



### ***Nalcool<sup>®</sup> Has Evolved into Pencool...01.002***

Category: Coolants

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#### **History:**

*Nalcool* 2000 was originally developed in 1969 to address coolant system corrosion and cavitation problems that were surfacing in evolving diesel engines. The chemistry proved effective in the engines of that era in helping to provide up to 200,000 miles of service between coolant changes.

Of course, engines continued to evolve. The first major upgrade to the *Nalcool* formulation solved the problem of silicate drop-out. Silicate drop-out, also known as 'green goo', resulted from the use of conventional phosphate-silicate antifreezes and over treatment with *Nalcool* 2000. It presented a major limitation to coolant life. The invention of *StabilAid*<sup>®</sup> resulted in the formulation of *Nalcool* 3000, and the silicate drop-out issue was resolved.

Twenty years after the initial introduction of *Nalcool* 2000, the development of *StabilAid* and a revolutionary condition-sensitive release technology was built into the ***Need-Release***<sup>®</sup> filter. Coolant change intervals were then being pushed to 300,000 miles. The ***Need-Release*** filter added critical chemicals, as the coolant demanded them, maintaining a much lower level of dissolved solids and less chance of human error. *FleetCharge*<sup>®</sup> antifreeze was introduced as the first fully formulated product, developed in cooperation with Caterpillar<sup>®</sup> and Detroit Diesel<sup>®</sup>. Both engine companies marketed their own brands of the chemistry, and its technology is still the most popular factory fill coolant at American heavy-duty truck and bus manufacturers.

In 1992, The Penray Companies, Inc. (Penray) were formed from four divisions and subsidiaries of Nalco Chemical Company<sup>®</sup>. The *Nalcool* trade names were licensed to Penray for up to five years. It was agreed that Penray would phase out those trade names that bear resemblance to Nalco Chemical Company's corporate identification. Most importantly, this understanding affected the *Nalcool* trademark.

During that time, Penray evolved the technology of ***Pencool 2000*** and ***Pencool 3000*** dramatically to address the need of modern diesel engines. This gave birth to the Fill-For-Life<sup>®</sup> program: coolant that never needs to be changed before engine overhaul! In 2000, the trademark agreement expired, and Nalco Chemical reintroduced the **original** chemistry as *Nalcool* 2000 and *Nalcool* 3000. ***Pencool 2000*** and ***Pencool 3000*** are at least two generations ahead of the obsolete *Nalcool* products. *Pencool* has been updated with new technology, offering Fill-For-Life potential. *Nalcool* has not. *Nalcool* will not provide Fill-For-Life performance.

*Pencool*<sup>®</sup>, *Need-Release*<sup>®</sup>, *Stabil-Aid*<sup>®</sup>, and *Fill-For-Life*<sup>®</sup> are registered trademarks of The Penray Companies, Inc. *Nalcool*<sup>®</sup> is a registered trademark of Nalco Chemical Company. *Fleetcharge*<sup>®</sup> is a registered trademark of Old World Industries, Inc.