

# Recycled Ethylene Glycol (Antifreeze) Advisory

Category: Coolants  
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## Introduction:

Since mid-1997 the antifreeze industry has seen a dramatic increase in the use of redistilled glycols in the manufacture of "new" antifreezes. The use of redistilled glycol is not revealed on the label, and the public is unaware that they are buying antifreeze recovered from industrial waste.

Serious performance shortcomings attributed to some recovered glycols have been observed. Glycols recovered from industrial waste streams (as opposed to used engine coolants, which have not manifested the problems) often contain hydrolyzable esters. These esters, when used in antifreeze formulations, will form organic acids and produce a downward pH drift. The pH values of various antifreezes differ, but in every case, the intended pH of an antifreeze is critical to its performance.

## Specific Problems Observed:

Penray is in the business of supplying advanced coolant additives to the antifreeze manufacturing community. The Penray R&D laboratory has been evaluating this situation, in hopes of developing a practice that would successfully permit the use of these glycols. During the evaluation, the pH drift behavior resulted in unstable coolants manufactured with conventional inhibitor technologies. Experimentation with carboxylate packages (organic acid) was also unsuccessful. Unstable coolants could produce precipitates ("drop-out"), or fail to protect the metal surfaces in the cooling system, resulting in serious engine cooling system damage or failure. Corrosion, loss of heat transfer, and/or blocked passages may result. After significant effort and expense, no reliable solution to these problems has been developed.

## Penray's Recommendation:

Penray strongly recommends that manufacturers of antifreeze not utilize the recovered industrial glycols in their products. Testing has proven that the use thereof seriously compromises the performance of the consumer product. End-users are strongly encouraged to ask their suppliers about the use of redistilled industrial glycols and to demand a written assurance that the redistilled fluids are NOT being used.

## NOTE:

**Effective immediately, Penray rescinds its recommendation and approval of redistilled industrial glycols for use with its inhibitors. Penray does not warrant the performance of its inhibitors in redistilled industrial glycols. Penray continues to approve glycols recovered from used engine coolant, and prefers used engine coolants recycled by reverse osmosis and ion exchange technologies.**

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