# Safety Data Sheet
# According to Regulation (EC) N° 1907/2006 (REACH); 453/2010/EC


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## 1. Identification of the substance or mixture and of the company name

**Trade Name** Solar cleaner

**Typical Applications** Cleaner for solar thermal circuits with previously degenerated glycol.

**Company**


AKOTEC Produktionsgesellschaft mbH
Grundmühlenweg 3
D-16278 Angermünde
Tel.: 03331 25 716 30
Mail: info@akotec.eu


**Information Department:**
Sales / Technical Department
Mail: info@akotec.eu

**Emergency information center:**
next poison control center or Tel: +49 (0)551 19240

## 2. Identification of hazards

**Classification of the substance or mixture**

**Label elements**
Label according to Regulation (CE)N° 1272/2008 [CLP]:
The product is not subject to labeling

## 3. Composition / information on ingredients

| **Chemical name** | CAS-Nr. | EG-Nr. | Contents | Pictogram | H&P-Phrases |
|---|---|---|---|---|---|
| Citric acid | 5949-29-1 | 201-069-1 | <5% | GHS07 | H319<br>P264, P280<br>P305+351+338<br>P337 + 313 |

For explication of the H&P phrases see section 16.




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## 4. First aid measures

### 4.1 Description of the first aid measures:

On Ingestion/Inhalation:
Do not induce to vomit. In case that happens remain the head inclined forward in order to avoid inhalation. Let the affected rest. Flush mouth and throat with water, as it is possible that they are affected by ingestion.

On contact with eyes
Rinse the eyes with abundant flowing water for at least 15 Minutes. Avoid that the affect is rubbing or closing the eyes. In case that the affected is using contact lenses, those have to be taken off, unless they stick at the eyes and taking them off would lead to additional damage. In any case, after washing the eyes, you shall go to a doctor as soon as possible, with a copy of the Safety Data Sheet of the product.

On skin contact
Take off the contaminated clothes, wash the skin or the affected with abundant cold water and neutral soap. In case of an important contact, please go to a doctor or medical help. In case the product causes chemical burn or freezing, the clothes must not be taken off, because the injury may become worse if the clothes stick to the skin. In case of coming up blisters, they must not be broken or burst, because they may increase the risk of an infection.

If inhaled
Bring the affected out of the place of exposition, provide with fresh air and let rest. In severe cases like cardiorespiratory arrest, the techniques of artifitial respiration (mouth-to-mouth resuscitation, heart massage, oxygen supply), under inmediate medical attendance.
The symptoms in consequence of an intoxication can ocurr later than the exposition. Therefore, in case of a direct exposition or enduring health complaints, seek for medical attendance and show this safety data sheet.

### 4.2 Acute and delayed effects and symptoms:

The acute and delayed ocurring effects are indicated in the sections 2 and 11.

### 4.3 Advice for inmediate medical help and special treatment:

The chemical burn at the eyes may require a prolongated rinsing. An inmediate help has to be seeked, preferably in way of an ophthalmologist (eye specialist). In case of burns, they have to be treated like thermal burns, after they are decontaminated. Due to the



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irrtaton properties, the ingestion can lead to burns, or ulcerations in mouth, stomach and digestive tract. The inhalation of vomit can lead to lung damages. If lavage is performed, endotracheal and/or esophagoscopic control is suggested. A specific antidote doesn't exist. The treatment of the exposition is carried out by the control of the symptoms and the clinical conditions of the patient.

## 5. Fire-fighting measures

**5.1 Estinguishing agent:**
Water spray, alcohol resistant foam, dry chemicals, carbon dioxide (CO2)

**5.2 Specific Danger**
Dangerous combustion products:
During a fire, the smoke can contain the original material together with combustion products of variety of composition that can be toxic and/or irritating. The combustion products can include, but not exclusively: nitrogen oxides, carbon monoxides, carbon dioxides (CO2).

