

# RYNA GROUP

Antifreeze additive  
package



## Technical Data sheet (TDS)

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Technical Data Sheet (TDS)  
Organic Antifreeze Additive Package

Nitrite, Nitrate, Amines, Borate, Phosphates and Silicate free

Description

R-OAT-12 is an organic (OAT) type antifreeze additive package. This product is an aqueous solution that is Nitrite, Borate, Amines, Borate, Phosphates, and Silicate free. R-OAT-12 is formulated to blend easily with MEG (Mono Ethylene Glycol) and make a final concentrated or "ready to use" antifreeze solution for cooling systems of light and heavy-duty vehicle engines. This product imparts excellent corrosion protection to all cooling system metals and alloys used in internal combustion engines. When mixed with appropriate dosage in MEG, this product can meet the requirements of ASTM D3306/ASTM D4985 standard.

DOSAGE

When adding glycol (MEG), incorporate 9% by weight of the additive package while agitating or circulating the tank's contents. So the final solution contains 9% R-OAT-12 and 91% MEG. The freeze protection afforded by the various dilutions is detailed in the table.

Concentration (vol %)	H2O (vol %)	Freeze Protection (°C)
33	67	-20
50	50	-40
67	33	-70

PROCEDURE

Start by charging the necessary amount of glycol (MEG) into the blending tank. Heat the glycol to a normal temperature. Maintain the fixed temperature throughout the blending procedure. Add the required amount of R-OAT-12 while mixing tank contents. Good mixing is vital to making a consistent and proper product. Agitate for 30-60 minutes after the addition of the additive package. Although this additive package has antifoam as part of the formulation, depending upon your glycol base, additional antifoam may need to be added to pass the ASTM foam test.

## TECHNICAL PROPERTIES

Antifreeze from 9% R-OAT-12 and 91% MEG)

Property	Unit	Value	Test Method
Appearance	---	Clear to Cloudy Liquid	Visual
Color	---	Customer Order	Visual
PH @ 20°C 100%	---	8.0 ~ 8.5	ASTM D1287
PH @ 20°C 50% v/v	---	8.0 ~ 8.5	
Specific gravity @ 15 °C	---	1.117 ~ 1.120	ASTM D2896
Reserve alkalinity*	ml	2.5 ~ 4.0	ASTM D1121
Water Content	Wt. %	3.0 Max	DIN 51777

## INTERNATIONAL STANDARDS

- BS 6580
- ASTM D3306/ASTM D4985
- JIS 2234

**Corrosion Test for Engine Coolants in Glassware**  
(Antifreeze made by 9% R-OAT-12 and 91% MEG)

Metals	Weight Loss MG/Specimen	ASTM D3306 Specification
Copper	0.2	10 max
Solder	0.18	30 max
Brass	0.17	10 max
Steel	0.16	10 max
Cast Iron	2.48	10 max
Aluminum	0.48	30 max

## HANDLING AND STORAGE

R-OAT-12 must be stored above 40°F (5 °C) at all times. If a container arrives very cold in your warehouse, immediately place it in a hot room for 1-2 days then stir thoroughly before use. Once a container is opened, there is a possibility of the liquid phase evaporating. Therefore, please remember to close the container tightly after each use.

High temperatures, above 90°F (35°C), for an extended period may also cause degradation of the inhibitors. The shelf life is 12 months.



## SAFETY

As with all chemical products, it is crucial to be fully aware of and effectively control potential hazards. Please consult the material safety data sheet which is available detailing associated hazards.

