

WEBA TECHNOLOGY

Antifreeze Additive Packages

WEBA Technology makes inhibitor systems for blending glycol and water to make anti-freeze/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's comprehensive technical expertise and customer support services will assist with problems, the pursuit of new business and new product development.

METALGUARD A90 is Formulated to meet the following Specifications

- ASTM D 3306
- ASTM D 4985
- ASTM D 6210/11
- TMC of ATA RP329/330/338

Nearly all of OEM automotive light-duty and 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 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's '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® A90

Heavy-Duty Hybrid Organic Acid Technology Extended Life Additive Package with Nitrite and Molybdate Formulated for use with Ethylene Glycol

Description and Applications

METALGUARD A90 is an additive package, based on hybrid organic acid technology, that is used to make an extended life antifreeze/coolant meeting ASTM D6210, CAT ELC/EC-1, TMC of ATA RP 329, 330, 339 and SAE J1034. METALGUARD A90 is primarily a heavy-duty additive, but antifreeze/coolant made with it also meets ASTM D4985 and ASTM D3306. METALGUARD A90 combines two organic acid inhibitors with azoles, nitrite and molybdate. This combination of inhibitors provides superior protection for all engine materials of construction, including steel, aluminum, cast iron, copper, brass and solder. Additionally, the inhibitor package provides outstanding cylinder liner cavitation/pitting protection through its combination of organic acids and nitrite. It is compatible with all commonly used plastics and elastomers found in gaskets, washers, seals, hoses fittings and other non-metallic parts. In regard to coolant compatibility, METALGUARD A90 is compatible with most heavy-duty and light-duty extended life coolants as well as with most conventional types.

This specially formulated inhibitor package contains no phosphates, silicates, borates, nitrates or amines. Hard water deposits are minimized and pump seal life is extended as a result of the absence of phosphates and silicates. Gel formation is practically eliminated by METALGUARD A90's silicate-free formulation.

The combination of aliphatic mono-acids and di-acids used in METALGUARD A90 eliminates the need for traditional supplemental coolant additives (SCAs) in heavy-duty use, and provides extended coolant maintenance and change-out intervals. With a proper monitoring program in place, antifreeze/coolant made with METALGUARD A90 has a service life of 600,000 on-road miles, with the addition of an extender at 300,000 miles. In off-road service, including stationary engines for compressors and turbines, METALGUARD A90 antifreeze/coolant has a service life of 12,000 hours or 6 years, whichever comes first.

In heavy-duty use, it is recommended that antifreeze/coolant made with METALGUARD A90 be inspected at 90 day intervals to detect any obvious contamination, phase separation, cloudiness, precipitation, color change or significant pH change. A full analysis of the coolant in operation is recommended after at least every 300,000 miles of service, or when visual and pH checks indicate a problem.

Typical Product Specifications

Specifications below are tested using virgin glycols.

As concentrated METALGUARD A90 inhibitor package:

Visual	Clear to cloudy, gold liquid
Specific Gravity; 70°F/21°C	1.065-1.075
pH	9.2-10.0

As concentrated Antifreeze Ethylene Glycol

Specific Gravity; 70°F	1.110-1.115
pH, Concentrate	8.0-9.0
Reserve Alkalinity	6.0 min.
pH, 50/50	8.0-9.0
Freeze Point; 50%	-34°F (-36°C) max.

METALGUARD® A90

Blending and Use Instructions

METALGUARD A90 should be blended with glycols meeting ASTM E1177, EG-1, EG-2, PG-1 or PG-2 requirements. Dilution water should be deionized or at least meet the limits given in Table XI.I in the Appendix of ASTM D6210.

Blending: Upon opening the drum, stir thoroughly. Do not use high speed agitation. If you use only a portion of the drum (i.e. a few gallons at a time) you need to mix the drum of additive prior to pulling out the required amount. If you use the entire drum to make a bulk blend you do not need to mix the drum prior to use.

To make antifreeze concentrate: First charge the desired quantity of glycol to the blending tank. Heat the glycol to 50°F (10°C) or higher. Maintain the minimum 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.

Based on the quantity of glycol being treated, add 10.0% by volume of the additive package while agitating or circulating glycol. Use 9.10 x 55-gallon drums (500 gallons) per 5,000 gallons (1892.50 liters per 18,925 liters of glycol).

To make 50/50 (50% glycol/50% water): Follow glycol instructions in concentrate section above, and then add 5.0% by volume of the additive package using the previous instructions. Use 4.54 x 55 gallon drum (250 gallons) per 5,000 gallons (946.25 liters per 18,925 liters) of 50% glycol/50% water mixture.

Antifoam: Add the appropriate amount of antifoam to allow your product to pass a foam test. Use 0.01% by volume 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 50°F (15°C) at all times. Periods of up to several hours at temperatures as low as 35-40°F (2-4°C) can be tolerated. 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 90°F (32°C), 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. Dilution water should be deionized or at least meet the limits given in Table XI.I in the Appendix of ASTM D6210. Higher hardness levels may cause excessive inhibitor consumption, scale deposits and metal pitting.

Quality Control Procedures: WEBA Technology 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 WEBAs additive packages, virgin glycol and deionized water. To confirm that your finished products meet the required industry specifications, WEBA recommends that you test your glycol and finished products at an accredited laboratory. WEBA will warrant our additive packages only if this procedure 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.

Technical Contact Information

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