

General Information

The purpose of this service bulletin is to explain the correct use and maintenance of fully formulated conventional coolants, and to identify Freightliner-approved coolant types.

CAUTION

Do not use automotive-type coolants in any heavy-duty cooling system. They do not contain adequate corrosion protection, and serious engine damage could result.

See the enclosed color reference card to identify Freightliner-approved coolants by color.

NOTE: Additional color reference cards (Form Number TSS408) can be ordered through Access Freightliner. Go to www.accessfreightliner.com, then select "Tools and Services"; then select "Technical Publications Ordering" link; then select "Freightliner/FCCC Technical Publications Request Form".

IMPORTANT: All Freightliner Custom Chassis products are factory filled with Fleetcharge® conventional coolant as standard (other coolant types are available as an option), which is a 50/50 fully formulated coolant, not an extended-life coolant.

Always check the engine manufacturer's website for the most recent information concerning recommended coolant.

The major difference between coolants is the type of inhibitors used. Fully formulated conventional coolants have low total dissolved solids, low silicate, and are pre-charged with Supplemental Coolant Additives (SCAs), providing superior wet sleeve liner cavitation protection. Most fully formulated conventional coolants are also "phosphate free", reducing the risk of scale buildup in the engine. Fully formulated conventional coolants are also available in a pre-mix 50/50 (glycol/water) or concentrate. The colors available are purple, fuchsia, pink, magenta, and green, with the only difference being the dye that is used. It is important to understand that SCAs deplete over time (engine use), requiring that a proper coolant maintenance plan be in place.

There are several different brand names of fully formulated coolants. See [Table 1](#).

There are two ways to visually identify a system with a fully formulated conventional coolant.

- A label is installed near the fill point on or near the surge tank.
- The color of the coolant is purple, fuchsia, magenta, or pink.

Compatible Pre-Mixed Fully Formulated Coolants					
Supplier	Product Name	Part Number	Qty.	Color	Use
Old World Industries	Fleet Charge Fully Formulated SCA-Precharged Pre-Mixed 50/50	FCA 053	1 gallon	Pink	Initial Fill and Top-Off
Alliance	Fully Formulated SCA Pre-Charged Heavy-Duty Coolant/Antifreeze Pre-Mixed 50/50	OWIALAWS3	1 gallon	Purple/Fuchsia/Magenta	
		OWIALAW51	55 gallons		
Detroit Diesel	Power Cool® Pre-Blended 50/50	23518918	55 gallons		

Table 1, Compatible Pre-Mixed Fully Formulated Coolants

Maintenance of Fully Formulated Conventional Coolants

With correct maintenance, fully formulated conventional coolants are designed to provide engine protection for an extended period of time, depending on the engine manufacturer's recommended intervals. It is important however, to check the coolant when the vehicle is delivered and at oil change intervals for color, clarity, freeze point, and SCA levels. See [Table 2](#) for maintenance procedures. See [Table 3](#) for a list of recommended drain intervals.

Fully Formulated Conventional Coolant Maintenance		
Procedure	Interval	Notes
Topping Off	As Needed	Use only a compatible pre-mix coolant. See Table 1 .
Testing Freeze Point	Every 3 months or 250 operating hours, whichever comes first.	Use a test strip or a refractometer to test.
Visual Inspecting	Every 3 months or 250 operating hours, whichever comes first.	Color and clarity should be bright and free of contaminants.
SCA Coolant Test Strip	Every 3 months or 250 operating hours, whichever comes first.	Test and adjust the SCA levels with the use of liquid SCAs, service filter, or need release filter.

Table 2, Fully Formulated Conventional Coolant Maintenance

Engine Manufacturer's Recommended Drain Intervals		
Manufacturer	Interval	Comments
Detroit Diesel	Until First Overhaul	Proper periodic evaluation using Power-Trac 3-Way Test Strips and SCAs. Coolant sample must be submitted every 3 years, 300,000 miles (483 000 km), or 10,000 engine operating hours.
Mercedes-Benz		
Cummins	After Exceeding Replacement Limits	Coolant replacement limits (sulfate–1500 ppm maximum, chloride–200 ppm maximum, Ph–6.5 minimum, coolant must be free of oil, fuel, grease, solder bloom, silica gel, rust, and scaling).
Caterpillar	3 Years or 3000 Engine Operating Hours	Must use annual Level 2 Coolant Sample and Analysis.

Table 3, Engine Manufacturer's Recommended Drain Intervals

Topping Off the System

Top off the system as needed, using an approved pre-mixed fully formulated coolant. See [Table 1](#).

IMPORTANT: An approved fully formulated conventional coolant must be used to maintain the engine manufacturer's recommended drain intervals.

