



## **RUGGED™ Gold Extended-Life** **Coolant & Antifreeze**

**RUGGED™ Gold Extended-Life Coolant & Antifreeze** features advanced hybrid organic acid technology (HOAT) chemistry that is compatible with most common types of automotive and heavy-duty coolants. It is safe to add to any color antifreeze including **Green, Yellow, Blue, Red, Fuchsia, Orange** and **Gold**. It is also recommended for heavy-duty applications with no need for additional SCA on initial fill. Chemical levels should be monitored at each service interval. Rugged™ Gold is compatible with most Heavy-Duty coolant filters.

**RUGGED™ Gold Extended-Life Coolant & Antifreeze** is recommended for use in all cars, light trucks, and heavy-duty diesels, foreign and domestic. It protects all cooling system metals including aluminum from corrosion and rust. **RUGGED™ Gold Extended-Life Coolant & Antifreeze** is blended 50/50 with demineralized water to minimized hard water deposits on heads and blocks. **RUGGED™ Gold's** phosphate-free, low-silicate technology may extend the life of hoses, gaskets, thermostats and water pumps compared to high silicate and/or soluble oil coolant technologies.

**RUGGED™ Gold Extended-Life Coolant & Antifreeze**, used as directed, results in an engine coolant that may be used in virtually any engine cooling system. This technology is well proven over decades of use, and is engineered to resemble the extended life coolants used in some heavy-duty vehicle manufacturing plants as factory fill. **RUGGED™ Gold** meets ASTM D3306, ASTM D6210 and TMC RP-329 (EG). **RUGGED™ Gold Extended-Life Coolant & Antifreeze**, if used as directed, will provide satisfactory performance in most cars and trucks including but not limited to the following:

|        |                    |                    |
|--------|--------------------|--------------------|
| Ford   | General Motors     | Chrysler           |
| Acura  | Audi               | BMW                |
| Honda  | Hyundai            | Kia                |
| Mazda  | Mercedes-Benz      | Mitsubishi         |
| Nissan | Toyota             | Volvo              |
| VW     | Light-Duty Diesels | Heavy-Duty Diesels |

And most other makes.

Table of Properties and Typical ASTM Test Results

| Test / Property                                       | Method     | Result  |
|---|------------|---|
| Color   | Visual     | Gold (Yellow)   |
| Relative Density (Specific Gravity)                   | ASTM D1122 | 1.065   |
| Freeze Point @ 50% in water                           | ASTM D1177 | -29.2 F (-34 C)   |
| Boiling Point (neat)                                  | ASTM D1120 | 336 F (169 C)   |
| Boiling Point (50% in water)                          | ASTM D1120 | 226 F (108 C)   |
| pH 50% in water                                       | ASTM D1287 | 10.8  |
| Effect on Auto Finish                                 | ASTM D1882 | No effect   |
| Chloride  | ASTM D3634 | 9 ppm   |
| Water content   | ASTM D1123 | 50%   |
| Reserve Alkalinity                                    | ASTM D1121 | 5.9   |
| Foaming Tendencies                                    | ASTM D1881 | 50 ml / 1.6 sec. Break time   |
| Silicate as Si  | ASTM D6130 | 250   |
| Nitrite (NO <sub>2</sub> )                            | ASTM D5827 | 1200  |
| Molybdate (MoO <sub>4</sub> )                         | ASTM D5827 | <1  |
| Phosphate as P  | ASTM D6130 | <1  |
| Sebacic acid  | HPLC       | 800   |
| Corrosion of heat rejecting aluminum surface          | ASTM D4340 | 0.01 mg/cm <sup>2</sup> /week   |
| Cavitation / Erosion-Corrosion of Aluminum Water Pump | ASTM D2809 | 9   |
| Corrosion in Glassware                                | ASTM D1384 | Copper 3 mg<br>Solder 1 mg<br>Brass 2 mg<br>Steel 2 mg<br>Cast Iron 2 mg<br>Cast Aluminum -2 mg |
| Simulated Service                                     | ASTM D2570 | Copper 3 mg<br>Solder 5 mg<br>Brass 3 mg<br>Steel 2 mg<br>Cast Iron 0<br>Cast Aluminum 1 mg     |
| Glycol %  | ASTM E202  | 50% min   |
| Military Compatibility                                |            | Pass  |
| Military Storage Stability                            |            | Pass  |

**A SUPERIOR PRODUCT BY COLORADO PETROLEUM 2-22-2019 JDS**