Technical Information Bulletin

WEBA TECHNOLOGY

Antifreeze Additive Packages

WEBA Technology Corp. makes inhibitor systems for blending glycol and water to make antifreeze/coolants that cover most industry and OEM specifications. Our additive packages allow the finished fluid manufacturer to make everything from automotive light-duty to heavy-duty diesel antifreezes, both conventional and extended life. Our formulations include traditional conventional light and heavy duty, Hybrid Organic Acid Technology (HOAT), NOAT and OAT (Organic acid technology), Poly-organic Acid Technology (POAT) and Multi-Functional Organic Acid Technology for both light and heavy-duty applications. Our series of OAT inhibitors are the latest technology for making long-lasting coolants. The METALGUARD® antifreeze additive packages provide proven corrosion prevention, fluid longevity and ease of blending. WEBA Corp's comprehensive technical expertise and customer support services will assist with problems, the pursuit of new business and new product development.

METALGUARD A40 is Formulated to meet the following Specifications

- ASTM D 3306
- ASTM D 6210 (see page 2)
- TMC of ATA RP 302A-1, 329 & 330

Nearly all of OEM automotive light-duty ad heavy-duty specifications are patterned after or identical to the ASTM standard specifications given above. For individual OEM specification compliance contact your sales representative. Note that the ASTM specifications listed include the key performance tests (ASTM D1384, D4340, D1881, D2570, D2809).

Technical Support

WEBA Corp can answer questions about ASTM standards and industry specifications as well as help with many other questions relating to antifreeze and glycols. To confirm that your finished product meets the required industry specifications, WEBA's laboratory can help you with problem solving and testing associated with any products containing our inhibitor package.

Quality Control

WEBA Corp's additive packages must pass all our quality control tests prior to shipment. They are tested for conformance with product specifications and industry standards. Certificate of analysis are provided with every shipment. Complete ASTM performance tests are available by request.

METALGUARD® A40

Light-Duty and Heavy-Duty OAT Extended Life Additive Package for use with Ethylene Glycol

Description and Applications

METALGUARD A40 is an all-organic OAT (organic acid technology) inhibitor package. It contains no amines, borate, nitrate, nitrite, phosphate or silicate. METALGUARD A40 contains organic acids and azoles to provide complete metal protection and guard the cooling system against corrosion and cavitation-erosion. In addition, it contains additives to minimize hot surface scaling while also preventing heat transfer surface fouling due to minor oil leakage. Antifreeze made with METALGUARD A40 can be mixed with most major brands of OAT, HOAT and conventional antifreezes without precipitation problems.

METALGUARD A40, when blended correctly, produces antifreeze that can meet the ASTM D3306 specification for light-duty coolants. Antifreeze/coolant made with METALGUARD A40 provides a service life of 5 years or 150,000 miles, and is suitable for use in foreign and domestic passenger cars, vans, SUVs and light trucks requiring extended life antifreeze.

At a higher use rate METALGUARD A40 is suitable for heavy-duty extended life applications. A service life of 600,000 on-road miles is possible with proper coolant monitoring and maintenence. METALGUARD A40 may also be used to meet certain OEM and foreign standards. See the special use rate in the blending instructions on the next page.

This extended life additive system can be used with either virgin or high-quality reclaimed glycol from distillation units. WEBA Technology recommends that you send a sample of any non-virgin glycols that you are considering for use with METALGUARD A40 to a laboratory for analysis in accordance with ASTM E1177, and send us the results. We will help you determine if the glycol is suitable for use, with or without pre-treatment.

Typical Product Specifications

Specifications below are tested using virgin glycol.

As concentrated METALGUARD A40 inhibitor package:	
Visual	Clear, light yellow to amber
Specific Gravity; 70°F/21°C	1.000-1.060
pH	9.5-10.5
As concentrated Antifreeze - LIGHT DUTY	
Specific Gravity; 70°F/21°C	1.110-1.145
pH	8.5-9.5 (ASTM 7.0-11.0)
Reserve Alkalinity	3 ml min.
Freeze Point @ 50%	-34°F (-36°C) max.
As concentrated Antifreeze - HEAVY DUTY	
Specific Gravity; 70°F/21°C	1.110-1.145
pH	8.5-9.5 (ASTM 7.0-11.0)
Reserve Alkalinity	6 ml min.
Freeze Point @ 50%	-34°F (-36°C) max.
As concentrated Antifreeze EXTRA HEAVY DUTY	
Specific Gravity; 70°F/21°C	1.110-1.145
pH	8.5-9.5 (ASTM 7.0-11.0)
Reserve Alkalinity	9 ml min.
Freeze Point @ 50%	-34°F (-36°C) max.

