1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product information

Trade name : Solaris Flash-Liquid
Company : DeguDent GmbH
            Postfach 1364
            D-63403  Hanau
Telephone : +49 (0)6181/59-5767
Telefax : +49 (0)6181/59-5879
Emergency telephone number : +49 (0)180 / 23 24-555
Use of the Substance / Preparation : For dental use only.
                                 : For professional use only.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Information on ingredients / Hazardous components

- sulphuric acid
  CAS-No. : 7664-93-9
  EC-No. : 231-639-5
- phosphoric acid
  CAS-No. : 7664-38-2
  EC-No. : 231-633-2
- potassium tetrakis(cyano-C)aurate
  CAS-No. : 14263-59-3
  EC-No. : 238-145-9
- cobalt sulphate
  CAS-No. : 10124-43-3
  EC-No. : 233-334-2

See chapter 16 for text of risk phrases

3. HAZARDS IDENTIFICATION

May cause cancer by inhalation.
Harmful by inhalation, in contact with skin and if swallowed.
Contact with acids liberates very toxic gas.
Irritating to eyes and skin.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Hydrocyanic acid may cause all degrees of poisoning.
4. FIRST AID MEASURES

General advice
The following recommendations in respect of first aid and therapy should be made available to all First Aid Officers and Doctors, who could be called upon to render first aid, before work with cyanide/hydrocyanic acid is started.

Observe self-protection
If signs of poisoning occur, consult a doctor immediately.
Possible signs of poisoning: headache, dizziness, drowsiness, nausea, seizures, unconsciousness, respiratory disturbance, cessation of breathing, cardiac arrest.

Move out of dangerous area.
Remove contaminated or saturated clothing immediately and dispose of safely.
Do not leave affected persons unattended.
In case of difficulties in breathing, supply oxygen. Employ artificial respiration if breathing ceases.
No artificial respiration, mouth-to-mouth or mouth to nose. Use suitable instruments/apparatus.
Keep warm and in a quiet place.
Place person on side in stable position if unconscious.

Inhalation
In case of difficulties in breathing, supply oxygen.
Employ artificial respiration if breathing ceases.

Skin contact
After contact with skin, wash immediately with plenty of water.

Eye contact
With eye held open, thoroughly rinse immediately with plenty of water for at least 10 minutes.
In case of persistent discomfort: Consult an ophthalmologist.

Ingestion
Call emergency doctor immediately (alarm report: cyanide / hydro-cyanic acid poisoning).
Do not induce vomiting.
Only when patient fully conscious:
Have the mouth rinsed with water.

Notes to physician
Possible signs of poisoning: headache, dizziness, drowsiness, nausea, seizures, unconsciousness, respiratory disturbance, cessation of breathing, cardiac arrest.

Therapy as for hydrocyanic acid poisoning.

Observe national methods of treatment.

Information about licensing of antidotes in different countries not available.

Symptomatic therapy:
administration of oxygen, artificial respiration, treatment of arrhythmias, treatment of spasmodic fit, correction of acid-base balance.
5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
quenching powder, water

Extinguishing media which must not be used for safety reasons
carbon dioxide (CO2)

Specific hazards during fire fighting
In the case of fire, the following hazardous smoke fumes may be produced: hydrocyanic acid.
Under the action of acids (as well as carbon dioxide !) hydrocyanic acid is released which is combustible and may react with air to explosive gas mixtures.

Special protective equipment for fire-fighters
In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

Further information
Water used to extinguish fire should not enter drainage systems, soil or stretches of water.
Ensure there are sufficient retaining facilities for water used to extinguish fire.
Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities.
Fire residues should be disposed of in accordance with the regulations.
Remove all sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear complete chemical protective suit and Respiratory protective equipment independent of surrounding air.
Keep people away from and upwind of spill/leak.
Avoid breathing vapors/dust/mist.

Ensure sufficient ventilation. Avoid skin contact because of the danger of skin absorption.

Environmental precautions
Do not allow entrance in soil, stretches of water, drainage systems.
Notify responsible authorities in case of gas leakage or if product gets into stretches of water, soil, or drainage systems.

