Water Watch

Photo credit: Jan Mocnak

Should I be adding regular tap water to my antifreeze, or is there a better choice?

Besides tap water, there are basically two other choices: deionized and distilled. Deionized water is “softened” in that it has been treated to remove all ions – typically, that means dissolved mineral salts. Distilled water has been boiled so that it evaporates and then is re-condensed, leaving most impurities behind.

Organics and inorganic minerals are the most common impurities found in water. Organics can typically be removed via filtering methods, including physical filters, carbon filters, and reverse-osmosis membranes. After this pre-treatment, the water can be sent through a DI system, which contains two types of resin: cation and anion. These resins attract positive and negative ions, respectively, replacing them with H+ and OH-. H+ combined with OH- becomes H2O – water. The combination of filters and DI resins can remove nearly all contaminants.

Distillation is one of the oldest methods of purifying water. Filtered water is boiled into steam, which is collected in a sterile container where it condenses and becomes liquid again. Because water has a lower boiling point than most contaminants (including minerals), they are left behind when the water turns into steam. The resulting water is, therefore, very pure. In addition, some water is double- or triple-distilled.

Ordinary tap water can be used for the engine coolant mixture, if it’s not hard. But why risk it when there’s a very cheap alternative?

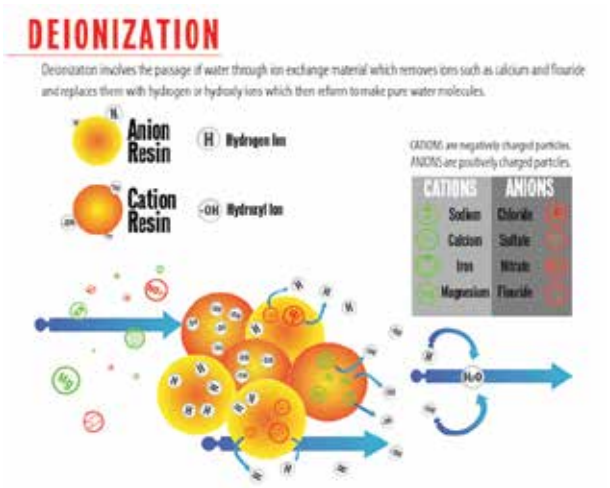
This map indicates that most of the country has hard water.

Table 5: Water quality

Water quality		min	max
Earth alkali ions	mmol/l		2, 7
Hardness	°dH		15
Chloride	mg/l		80
Chloride + sulfate	mg/l		160
pH-value	-	6,5	8,0

1 °dH = 0.1783 mmol/l alkaline earth ions = 7.147 mg/l Ca^{2+} or 4.336 mg/l Mg^{2+}

Here's the analysis of the water that's safe for the coolant mix in Mercedes-Benz vehicles.



Deionized water would be ideal, but it's hard to find and relatively expensive.

Distilled water is very easy to find. Most grocery stores sell it for less than a dollar per gallon. Deionized water is another matter altogether. We've tried to source some in the small town where our shop is located, and couldn't find any. Many online sources are available, but it's not cheap, especially when you add shipping.

What does Mercedes-Benz Recommend?

According to publication BB00.40-P-0310-01A, "Use the cleanest and softest possible water for processing the coolant. Drinking water often satisfies the requirements. Information concerning the water quality of drinking water is available from the local water-plant authorities, or the official water utilities on request. If there is no available information regarding the water quality, or if no suitable water is available, then distilled or deionized water should be used to prepare the coolant. Sea water, brackish water, brine and industrial waters are not suitable. Salts may promote corrosion or form disruptive deposits. The analysis values of the water for mixing coolants must be within the limits of table 5."

So, unless you know your tap water is extremely hard then it is probably all right to use. Better yet, play it safe and buy distilled water in bulk and have it on hand. Using that and Genuine Mercedes-Benz antifreeze you can rest assured you are putting the best product you can in your customer's cars.

To us, the obvious choice is distilled water. It's cheap and ubiquitous.