

Szakál Metal ECO antifreeze liquid

Technical Data Sheet

Szakál Metal ECO antifreeze is a high performance engine coolant, made to comply the latest 2019 version of ASTM D3306 standard and fulfill the requirements of the largest vehicle manufacturers. It is a mono ethylene glycol based product which has been specifically formulated to be truly universal in its application, providing a high degree of corrosion protection for all engine cooling systems. It is free from nitrites, amines and phosphates.

Szakál Metal ECO antifreeze has been designed for all year round use to provide protection against freezing, overheating and corrosion and is suitable for use in both petrol and diesel engines.

Parameter	Specification	Typical	ASTM method
Relative density (15.5°C)	1,080 to 1,125	1,112	D1122, D5931
Freezing point, °C, 50 vol % in DI water	-20 max	-20	D1177, D6660
Boiling point, °C, 50 vol % in DI water	103 min	104	D1120
pH, 50 vol % in DI water	7,5 - 10	7,8	D1287
Chloride, µg/g	25 max	3	D3634, D5827
Water, mass %	25 max	20	D1123
Reserve alkalinity*, mL	8 min	11	D1121

Freeze Protection

Szakál Metal ECO antifreeze provides excellent protection against damage caused by frost. A 50% solution with water provides protection down to -20 °C. The chart below illustrates the typical freezing point values of solutions of **Szakál Metal ECO antifreeze** in water. In practice freeze protection extends below the given freezing point values as cooling below does not immediately produce a solid mass.

We recommend, in common with most vehicle manufacturers, the use of a 66% solution in order to obtain maximum protection against frost overheating and corrosion.

Freezing point dilution charts	
% Antifreeze v/v in water	Freezing point °C
50	-20
60	-28
66	-33

Protection Against Overheating

The addition of **Szakál Metal ECO antifreeze** raises the boiling point of the engine coolant, a 66% solution having a boiling point of 104°C at normal atmospheric pressure. In practice, in pressurised systems the boiling point is raised even further thus reducing the risk of boiling over

and coolant evaporation. This is particularly beneficial if the vehicle is fitted with air conditioning as a greater load is placed on the cooling system.

Protection against corrosion

Property	Specific Values	ASTM Test Method	Test Solution Concentration, vol % Product
Corrosion in glassware, weight loss, mg/specimen			
copper	10 max	D1384	47
solder	30 max		
brass	10 max		
steel	10 max		
cast iron	10 max		
aluminum	30 max		
Simulated service test, weight loss, mg/specimen			
copper	20 max	D2570	63
solder	60 max		
brass	20 max		
steel	20 max		
cast iron	20 max		
aluminum	60 max		
Corrosion of cast aluminum alloys at heat-rejecting surfaces, mg/cm ² /week	1 max		
Foaming volume, mL	150 max	D1881	47
Foaming break time, s	5 max	D1881	47
Cavitation-Erosion (Rating for pitting, cavitation, and erosion of the water pump)	8 min	D2809	63

Szakál Metal ECO antifreeze has been specifically formulated to protect right across the range of metals commonly found in engine cooling systems. It has a hybrid inhibitor system which contains inorganic and organic inhibitors to ensure the protection.

Szakál Metal ECO antifreeze must be stored in original, well closed, packaging, in weather-protected stores. It cannot be stored with food-stuffs. Guaranteed quality for 3 years from the date of production.

Szakál Metal ECO antifreeze meets or exceeds the performance requirements of the following antifreeze specifications:

ASTM D3306, ASTM D4985, SAE J1034, MAN 324 NF, SAE J814, VW TL 744C, MB 325.0

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