



dimalife®

Ref. : CA.28/04.17/V4/ EN

SOLUFLUID® SOLAR



Non contractual photo

SOLUFLUID® SOLAR is a **READY TO USE** heat transfer fluid based on **MONOPROPYLENE GLYCOL** and corrosion inhibitors. It is designed for sanitary hot water production circuits in solar panels or vacuum tubes.

SOLUFLUID® SOLAR has been tested at high temperatures and can operate during stagnation temperatures beyond 150°C usually encountered during summer periods.

The **SOLUFLUID® SOLAR** formula contains no Borax, an additive now classified as toxic by the 30th ATP (Adaptation to Technical Progress).

The corrosion inhibitor technology used in **SOLUFLUID® SOLAR** is organic, based on neutralised carboxylic acids, without phosphates, nitrites or amines. These anti-corrosion agents provide a long lasting protection.

SOLUFLUID® SOLAR offers very efficient protection against frost and gives strong protection against corrosion of the metals present in the different circuits (steel, aluminium, copper, brass, solder, etc.). It therefore avoids formation of sludge within the piping and the solar collectors.

The **SOLUFLUID® SOLAR** formula is **authorised by the General Directorate of Health, in compliance with the advice from ANSES (ex AFSSA)**, as a heat transfer fluid for thermal exchange in single exchange domestic water production systems.

SOLUFLUID® SOLAR can be identified by its yellow colour.



1. PHYSICOCHEMICAL PROPERTIES OF SOLUFLUID® SOLAR

| | |
|----------------------------------------------------------------------------|----------------------------------|
| Appearance | yellow liquid |
| Density at 20°C (AFNOR NF R 15-602-1)..... | 1,040 ± 0,005 kg/dm ³ |
| Boiling temperature °C (AFNOR R 15-602-4) | |
| at atmospheric pressure | 104 ± 2°C |
| pH (AFNOR NF T 78-103) | 7,5 to 9 |
| Alkaline reserve on 20 ml product (AFNOR NF T 78-101)..... | ≥ 3 |
| Freezing point °C (AFNOR NF T 78-102) | - 25 ± 2°C |
| (formation of a crystalline mixture and not a measurement in compact mass) | |

1.1. Density of Solufluid® Solar based on temperature (kg/dm³)

| | | | | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Temperature (°C) | - 20 | - 10 | 0 | + 10 | + 20 | + 40 | + 60 | + 80 | + 100 |
| Density (kg/dm ³) | 1,055 | 1,053 | 1,049 | 1,045 | 1,040 | 1,027 | 1,013 | 0,998 | 0,981 |

1.2. Kinematic viscosity of SOLUFLUID® SOLAR based on temperature (centistokes)

| | | | | | | | | | |
|------------------|-------|-------|-------|------|------|------|------|------|-------|
| Temperature (°C) | - 20 | - 10 | 0 | + 10 | + 20 | + 40 | + 60 | + 80 | + 100 |
| Viscosity (cSt) | 57.00 | 27.80 | 15.00 | 8.80 | 5.60 | 2.70 | 1.60 | 1.00 | 0.80 |

1.3. Specific heat of SOLUFLUID® SOLAR based on temperature (kJ. kg⁻¹.K⁻¹)*

| | | | | | | | | | |
|-------------------------------------------------------|------|------|------|------|------|------|------|------|-------|
| Temperature (°C) | - 20 | - 10 | 0 | + 10 | + 20 | + 40 | + 60 | + 80 | + 100 |
| Specific heat (kJ.kg ⁻¹ .K ⁻¹) | 3.53 | 3.56 | 3.59 | 3.62 | 3.65 | 3.71 | 3.78 | 3.84 | 3.90 |

1.4. Thermal conductivity SOLUFLUID® SOLAR based on temperature (W.m⁻¹.K⁻¹)*

| | | | | | | | | | |
|------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Temperature (°C) | - 20 | - 10 | 0 | + 10 | + 20 | + 40 | + 60 | + 80 | + 100 |
| Thermal conductivity (W.m ⁻¹ .K ⁻¹) | 0.404 | 0.404 | 0.404 | 0.404 | 0.403 | 0.402 | 0.401 | 0.403 | 0.407 |



1.5 Vapour pressure of SOLUFLUID® SOLAR

| | | | | | | | | | | | | | |
|-----------------------|-----|-----|-----|------|------|------|------|------|------|------|------|-------|-------|
| Temperature (°C) | 50 | 70 | 90 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 |
| Vapour pressure (bar) | 0.1 | 0.2 | 0.5 | 1.10 | 1.60 | 2.20 | 3.00 | 4.00 | 5.20 | 6.80 | 8.70 | 11.00 | 13.80 |

* Indicative library data.

2. PROTECTION OF METALS PROVIDED BY SOLUFLUID® SOLAR

The table below shows a comparison of corrosion measurements of different metals when in contact with tap water and SOLUFLUID® SOLAR.

| Metals (weight loss in mg/test tube) | Tap water | SOLUFLUID® SOLAR |
|-----------------------------------------|-----------|------------------|
| COPPER | 3 | ± 2 |
| SOLDER | 100 | ± 4 |
| BRASS | 4,5 | ± 2 |
| STEEL | 700 | ± 1 |
| CAST IRON | 775 | ± 2 |
| ALUMINIUM | 120 | ± 8 |

Normative references : AFNOR NF R 15-602-7 / ASTM D 1384

The above values are obtained by performing the test with antifreeze base concentrate.

3. CHARGE LOSS

When calculating the performance of an installation it is necessary to take into account the viscosity of SOLUFLUID® SOLAR, especially for the calculation of charge loss.



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4. RECOMMENDATIONS FOR USE OF SOLUFLUID® SOLAR

It is strongly recommended that the installations are thoroughly cleaned with Dispersant D before filling them with the **SOLUFLUID® SOLAR** mixture if they contain deposits and especially metal oxides.

In fact, glycol solutions have an important wetting power and can dislodge pre-existing deposits (ex: rust...) responsible for sludge creation.

Cleaning should be done in the following manner:

- Circulate the water in the circuit for 1 to 2 hours, then drain the installation quickly and fully at the lowest point.
- Prepare and introduce a "**dispersant D****" solution at 20 g/litre of water in the installation
- Let the product circulate for at least 2 hours,
- Carefully and adequately rinse with water.

Depending on the state of the circuit, it may be necessary to clean several times.

It is important to drain and carefully rinse with water after each time it has been cleaned.

If an older installation has a high build-up of sludge, Thermonett® Sludge Remover can be an effective cleaner. Contact your Climalife sales representative for more information.

SOLUFLUID® SOLAR must not be used with galvanized steel.

**** Marketed by Climalife.**

*** The data stated in this document is merely indicative and does not constitute a sales specification.**

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