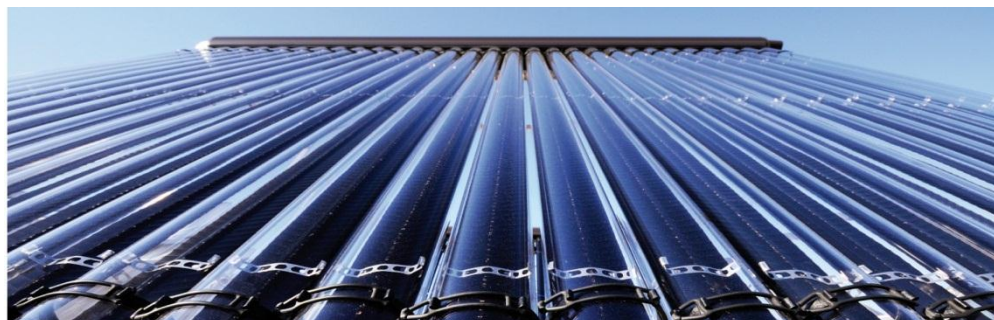


Product Sheet

HEAT TRANSFER FLUIDS

CLARIANT 

ANTIFROGEN®
SOL CLEAN



READY TO USE CLEANER FOR CONTAMINATED SOLAR SYSTEMS

Product description

Antifrogen® SOL Clean is a physiological harmless colorless clear fluid based on glycol ethers. Antifrogen® SOL Clean is used as a cleaning agent for solar thermal systems.

The product is free of nitrites-, amines-, borates-, silicates- and phosphates. The optimization of the corrosion inhibition system was performed without the use of CMR-substances (cancerogenic, mutagenic, reprotoxic).

According to the formulation Leak Indicator-Clariant doesn't contain any restricted substances as described in the EG-guideline 2002/95/EG (RoHS = Restriction of Hazardous Substances, Article 4 §1): Lead, mercury, hexavalent chromium, polybrominated biphenyl (PBB) respectively polybrominated diphenyl ether (PBDE).

Declaration of Reach-Conformity

Clariant declares that all of its products marketed in the EU, i.e. substances, preparations or articles within meaning the Article 3, Section 1-3 of Regulation (EC) 1907/2006 of the European Parliament and the Council of 18.12.2006 (REACH), hereinafter referred to as „substances“ are delivered in accordance with all applicable chemical laws, with special references to the Reach Regulations (EC).

CLARIANT INTERNATIONAL LTD
BU INDUSTRIAL & CONSUMER
SPECIALTIES

Rothausstrasse 61
4132 Muttenz
Switzerland

CONTACTS

Technical: + 49 (0) 8679 7 4665
Commercial: + 41 61 469 7834

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ISSUE
May 2014

based on higher boiling glycole ethers
 ready to use
 usage temperature: up to ~60 °C
 harmless
 applicable in solar collectors

Technical data

Density at 20°C (DIN 51757)	g/cm ³	approx. 1.05
Refractive index at 20 °C (DIN 51423, part 2)	-	approx. 1.434
Boiling Point at 1013 mbar (ASTM D 1120)	°C	approx. 250
Pour Point (DIN 51583)	°C	approx. - 40

Product properties

The certified quality system in accordance with DIN EN ISO 9001 is used in production and quality control. This ensures consistently high product quality.

The technical data below are used to describe the product and is taken from our own measurements or from literature. It does not constitute part of the delivery specification. The actual product specification may be obtained upon request.

Application

Due to the improving efficiency of solar collectors, solar heat transfer fluids are being exposed to a constantly increasing temperature stress. At very high temperature the so called “cracking” of glycols can occur which results in a significant deterioration of the efficiency of the collectors.

For an effective cleaning we offer Antifrogen® SOL Clean. Prior to cleaning the system has to be draining completely. Larger residual quantities of solar heat transfer fluid and/or water reduce the efficiency of the Antifrogen® SOL Clean .