Methods for cleaning up
Absorb with liquid-binding material (e.g. inert absorbent universalbinder) pick up.
Pour into containers which can be tightly sealed.
Dispose of absorbed material in accordance with the regulations.
Waste to be packed like clean product and to be marked. Identification label on packages not to be removed until recycling.

Additional advice
Concentration of hydrogen cyanide in surrounding air should be monitored (gas detection instrument).

7. HANDLING AND STORAGE

Handling

Safe handling advice
Wear personal protective equipment.
Ensure suitable suction/aeration at the workplace and with operational machinery.
Substances to be avoided: acid
The product should only be handled by trained personnel.
Set up safety and operation procedures.

Advice on protection against fire and explosion
Standard procedure for chemical fires.
The product itself does not burn.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Storage

Requirements for storage areas and containers
Keep container tightly closed in a dry and well-ventilated place.
Store in the dark.

Further information
Unauthorised persons must not have access to storerooms.

Advice on common storage
Keep away from foodstuffs / feed.
Avoid contact with acids.

Storage stability
Recommended storage temperature:
5 - 35 °C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

- phosphoric acid
  - CAS-No. 7664-38-2
  - Control parameters 1 mg/m³
  - Control parameters 2 mg/m³
  - Control parameters 1 mg/m³
  - Control parameters 2 mg/m³
  - EC-No. 231-633-2
  - Time Weighted Average (TWA): (EU ELV)
  - Short Term Exposure Limit (STEL): (EU ELV)
  - Time Weighted Average (TWA): (EH40 WEL)
  - Short Term Exposure Limit (STEL): (EH40 WEL)

- cobalt sulphate
Engineering measures
Ensure suitable suction/aeration at the work place and with operational machinery.

Personal protective equipment

Respiratory protection
If Hydrogen cyanide occurs:
- wear a self contained respiratory apparatus
Note time limit for wearing respiratory protective equipment.

If occurs of vapour / respirable aerosols:
- Respirator with B-P3 combination filter
- Respirator with ABEK-P3 combination filter

Hand protection
Chemical-resistant protective gloves (EN 374)
- Wear protective gloves made of the following materials: natural latex (NR), nitrile rubber (NBR), PVC., alkali-resistant, acid-proof

The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.

Eye protection
Safety glasses with side-shields

Skin and body protection
Take care of your own personal safety.
Avoid contact with skin, eyes and clothing.
suitable protective clothing e.g. apron made of rubber or plastic rubber boots

Hygiene measures
No eating, drinking, smoking, or snuffing tobacco at work.
Wash hands before breaks and at the end of workday.
Avoid contact with skin, eyes and clothing.
After contact with skin, wash immediately with plenty of water.
preventive skin protection
Cleanse and apply cream to skin after work.
Immediately change moistened and saturated work clothes.
Keep working clothes separately.

Protective measures
All precautionary measures indicated have to be observed.
If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.
The personal protective equipment used must meet the requirements of directive 89/686/EEC and amendments (CE certification).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
- Form: liquid
- Colour: light pink
- Odour: characteristic
SAFETY DATA SHEET  (91/155/EWG)
Solaris Flash-Liquid

<table>
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<tr>
<th>Material no.</th>
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Safety data

- **pH**: ca. 0.5
- **Boiling point/range**: 101 °C
- **Flash point**: not relevant, since based on water
- **Flammability**: n.a.
- **Lower explosion limit**: n.a.
- **Upper explosion limit**: n.a.
- **Density**: 1.1 g/cm³ (20 °C)
- **Water solubility**: completely soluble
- **Viscosity, dynamic**: n.a.

Further information

Other information: Hydrocyanic acid may cause all degrees of poisoning.

10. STABILITY AND REACTIVITY

- **Materials to avoid**: Under the action of acids (as well as carbon dioxide !) hydrocyanic acid is released which is combustible and may react with air to explosive gas mixtures.
- **Hazardous decomposition products**: hydrogen cyanide (hydrocyanic acid)

11. TOXICOLOGICAL INFORMATION

- **Sensitization**: May cause sensitization by skin contact.
- **Carcinogenicity**: Clues to possible carcinogenic effects in animal experiments. Literature TRGS 905 "List of substances causing cancer, mutagenic material or being dangerous to reproduction"
- **Further information**: Irritation and on occasion caustic effects to the skin and mucous membranes (eyes, respiratory channels, in the stomach/intestinal tracts after swallowing) are to be expected from local contact.
- **Human experience**: Signs of poisoning: nausea, vomiting, cramps, unconsciousness and central respiratory arrest.
12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Behaviour in environmental compartments

Ecotoxicity effects

Further information on ecology

Further Information
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not pour into drainage channels because of detrimental effect on water organisms.