METALGUARD® A40

Blending and Use Instructions

Blending: The METALGUARD A40 additive package is more viscus than other WEBA additives and the viscosity will increase at lower temperatures. This is normal. Inspect the drum after opening. If there is separation then gently mix the drum. DO NOT mix the drum unless you see separation. DO NOT use high-speed agitation.

To make antifreeze concentrate: First charge the desired quantity of glycol to the blending tank. Heat the glycol to 50ºF (10ºC) or higher. For reclaimed glycols adjust its pH range to a range of 7.0-9.0, as required. Maintain the mminimum temperature throughout the blending procedure. Good agitation is vital to making a consistent and proper product; agitate for 30-60 minutes after the addition of the additive package.

Light-Duty: Use 2.2% by volume; 110 gal per 5,000 gal (416 liters per 18,925 liters of glycol).
Heavy-Duty: Use 5.0% by volume; 250 gallons per 5,000 gal (946 liters per 18,925 liters of glycol).
Extra Heavy-Duty: Use 8.0% by volume; 400 gallons per 5,000 gal (1514 liters per 18,925 liters of glycol).

To make 50/50 (50% glycol/50% water):
For 50/50 the additive is considered as part of the water percent. To acheive a proper freeze point you will need to adjust accordingly.

Light-Duty: Use 1.1% by volume; 55 gallons per 5,000 gallons (208 liters per 18,925 liters).
Heavy-Duty: Use 2.5% by volume; 125 gallons per 5,000 gallons (473 liters per 18,925 liters).
Extra Heavy-Duty: Use 4.0% by volume; 200 gallons per 5,000 gal (757 liters per 18,925 liters of glycol).

Antifoam: Add the appropriate amount of antifoam to allow your product to pass a foam test. Use 0.01% by vol-ume or 0.5 gallon (1.90L) per 5000 gallons (18,925L) of antifreeze concentrate (0.25 gallons/10.95L in 50/50). More may be needed depending upon glycol-base quality. Antifoam may be purchased in 5-gallon (18.93L) pails from WEBA Technology.

Dye: As the last step add the color of dye that you wish to use. If you need help determining dye colors or use rates you may contact us. We can help you to select the proper color for the antifreeze you wish to make. Dye can be ordered from WEBA Technology or from the dye company of your choice. We recommend and use dyes from Robert Koch Industries www.kochcolor.com.

Testing: Test your finished product to be sure it conforms to specifications. See below paragraph on quality control.

Storage: Store concentrated the additive package above of 60ºF (15.5ºC) at all times. If a container arrives very cold to your warehouse, immediately place it in a hot room for 1-2 days then stir thoroughly prior to use. Once a container is opened there is a possibility of some evaporation of the water base, so close the container tightly after each use. High temperatures, above 90ºF (32ºC), for an extended period of time may also cause degradation of the inhibitors. If you are in an area of the country with continuous high heat store the additive in a cooler area of your warehouse.

Water Quality And Dilution: When antifreeze concentrate is diluted to 50% by volume with water, the water of dilution must be of acceptable quality. Deionized water is the best to use, but other sources of water are acceptable as long as they contain less than 100 ppm total hardness measured as calcium and magnesium compounds. Higher hardness levels may cause excessive inhibitor consumption, scale deposits and metal pitting.

Quality Control Procedures: WEBA Corp strongly recommends that all antifreeze producers have an internal, complete quality control program in place for manufacturing and testing of all products made for sale.

The specifications listed in this bulletin are based on antifreeze produced with WEBA Corp's additive packages, virgin glycol and deionized water. To confirm that your finished products meet the required industry specifications, WEBA Corp recommends that you test your glycol and finished products at an accredited laboratory. WEBA Corp will warrant our additive packages only if this proceedure and the recommended blending and storage procedures are properly followed and documented. In addition, the glycol or other base fluid used with our additive systems should meet industry or ASTM standards unless specifically exempted in our literature. quality control program for your company.

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