Unusual fire and explosion risk:
Do not allow that dust is accumulated. The dust particles suspended in the air constitute an explosion risk. Minimize the sources of ignition. It can ocurr that a spontaneous combustion ocurrs when the dust layers are exposed to high temperatures.

**5.3 Measures for the persons in fire fighting**
Firefighting measures:
Keep the people at a safe distance. Isolate fire and deny unnecessary entry. Moisten well with water, in order to refresh and avoid a new ignition. Moisten the environment, too, in order to refresh for the fire prevention. In case of small fires, manual fire extinguisher can be used using dry chemicals, or carbon dioxide, respectively.
It can be an explosion risk, if a powder with a strong extinguishing effect is used.

Fire fighting equipment
Use a breathing apparatus with positive pressure and fire fighting clothing (incl. helmet, jacket, trousers, boots and gloves). Avoid the contact with the product during the fire fighting measures. If a contact is considered, use chemically resistant suit and complete breathing protection. If such chemically restistant suit isn't available, use chemically resistant clothing, as well as a breathing apparatus. Fight the fire from a safe place. For the use of a protecting equipment during the cleaning process after a fire or without a fire, consult the corresponding sections in this safety data sheet.



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## 6. Accidental release measures

**6.1 Precautionary measures:**
Evacuate the area. See section 7, Handling, for further precautionary measures. The cleaning measures shall only be carried out by trained adequately protected staff.
Stay on the tailwind side of the spill. The spilled product can cause a risk to fall when it's on slippery ground. Ventilate the zone of spillage or leak. Use an appropriate protecting equipment.
For further Information, see section 8, control of the exposition/individual protection.

**6.2 Environmental precautionary measures:**
Avoid the entry into the soil, ditches, sewer, water courses and/underground water. See section 12, ecological information.

**6.3 Procedure for elimination and cleaning:**
Confine the spilled material, if possible. Use tools that don't cause sparks during cleaning processes.
Absorb the spilled material with sands or inert absorbents and move it to a safe place. Don't absorb with sawdust. Gather it in appropriate containers that are correctly labeled. See section 13, Considerations for elimination, for further information.

## 7. Handling and storage

**7.1 Precautionary measures for handling:**

A.- General measures
The current legislation in the matter of risk prevention at work has to be met. Keep the containers tightly locked. Control spillages and waste, eliminate in a safe way (section 6). Avoid uncontrolled spillage. Maintain order and cleanliness, when handling with dangerous substances.

B.- Protection against fire and explosion
The product is not inflammable under normal conditions of storing, handling and use. It is recommended to carry out transfers slowly in order to avoid electrostatic charges, that could affect inflammable products. See section 10 for conditions and materials to be avoided.

C.- Technical measurement for the prevention of ergonomic and toxicological risks.
For the exposition control, see section 8. Don't eat, drink and smoke at working areas. Wash the hands after every use and take off dirty clothes before entering eating rooms.



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D.- Measures for prevention of environmental risks
It is recommended, to store absorption material close to the product (see section 6.3).

**7.2 Safe storage, incl. incompatibilities:**

A.- Technical Measures for storage:
Maximum temperature: 30 °C
Minimum temperature: 5 °C
Classification: irrelevant
ITC (Spanish RD 379/2001): irrelevant

Shelf life: to be used within 12 months after production.

B.- General storage conditions.
Avoid heat sources, radiation sources, static charges and food contact.
Keep the product in the tightly closed original containers. During transfer, make sure that the material of the receiving container is compatible with the product. Recommended materials: HDPE, PP, INOX 304, INOX 316.

**7.3 Specific end uses:**

Besides the already indicated specifications, no further recommendations are necessary.

## 8. Exposure controls and personal protection

**8.1. Parameters to be controlled**

Substances with Occupational Exposure Limit values are to be controlled at the working place (INSHT 2015).

**DNEL (workers):**

**DNEL (consumers):**

**PNEC:**

**8.2 Exposition control**

**Personal protective equipment**

**Eyes/Face**
Use chemical protection glasses, according to ISO1600 or similar.



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**Skin:**
Wear chemically resisting clothes against this material. The selection of the specific equipment such as mask, gloves, apron, or complete suit depends on the individual activity.