13. DISPOSAL CONSIDERATIONS

Product
Disposal according to local authority regulations.

Recommendation:
Offer surplus and non-recyclable solutions to a licensed disposal company.

Waste to be packed like clean product and to be marked. Identification label on packages not to be removed until recycling.

Uncleaned packaging
Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.
If there is product residue in the emptied container, follow directions for handling on the container’s label.

14. TRANSPORT INFORMATION

Land transport ADR/RID/GGVSE (Germany)

Class 6.1
ADR/RID-Labels 6.1 (8)
UN-No 3289
Packaging group II
orange warning plate 68 / 3289
Description of the goods (Technical name)
TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. (potassium tetracyanoaurate(III), sulphuric acid)

Sea transport IMDG-Code/GGVSee

Class 6.1
Subsidiary risk 8
UN-No 3289
Packaging group II
EmS F-A, S-B
Proper technical name (Proper shipping name)
TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
SAFETY DATA SHEET (91/155/EWG)
Solaris Flash-Liquid

Material no. 155881
Specification
VA-Nr

Version 1.0 / GB
Release Date 13.10.2006
Print Date 15.11.2006

(version potassium tetracyanoaurate(III), sulphuric acid)

Air transport ICAO-TI/IATA-DGR

Class 6.1
Subsidiary risk 8
UN-No 3289
Packaging group II

Proper technical name (Proper shipping name)
Toxic liquid, corrosive, inorganic, n.o.s.
(potassium tetracyanoaurate(III), sulphuric acid)

Inland waterway transport ADN/ADNR/GGVBinSch (Germany)

Class 6.1
ADR/RID-Labels 6.1 (8)
UN-No / Substance number 3289
Packaging group II

Description of the goods (Technical name)
TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
(potassium tetracyanoaurate(III), sulphuric acid)

Loading instructions/Remarks
IATA_C ERG-Code 6C
IATA_P ERG-Code 6C
IMDG Clear of living quarters.
IMDG IMDG Code segregation group 1 - Acids
IMDG IMDG Code segregation group 7 - Heavy metals and their salts (incl. their organometallic compounds)

Transport/further information
Keep separate from foodstuffs, luxury foods, feedstuffs

15. REGULATORY INFORMATION

Labelling according to EC Directives

hazard-defining component(s)
- potassium tetrakis(cyano-C)aurate
- cobalt sulphate
- sulphuric acid
- phosphoric acid

Symbol(s) T Toxic
Xi Irritant

R-phrase(s) R49 May cause cancer by inhalation.
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R32 Contact with acids liberates very toxic gas.
R36/38 Irritating to eyes and skin.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s) S23 Do not breathe spray.
S53 Avoid exposure - obtain special instructions before use.
S28 After contact with skin, wash immediately with plenty of water.
S29 Do not empty into drains.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

National legislation
CMR category (cancerogenic/mutagenic/reprotoxic)
Substances which should be regarded as if they are carcinogenic to man. category 2
employment restriction
Note employment restrictions for pregnant and lactating women.
Note employment restrictions for minors.
Other regulations
Other countries: observe the national regulations.

16. OTHER INFORMATION
Risk phrase (R phrase) texts
• sulphuric acid
  R35 Causes severe burns.
• phosphoric acid
  R34 Causes burns.
• potassium tetrakis(cyano-C)aurate
  R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
  R32 Contact with acids liberates very toxic gas.
  R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
• cobalt sulphate
  R49 May cause cancer by inhalation.
  R22 Harmful if swallowed.
  R42/43 May cause sensitization by inhalation and skin contact.
  R50 Very toxic to aquatic organisms.
  R53 May cause long-term adverse effects in the aquatic environment.

Further information
Changes since the last version are highlighted in the margin. This version replaces all previous versions.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
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