Freeze Point Checking

A test strip or a refractometer may be used to check the freeze point of the coolant. The freeze point should be maintained at –34°F (–37°C) with a 50/50 ratio of antifreeze to water. To increase the freeze point, add an approved concentrate to achieve the correct ratio of antifreeze to water. See [Table 4](#) for compatible concentrates.

Compatible Fully Formulated Coolant Concentrate					
Supplier	Product Name	Part Number	Qty.	Color	Use
Old World Industries	Fleet Charge Fully Formulated SCA-Precharged Concentrate	OWIALA003	1 gallon	Pink	Adjust Freeze Point
Alliance	Fully Formulated SCA Pre-Charged Heavy-Duty Coolant/Antifreeze Concentrate	OWIALA001	1 gallon	Purple/Fuchsia/Magenta	
		OWIALAW51	55 gallons		
Detroit Diesel	Power Cool® Concentrate	23512138	6 gallons		
		23512139	55 gallons		
Caterpillar	CAT DEAC (Diesel Engine Antifreeze Coolant)	8C3684	1 gallon		
		8C3686	55 gallons		

Table 4, Compatible Fully Formulated Coolant Concentrate

Visual Inspecting

WARNING

Do not remove or loosen the radiator cap until the engine and cooling system have completely cooled. Use extreme care when removing the cap. A sudden release of pressure from removing the cap prior to the system cooling can result in a surge of scalding coolant that could cause serious personal injury.

To check visually for contaminants, drain a coolant sample from the reservoir into a clear container. Check the color and clarity against a known good sample or use the color reference card, Form Number TSS408, enclosed with this service bulletin. If the sample is not clear and bright, drain and flush the coolant.

SCA Coolant Test Strip

The coolant must be between 50 and 130°F (10 and 54°C). Insert a test strip into the coolant for 2 seconds, remove, and then flick your wrist to remove beads of liquid from the test strip. Wait 45 seconds before comparing SCA (nitrite) test strips to the color chart on the packaging. Add SCA as the chart directs with use of liquid SCAs or a coolant filter. See [Table 5](#), [Table 6](#), and [Table 7](#).

Coolant Testing Products		
Product Name	Supplier	Part Number
Universal Coolant Test Strip (25)	Penray	TS200
Heavy-Duty Test Strip (50)	Penray	TS100
Heavy-Duty Test Strip (10)	Penray	TS102
Power-Trac 3-Way Test Strip	Detroit Diesel	23522774
Refractometer (Fahrenheit)	Penray	CTX2
Refractometer (Celsius)	Penray	CTX1

Table 5, Coolant Testing Products

SCA Liquid Additives			
Product Name	Supplier	Part Number	Qty.
Pencool 3000 with Stabil-Aid	Penray	PIC300016	1 pint
Power Cool 3000 SCA	Detroit Diesel	PIC23507854	1 pint
Pencool 3000 with Stabil-Aid	Penray	PIC300064	1/2 gallon

SCA Liquid Additives			
Product Name	Supplier	Part Number	Qty.
Power Cool 3000 SCA	Detroit Diesel	PIC23507855	1/2 gallon
Pencool 3000 with Stabil-Aid	Penray	PIC300005	5 gallons
Power Cool 3000 SCA	Detroit Diesel	PIC23507856	5 gallons
Pencool 3000 with Stabil-Aid	Penray	PIC300055	55 gallons
Power Cool 3000 SCA	Detroit Diesel	PIC23507857	55 gallons

Table 6, SCA Liquid Additives

Compatible Coolant Filters*			
Product Name	Supplier	Part Number	Comments
Need Release Coolant Filter	Penray	PICNF2088	Automatically releases SCAs by sensing the corrosivity of the coolant. Lasts for 150,000 miles (241 350 km), 3000 engine operating hours, or 15 months.
Need Release Coolant Filter	Detroit Diesel	PIC23516489	Automatically releases SCAs by sensing the corrosivity of the coolant. Lasts for 150,000 miles (241 350 km), 3000 engine operating hours, or 15 months.
Pencool 3000 Cooling System Filter	Penray	PICNF3000	Equal to 1 pint of Pencool 3000 liquid SCA.
Power Cool 3000 SCA	Detroit Diesel	PIC23507545	Equal to 1 pint of Pencool 3000 liquid SCA.
Pencool 3000 with Stabil-Aid	Penray	PICNF2999	Does not contain SCA (blank filter).

* Filters must be maintained/replaced periodically. Refer to the filter manufacturer's website for replacement intervals.

Table 7, Compatible Coolant Filters

Warranty

This is an informational bulletin only; warranty does not apply.