**Hands:**
Use chemically resistant gloves, classified according ISO 374. Examples of protecting materials for gloves include: neoprene, nitrile rubber (NBR), PVC. If a longer or repeated contact should happen, it is recommended to wear gloves, in order to avoid a contact with the fluid. NOTE: The selection of a specific glove type for a concrete application with a specific duration at the working place should be made under consideration of the relevant factors (without limiting to them), such as other chemical products, physical requirements (protection against cuts, pricks, heat, etc.), possible allergies against glove material as well as specific indications of the glove provider.

**Respiratory protection:**
Respiratory protection should be used when the potential exists to exceed limit or recommended values. If there are no limit or recommended values, use respiratory protection if either negative effect is noticed such as irritation through respiration or complaints, or if it indicated so by the risk evaluation. In environments with dust or fog, a respiratory mask shall be used that is registered for particles. The breathing filter (CE-approved) to be used is: Particle filter type 2.

**Ingestion:**
Avoid ingestion, also in very small quantities. Don't keep food neither tobacco at the working place. Wash hands before eating and smoking.

**Technical Measures**

**Ventilation:**
Use technical measures to hold air concentration below the exposition limits. If no exposition limits exist, sufficient ventilation is to be used. For some activities a local ventilation may be required.

## 9. Physical and Chemical properties

| | |
|---|---|
| **Physical state** | liquid |
| **Color** | green |
| **Odor** | weak, characteristic. |
| **pH** | ca. 4 |
| **Boiling point/range** | >100°C |
| **Solidification temperature** | ca.0°C |



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| | |
|---|---|
| **Vapor pressure at 20°C** | 0.1 mbar at 20°C |
| **Flash point** | >100°C |
| **Self-ignition temperature** | >400°C |
| **Density** | 1.01-1.04 g/ccm at 20°C |
| **Solubility in water** | unlimited |
| **Solubility in other solvents** | soluble in polar solvents |

## 10. Stability and reactivity

**10.1 Reactivity**
No dangerous reactions under normal usage conditions are known

**10.2 Chemical Stability**
Stable under the recommended storage conditions. See Storage, section 7.

**10.3 Possibility of dangerous reactions**
No polimerisation.

**10.4 Evitable conditions:**
The exposition at higher Temperatures can lead to a degradation of the product.

**10.5 Incompatibilities:**
Avoid contact with oxidizing materials.

**10.6 Dangerous decomposition products**
The decomposition products depend from temperature, air supply and the presence of other materials.

## 11. Toxicological information

**11.1 Information about toxicological effects:**
There are no experimental data about the product and its toxicological properties available.

**Dangerous effects for the health:**

In case of repeated or prolonged exposition or exceeded concentration regarding the Occupational Exposure Limit, negative health effects can occur, depending on the way of exposition.



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A.- Ingestion (Acute effect):
- Acute toxicity: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous when ingested. For further information see section 3.
- Corrosivity and irritation effect: Through ingestion of an important quantity it can provoke throat irritation, stomach pains, nausea and sickness.

B- Inhalatoin (Acute effect):
- Acute toxicity: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous when inhaled. For further information see section 3.
- Corrosivity and irritation effect: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous for this effect. For further information see section 3.

C- Skin and eye contact (Acute effect):
- Skin contact: causes skin inflammation.
- Eye contact: causes severe eye injury through contact.

D- CMR-effects (carcinogenicity, mutagenic toxicity und reproductive toxicity):
- carcinogenicity: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous for the described effect. For further information see section 3.
- mutagenic toxicity: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous for the described effect. For further information see section 3.
- reproductive toxicity: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous for the described effect. For further information see section 3.