To achieve a quick and efficient cleaning, Antifrogen® SOL Clean has to be applied undiluted. Heating of the collectors during cleaning should be avoided by covering of the collectors. After filling the solar thermal system with Antifrogen® SOL Clean the fluid should be circulated for 2 h at 60 °C. If necessary this process has to be repeated. Prior to refill the system with a solar heat transfer fluid (e.g. Antifrogen® SOL HT) the cleaning fluid has to be drained completely – if necessary by means of compressed air.

Material compatibilities

In solar thermal systems different elastomers as sealings are used. To avoid damage of used sealings, the application temperature of the cleaning fluid should not exceed 60°C. On request other sealings can be tested in our laboratory.

For damage resulting from improper cleaning, we assume no liability.

Safety and handling

Flash point (DIN 51758)	°C	ca. 125
Ignition temperature (DIN 51794)	°C	ca. 215

All necessary precautionary measures and working conditions safety precautions which are mandatory in handling flammable liquid has to be considered when Antifrogen® SOL Clean is used.

The product based on non toxic glycol ethers

In concentrations up to 1000 mg/l, Antifrogen® SOL Clean shows no acute harmful effects on fish and bacteria and is readily biodegradable.

Spent Antifrogen® SOL Clean can be disposed off in accordance with local regulations. According to the 2nd general administrative regulation relating to the German waste management act of 10.04.1990, reuse is preferable to disposal. The product is recyclable.

Further information will be found in the current EG safety data sheet.

Transport and storage

VbF	-
GGVE/RID	Non regulated
GGVS/ADR	Non regulated
ADNR	Non regulated
IMDG-Code	Non regulated
UN-Nummer	-
IATA-DGR	Non regulated

Antifrogen® SOL Clean is supplied by our Antifrogen® distributors. Informations about our Antifrogen® distributors can be find on our home-page www.antifrogen.com.

Antifrogen® SOL Clean has a storage stability of two years, if stored in closed packaging. Since zinc is not resistant to Antifrogen® SOL Clean this should be considered when the product is transferred into other container.

Containers have always to be closed as the presence of oxygen can cause formation of peroxides.

Antifrogen® N

Antifrogen® N has a storage stability of two years, if stored in closed original packaging. Since zinc is not resistant to Antifrogen® N, this should be considered when the product is transferred to other containers.

Antifrogen® L

Antifrogen® L is a blue tinted, clear liquid, which is used as a heat transfer medium in heat recovery systems and in the food and pharmaceutical sector or where the possibility of the heat transfer medium entering process water or hot water cannot be excluded. For this applications a “Toxicological Risk Evaluation on Adverse Human Health Effects for Users from Oral Uptake of Foodstuff contaminated with Antifrogen® L” is available (www.antifrogen.com, see downloads/certificates). Antifrogen® L contains as the base product the toxicologically harmless 1,2-propylene glycol, which is approved by the FDA (Food and Drug Administration, acc. § 184.1666 of the Federal Register from 1.4.1985), Propylene glycol is registered as a generally harmless food additive) in the USA. Additionally, the 1,2-Propylene glycol is approved as solvent and extracting agent according Lebensmittel-Zusatzstoffverkehrsordnung vom 10.7.1984 (BG B1.I S. 897), Anlage 2, Liste 9. Also, Antifrogen® L is approved as an officially fire extinguishing agent (VdS-Certificate, www.antifrogen.com, see downloads/certificates).

Antifrogen® KF

Antifrogen® KF is a non-toxic clear liquid, based on an aqueous formate solution which is used as a low-temperature brine down to -50 °C in industrial and food refrigeration systems. The brine has a low viscosity at low temperatures.

Antifrogen® SOL HT

Antifrogen® SOL HT is a physiologically harmless, yellowish, clear liquid based on an aqueous solution higher boiling glycols, which is used as a heat transfer medium in solar heating, especially those exposed to high thermal loads. The product is premixed with deionized water to give a frost resistance of about -23 °C.

Antifrogen Homepage

Please visit us at www.antifrogen.com where you can find newest informations on our product range. Additionally, a technical calculation program with all relevant physical data can be used and the technical leaflets can be downloaded there.

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