 gal)	4

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



**Type** 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.

**Composition** 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.

- Benefits**
- Compatible with all other coolants
  - Lifetime coolant with service interval at 300,000 miles, 500,000 kilometers or 6000 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
  - Maximum corrosion protection with organic acids
  - Maximum liner pitting protection
  - Improved water pump life through a Borate/Phosphate/Silicate free formula
  - Best aluminum and solder protection through the use of proprietary organic inhibitors
  - Compatible with other coolants and SCAs – less concern with contamination
  - Lasts a lifetime – does not need to be replaced except in unusual circumstances

ES Compleat OAT EG Antifreeze Coolants meet or exceed the performance requirements of the following specifications:

ASTM D-3306	Cummins® SB 14603	John Deere® H24A1, H24C1	TMC RP 329
ASTM D-4656	Detroit Diesel® 7SE298	Komatsu®	TMC RP338
ASTM D-4985	Freightliner® 48-22880	Mack®	Volvo®
ASTM D-6210	GM® 1825M	MTU 2000 and 4000	Waukesha® 4-1974D
Case New Holland®	GM 1899	PACCAR®	
Caterpillar® EC-1	International® B-1, Type III	SAEJ1034	

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)	D1278	7.9	7.9	7.9
Reserve Alkalinity (undiluted)	D1121	7.0	3.5	3.5
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.
SCA Units per Gallon	–	4.0	2.0	2.0
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
Degradation Point	D1287	7.2	7.2	7.2

## Ordering Information

Part Number	Product	Package Size	Case Quantity
<b>CC2784</b>	ES Compleat™ OAT Concentrate	Bulk	N/A
<b>CC2783</b>	ES Compleat OAT Concentrate	275 gal (1040.99 L)	1
<b>CC2782</b>	ES Compleat OAT Concentrate	55 gal (208.20 L)	1
<b>CC2781</b>	ES Compleat OAT Concentrate	5 gal (18.93 L)	1
<b>CC2780</b>	ES Compleat OAT Concentrate	1 gal (3.78 L)	6
<b>CC2789</b>	ES Compleat OAT Premix 50/50	Bulk	N/A
<b>CC2788</b>	ES Compleat OAT Premix 50/50	275 gal (1040.99 L)	1
<b>CC2787</b>	ES Compleat OAT Premix 50/50	55 gal (208.20 L)	1
<b>CC2786</b>	ES Compleat OAT Premix 50/50	5 gal (18.93 L)	1
<b>CC2785</b>	ES Compleat OAT Premix 50/50	1 gal (3.78 L)	6
<b>CC2770</b>	ES Compleat OAT Premix 60/40	55 gal (208.20 L)	1
<b>CC2790</b>	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.



**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 service 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 and silicate free formula

Fleetcool antifreeze/coolants meet or exceed the performance requirements of the following specifications, and meet the low silicate limits of GM6038M antifreeze formulation requirements:

ASTM D-3306	Detroit Diesel® 7SE298	GM 1899	TMC RP 329
ASTM D-4985	EMD® M.I. 1748E	John Deere® 8650-5	Thermo-King®
ASTM D-6210	Ford New Holland® 9-86	Mack®	Volvo GM®
Caterpillar®	Freightliner® 48-22880	PACCAR®	Waukesha® 4-1974D
Cummins® SB 3666132	GM® 1825	SAE 1941	

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)	D1127	10.5	10.5
Reserve Alkalinity (undiluted)	D1121	6.0	2.8 min.
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

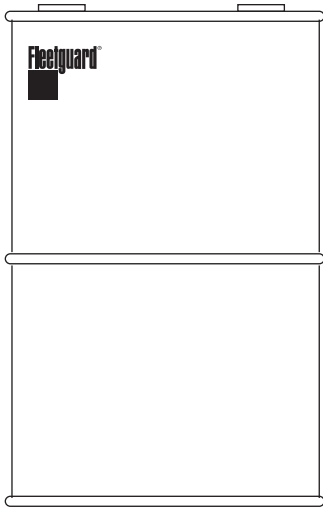
Part Number	Product	Package Size	Case Quantity
<b>CC8965</b>	Fleetcool™ EG Concentrate	Bulk	N/A
<b>CC8966</b>	Fleetcool EG Concentrate	275 gal (1040.99 L)	1
<b>CC8967</b>	Fleetcool EG Concentrate	55 gal (208.20 L)	1
<b>CC8968</b>	Fleetcool EG Concentrate	5 gal (18.93 L)	1
<b>CC8969</b>	Fleetcool EG Concentrate	1 gal (3.78 L)	6
<b>CC8970</b>	Fleetcool EG Premix 50/50	Bulk	N/A
<b>CC8971</b>	Fleetcool EG Premix 50/50	275 gal (1040.99 L)	1
<b>CC8972</b>	Fleetcool EG Premix 50/50	55 gal (208.20 L)	1
<b>CC8973</b>	Fleetcool EG Premix 50/50	5 gal (18.93 L)	1
<b>CC8974</b>	Fleetcool EG Premix 50/50	1 gal (3.78 L)	6

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

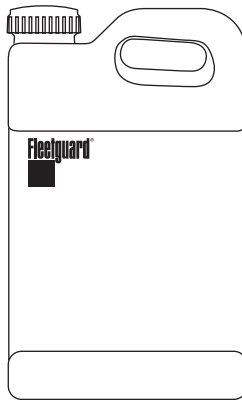




# Coolant Additives and Maintenance



**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)

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- 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
<b>DCA 60L</b>	DCA4 Phosphate/Nitrite/Molybdate	1 pt (0.47 L)
<b>DCA 65L</b>	DCA4 Phosphate/Nitrite/Molybdate	.5 gal (1.89 L)
<b>DCA 70L</b>	DCA4 Phosphate/Nitrite/Molybdate	1 gal (3.78 L)
<b>DCA 75L</b>	DCA4 Phosphate/Nitrite/Molybdate	5 gal (18.93 L)
<b>DCA 80L</b>	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



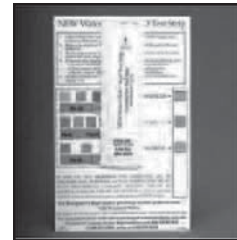
Coolant products vary by region. For product formula and availability, contact your local Customer Assurance Center.

## Water-Chek™ H<sub>2</sub>O 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



**Monitor-C™**  
COOLANT ANALYSIS REPORT

www.fleetguard.com  
1-800-22FILTER  
(317) 806-3751 Fax

Acct#: MONITC-0000-0002  
Customer:

Unit # R2591 D EG COOLANT (A/F WATER SCA Engine: CUMMINS

	07/20/00	02/12/99	03/05/98	06/19/97	04/08/97
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 (40-50%). 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.

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# Revisions



# Revisions

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## Revisions

Revision	Date	Description
A	12-08-2017	Added Revision Block. LT36504 was LT32599