E- Sensitizing effects:
- Inhaling: Based on the available data, the classification criteria aren't met, because it doesn't contain substances that are classified as sensitizing beyond the limit values in section 3.2 of the regulation (EC) 2015/830. For further information see section 3.
- Skin: Based on the available data, the classification criteria aren't met. However, it contains substances that are classified as dangerous for the described effect. For further information see section 3.

G- Specific target organ toxicity (STOT):
- Specific target organ toxicity (STOT) – Repetition-Toxicity: hazardous effect through repeated ingestion, skin contact or inhalation, causes depression of central nervous system through headache, nausea, dizziness, disorientation and in severe cases unconsciousness.



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Skin: Based on the available data, the classification criteria aren't met, because it doesn't contain substances that are classified as dangerous for this effect. For further information see section 3.

F- Specific target organ toxicity (STOT) – single Exposition:
Skin: Based on the available data, the classification criteria aren't met, because it doesn't contain substances that are classified as dangerous for this effect. For further information see section 3.

H- Inhalation hazard:
Skin: Based on the available data, the classification criteria aren't met, because it doesn't contain substances that are classified as dangerous for this effect. For further information see section 3.

**Additional information:**
irrelevant.

| Identifikation | Acute Toxicity | | Animal |
|---|---|---|---|
| Citric acid | DL50 Ingestion | 11.700 mg/Kg. | Rat |
| CAS:5949-29-1 | DL50 Skin | | |
| CE: 201-069-1 | CL50 inhalation | Not relevant | |

## 12. Ecological data

**Mobility and distribution:**

The estimated potential biological concentration according to its individual compounds is low (BCF< 100, log Pow < 3). The mobility potential is very high (Poc between 0 and 50).

**Persistence and degradability**

The material is easily degradable based upon the individual compounds. It passes successfully the OECD-experiments for easy biological degradability. The material is finally biologically degradable. In the OECD-experiments of the inherent biological degradability it is sufficient a mineralization of more than 70%.

**ECOTOXICOLOGY**

The material is not classified as harmful for organisms in water (LC50/EC50/IC50 > 100 mg/L for the majority of the sensible organisms.).



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**Long timet- and acute toxicity at fishes**

**Acute toxicity for invertebrates**

**Toxicity for waterpflants**

**Toxizity for microorganisms**

## 13. Disposal considerations

In the case of eliminating this product without using it or without being contaminated, it has to be considered as hazardous waste, according to directive EEC/689/91. Elimination according to the current national and regional legislation, and the municipal and local regulation regarding the handling of hazardous waste. For eliminating the used and contaminated material additional regulations can be necessary.

Do not introduce into sewer, soil, and any water course.

## 14. Transport information

OVERLAND TRANSPORT (rail and road)
No hazardous material

SEATRANSPORT
No hazardous material

AIRTRANSPORT
No hazardous material

INLAND MARINE TRANSPORT
No hazardous material

Not classified as hazardous under transport regulations.
(ADR / RID / ADNR / IMDG/GGVSee ICIAO/IATA)

## 15. Regulatory information



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Not classified according to (EC) Nr. 1272/2008 [CLP].

## 16. Further information

GHS hazard statements that appeared in this safety data sheet:

H319: Causes serious eye irritation

GHS precautionary statements that appeared in this safety data sheet:

P264: Wash eyes thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P337+P313: If eye irritation persists get medical advice/attention

**Abbreviations and acronyms:**

***PNEC***: Predicted No Effect Concentration.
***Intermittent Release***: Intermittent but only recurring infrequently i.e. less than once per month and for no more than 24 hours.

This safety data sheet is intended to provide information and recommendations as to: 1. how to handle chemical substances and preparations in accordance with the essential requirements of safety precautions and physical, toxicological and ecological data. 2. How to handle, store, use and transport them safety.

No liability for damage occurred in connection with the use of this information or with the use, application, adaptation or processing the products here described will be accepted. No liability will be accepted for damage indirectly incurred.

We provide this information data according to our present level of knowledge and experience. No assurances concerning the characteristics of our product are hereby furnished.



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