

# GLACELF AUTO SUPRA



**GLACELF AUTO SUPRA** is a “**very long life**” antifreeze based on high purity monoethylene glycol and **organic corrosion inhibitors**, a product of the latest research into the protection of materials in a corrosive environment (the technology is protected by a numerous of patents).

**GLACELF AUTO SUPRA** antifreeze, when mixed with an appropriate quantity of water, becomes a *coolant fluid* recommended for all internal combustion engines in cars and vans, trucks, construction machinery and agricultural tractors.

In accordance with French Decree No. 95-326 of 20<sup>th</sup> March 1995 concerning the distribution of certain substances containing monoethylene glycol, **GLACELF AUTO SUPRA** contains a **bittering agent to give it a bitter taste** as a guarantee against accidental ingestion by children or users.

In our range of antifreezes, **GLACELF AUTO SUPRA** is the **top-of-the-range** product.

## APPLICATIONS

**Dilution in demineralised or softened water**

**Minimum 33%**

**Maximum 70%**

● **GLACELF AUTO SUPRA** is diluted in demineralised water (< 8°F) to form a **permanent coolant fluid** that can be used throughout the year.

● To obtain a coolant perfectly mixed, it is recommended **to mix mechanically** the antifreeze with the water.

● Protection against freezing depends upon the proportions of **GLACELF AUTO SUPRA** in the water.

% by vol. of <b>GLACELF AUTO SUPRA</b>	33	40	50	68
Temperature at which crystals first appear, °C, (NF T 78 102)	-20	-26	-37	-69

These are mean values provided for indicative purposes only

● It is recommended that at least 30% of the final solution should be **GLACELF AUTO SUPRA**.

Maximum protection against freezing is obtained at 68%.

**Do not use in proportions above 70%**

● **GLACELF AUTO SUPRA** is entirely safe to use in all cast iron or aluminium engines and in cooling systems containing aluminium or copper alloy radiators.

● **GLACELF AUTO SUPRA** is especially recommended for high technology engines where it is important to protect aluminium at high temperature.

● **During intensive fleet testing, GLACELF AUTO SUPRA -37°C** demonstrated superior protection:

- over at least **650,000 km** (8000 hours) when used in trucks
- over at least **250,000 km** (2000 hours) when used in cars.

**High temperature protection of aluminium**

## Longer life

- It is recommended that the coolant fluid should be replaced every 5 years or at the mileage limits given above.

## SPECIFICATIONS

AFNOR NFR 15-601  
ASTM D 3306  
ASTM D4656  
ASTM D4985  
BS 6580

GM 6277M  
DEUTZ/MWM  
FORD  
DC : MB P 325.3  
Leyland Trucks  
Man 324  
TL 774

- **GLACELF AUTO SUPRA** meets the *international specifications* for antifreezes as well as *those of major manufacturers*.

- **GLACELF AUTO SUPRA** is **officially approved** by the following manufacturers:

Daimler Chrysler : MB page 325.3

- **MAN**
- **SCANIA**
- **SAAB**
- **VW, AUDI, SEAT, SKODA, FORD**

- **GLACELF AUTO SUPRA** has been **acknowledged as satisfactory** for use in their engines by the following manufacturers

- **LEYLAND TRUCKS**
- **JAGUAR**
- **OPEL-GM**
- **RENAULT VI**

## CUSTOMER BENEFITS

### The function of a coolant fluid

- *In a petrol or diesel engine, some 30 to 40% of the heat produced in combustion is not converted into motion power and has to be dissipated. An engine's cooling system must be capable of removing this excess heat together with that due to friction of the moving parts. The coolant fluid cools the different parts of the engine by heat transfer and then gives up heat in the radiator.*

*Running an engine without coolant for only a few minutes is sufficient to cause piston seizing and cracks in the cylinder head owing to heat not being removed.*

### Organic inhibitors not consumed

The *electrochemical* action of the organic inhibitors, *never consumed during the drain period*, extends material life and guarantees a **maximum cooling of the engine**.

### No formation of deposits surfaces left clean

- Heat transfer in diluted **GLACELF AUTO SUPRA** remains optimised because **its wholly organic additives are free** of the film-producing and oxidising substances (which themselves form deposits) used in conventional technology coolants.

### Longer life

- Since the additives are not used up and no deposits are formed, the user of **GLACELF AUTO SUPRA** benefits from improved **reliability** and **reduced maintenance**.

### Non- toxic additives

### Long-term protection against all forms of corrosion

- **GLACELF AUTO SUPRA** contains *no silicates, phosphates, chromates, nitrites or boron*.

All coolants based upon monoethylene glycol are regarded as special industrial wastes and must be disposed of in *approved centres for environmental reasons*.

**Laboratory test:**  
**250 ml antifreeze\***  
**500 ml of corrosive**  
**water**  
**336 hours**  
**6 l/h of air**  
**88°C**

**Protection of the**  
**aluminium water pump**  
**against cavitation**  
**corrosion and erosion**

**Optimised**  
**physical-chemical**  
**characteristics**

● **GLACELF AUTO SUPRA** provides an effective solution to the problems of corrosion affecting all materials used in cooling circuits.

Table 1: ASTM D1384 – *in vitro* corrosion test

	Variation in weight of test piece (mg)					
	Brass	Copper	Solder	Steel	Cast iron	Aluminium
ASTM D 4985 (max.)	10	10	30	10	10	30
ASTM D 3306 (max.)	10	10	30	10	10	30
<b>GLACELF AUTO SUPRA*</b>	-1.6	-1.9	-0.1	+0.5	+1.4	-4.6

These are mean values provided for indicative purposes only

*Air or gas can enter a circuit in various ways, and then exacerbates the phenomenon of cavitation; also the presence of oxygen in the circuit can affect the performance of corrosion inhibitors.*

● **GLACELF AUTO SUPRA** gives excellent protection against cavitation that can perforate liners and cause water pump faults.

In the very severe **ASTM D 2809** test on an aluminium water pump – a test of corrosion-erosion caused by cavitation – **GLACELF AUTO SUPRA** obtained a **score of 8/10**, required by the ASTM D3306 and D4985 specifications.

● The additives in **GLACELF AUTO SUPRA** make the coolant **chemically neutral** (pH 7-8.5), **give it a reserve of alkalinity** (to neutralise the acids resulting from the combustion gases), **resistance to foaming** (mainly instability of the foam that might form) and **compatibility with hard water (maximum 40°F)**.

● The coolant fluid obtained by diluting **GLACELF AUTO SUPRA** is also inert to elastomeric seals and paints. Its additives are stable and remain effective over time

## CHARACTERISTICS

The typical characteristics mentioned represent mean values

<b>GLACELF AUTO SUPRA</b>		
Colour		Fluorescent orange
Specific gravity at 15 °C	ASTM D1122	1.116
PH, dilution 50% by vol.	ASTM D1287	8.3
Alcalinity reserve(pH 5.5)	ASTM D 1121	6.2ml HCl 0.1N
Temperature at which crystal appear, 50% dilution by volume	ASTM D1177	-37°C
Boiling point(undiluted)	ASTM D1120	172°C
Boiling point(diluted)	ASTM D1120	110°C