

WEBA TECHNOLOGY

Antifreeze Additive Packages

WEBA Technology makes inhibitor systems for blending antifreeze/coolants that cover most industrial and institutional specifications. Our additive packages allow the finished fluid manufacturer to make everything from automotive to heavy-duty diesel antifreeze including conventional to Hybrid Organic Acid Technology (HOAT), NOAT and Multi-Organic extended life antifreezes. The METALGUARD® antifreeze additive packages provide proven corrosion prevention, fluid longevity and ease of blending. These additive packages are formulated for the use in engines of most types. WEBA Technology's comprehensive technical expertise and customer support services will assist with problems, the pursuit of new business and new product development.

METALGUARD A81 is Formulated to meet these Industry Standards*

- ASTM D3306
- ASTM D4985
- ASTM D6210
- TMC of ATA RP 302A
- TMC of ATA RP329/330

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)

*See page 3 for making specification claims.

Technical Support

WEBA Technology 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 Technology'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® A81

Conventional Automotive Heavy-Duty Precharged Antifreeze Inhibitor Package, with High Nitrite and MBT; for use with Ethylene & Propylene Glycol

Product Description and Applications

METALGUARD A81 is a conventional, heavy-duty, fully-formulated and precharged additive package that allows antifreeze producers to make a finished product that meets the most demanding industry specifications, including ASTM D 6210/6211 and RP 329/330 of the Technology and Maintenance Council of the American Trucking Association. As a pre-charged additive package, METALGUARD A81 contains the initial charge of supplemental coolant additive, meeting the requirements in the cited specifications. In other words it is available with either a minimum of 2400 ppm nitrite or *optionally* a nitrite/molybdate formulation with a minimum of 1560 ppm nitrite plus molybdate (with both at or above 600 ppm) in antifreeze concentrate. The cost of the nitrite/molybdate formulation varies widely with the cost of molybdenum metal and its derivative sodium molybdate (METALGUARD A81M).

METALGUARD A81 is a sophisticated, multi component additive system which employs synergistic combinations of inhibitors to provide you with the best corrosion protection available for heavy-duty engine cooling systems, whether in vehicles or stationary engines. A proprietary combination of substituted tolytriazoles and phosphonocarboxylates controls corrosion of steel, cast iron and aluminum. The soft or yellow metals (copper, brass and solder) are protected by a mercaptobenzothiazole/tolytriazole system. METALGUARD A81 also contains antiscalants and dispersants to prevent inorganic salt scaling on heat exchange surfaces and organic fouling due to minor oil leakage into the cooling system.

Compliance with the many dissimilar antifreeze specifications in today's market also make it important to know what your additive package does not contain. Many European automobile warranties require that non-phosphate antifreezes be used; for many Japanese vehicle warranties, silicate-containing antifreezes are not allowed. Many U.S. vehicle and engine producers do not allow amine-containing antifreezes to be used in their cooling systems. METALGUARD A81 was designed with all of these considerations in mind; it contains no silicates, phosphates, amines or nitrates.

METALGUARD A81 can be blended with either ethylene or propylene glycol, and can also be used with either virgin or high-quality reclaimed glycol from distillation units, reverse osmosis membranes, and most flocculation/filtration systems. WEBA Technology recommends that you send a sample of any non-virgin glycols that you are considering for use with any of WEBA Technology's additive packages to a laboratory for testing and forward the results to us. We will help you determine if any pretreatment will be necessary prior to blending antifreeze to ensure compliance with all required specifications.

Typical Product Specifications

As concentrated METALGUARD A81 additive package:

Visual	Clear, pale yellow liquid
Specific Gravity; 70°F/21°C	1.178-1.188
pH	11.0-12.0

As concentrated Antifreeze (EG and METALGUARD A81*):

Specific Gravity; 70°F/21°C	1.110-1.125
pH	9.7-10.7 (ASTM 7.0-11.0)
Reserve Alkalinity	10 ml min.
Freeze Point @ 50%	-34°F max.
Nitrite	2400 ppm min.

*Specifications available by request for propylene glycol base.

METALGUARD® A81

Blending and Use Instructions

Blending: Upon opening the drum, stir thoroughly. If you use only a portion of the drum (i.e. a few gallons at a time) you need to thoroughly 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, and adjust its pH range to a range of 7.0-9.5, if necessary. Maintain this temperature throughout the blending procedure. Based on the quantity of glycol being treated, add 2.2% by volume of the additive package while agitating or circulating glycol. Use 2.0 x 55-gallon drums (110 gallons) per 5,000 gallons (416 liters per 18,925 liters of glycol). Good agitation is vital to making a consistent and proper product. Continue to agitate for 30-60 minutes after all of the additive package has been transferred into the blending vessel. Visit www.webacorp.com/customerarea.html and download a self-calculating sheet.

To make 50/50 (50% glycol/50% water): Follow glycol instructions in concentrate section above, and then add 1.1% by volume of the additive package using the previous instructions. Use 1.0 x 55 gallon drum (55 gallons) per 5,000 gallons (208 liters per 18,925 liters) of 50% glycol/50% water mixture. Visit www.webacorp.com/customerarea.html and download a self-calculating sheet.

Antifoam: Although this additive package has antifoam as part of the formulation, depending upon your glycol base additional antifoam may need to be added. Add the proper amount of antifoam to allow your product to pass a foam test. You may not need any antifoam or a much reduced amount depending upon your finished product results. Maximum use rates for reclaimed glycol antifreeze concentrate use 1.5 gallons (5.68L) per 5000 gallons (18,925L) of antifreeze concentrate (0.75 gallons/2.84L in 50/50). More may be needed depending upon glycol-base quality. For virgin glycols use 1.0 gallons (3.79L) per 5000 gallons (18,925L) of antifreeze concentrate (0.5 gallons/1.89L in 50/50). Antifoam may be purchased in 5-gallon (18.93L) pails from WEBA Technology.

Dye: If you purchase undyed additive, the last step is to 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 60°F (15.5°C) 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 the liquid phase evaporating, 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. 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 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. Visit the Customer Information Area at www.webacorp.com/customerarea.html for forms and more information on how to set-up a basic quality control program for your company.

METALGUARD® A81

Making Claims for Antifreeze/Coolant Blended with WEBA Technology's Additive Packages

The specifications listed in this bulletin are based on antifreeze produced with WEBA Technology's additive packages, virgin glycol and deionized water. Antifreeze blenders must demonstrate independent compliance with ASTM or other specifications with their antifreeze/coolant, because proper blending and quality of the glycol/water used is as important as the additive package. Note that OEM's have placed limits on the percentage of recycled glycol that can be used in factory fills as have other purchasers of antifreeze. Glycol quality specifications have also been established. Obtain copies of the specifications that you wish to meet, thoroughly read them and conduct any required tests, prior to stating that your antifreeze produced meets the specifications. WEBA Technology can provide assistance locating the necessary specifications/standards. To confirm that your finished products meet the required industry specifications, WEBA Technology recommends that you test your glycol and finished products at an accredited laboratory. Glycol should be tested for conformance with ASTM E1177 and/or ASTM D7713, and finished products should be tested for the ASTM performance tests listed on this product bulletin. Additionally, if you are using a process other than distillation for recycling your glycol tests should use the ASTM D6471/D6472 standards to determine the quality of your product. WEBA Technology can assist your company in preparing your samples for testing with pre-tests performed at the accredited laboratory. WEBA Technology will warrant our additive packages only if these procedures and the recommended blending and storage procedures are properly followed. In addition, the glycol or other base fluid used with our additive systems must meet industry or ASTM standards unless specifically exempted in our literature.

Technical Contact Information

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