

Safety Data Sheet acc, to Guideline 93/112/EC

Date: 18.03.2004

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Supersedes the Safety Data Sheet dtd, 02.01.2002

1. Identification of the substance/preparation and company

Trade name: Galinstan fluid

Supplier details: Geratherm Medical AG
Fahrenheitstraße 1
D-98716 Geschwenda
Telephon: +49 36205 980
Fax: +49 36205 98 115 / 98 116

In emergency, information can be obtained from: Laboratory
Telephone: +49 36205 98 230

2. Composition / Information on constituents

Eutectic mixture of the metal components gallium, indium and tin

3. Potential hazards

Description of the hazard: Corrosive

Hazards for the human and environment: If normal and reasonable safety practices are followed, the handling of the material does not involve any appreciable risk. Neither does the material involve any risk of fire or explosion.

4. First aid measures

General: General instructions are not necessary.

Inhalation: Inhalation does not pose any risk.

If the product has come into contact with the skin: Wash affected area with water and soap.

If the product has come into contact with the eyes: Rinse the eyes with lukewarm water, with eyelid opened.

If the product is ingested: Keep cool. Consult a physician and make this Safety Data Sheet available.

Instruction for the physician: Specific measures to be taken are not known or documented. Carry out a symptomatic therapy.

5. Fire-fighting measuring

Not applicable because the product is not inflammable.

6. Measures to be taken in case of unintentional release

Personal precautionary measures:

Potential risk of slipping on spilled product.

Cleaning/picking-up method:

Vacuum or sweep up large quantities of the material and dispose in plastic bag. Remove any product residues from surfaces by means of surfactant (detergent) /water solution.

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7. Handling and storage

Handling:

Hints for safety handling: Avoid spilling. Avoid the unnecessary contact. When Galinstan fluid is handled in unsealed condition, its quality and degree of purity may be impaired. Geratherm disclaims any liability for impairments of the product quality caused by processing operations.

Storage:

Store the product in the original container in a dry, cool place protected from frost. If not used, keep the container closed. The plastic used as container materials should be non-porous (e.g. Polyethylene, Polypropylene).

8. Exposure control and personal protective equipment

General protective and hygienic measures:

As with any chemical, wash your hands before and after handling.

Respiratory protection:

In emergency cases such as fire and oxide smoke, use a filter apparatus and filter P3.

Hand protection:

Wear rubber protective gloves to avoid a repeated or permanent contact with the skin as the product will deplete skin oils. If necessary, use a skin protective hand lotion.

Eye protection:

Wear eye protection to prevent potential contact with the eyes.

Body protection:

Wear suitable clothing if there is a risk of splashing and potential contact with the body. Prolonged contact can deplete skin oils.

9. Physical and chemical properties

Appearance

Shape: Liquid metal alloy

Colour: Silvery

Odour: Odourless

Safety data

Value/Range

Unit

Change of state

Boiling point:

> 1300

°C

Melting point:

- 19

°C

Flash point:

None

Inflammability:

Not applicable

Explosion hazard:

Not applicable

Self-ignition:

Not applicable

Fire-promoting properties:

None

Vapour pressure:

at 500 °C

< 10⁻⁸ Torr

Density:

6,44

g/cm³

Solubility in water:

Insoluble

Solubility in organic solvents:

Insoluble

pH value:

Not applicable

Viscosity:

0,0024

NS/m at 20°C

thermal conductivity:

16,5

W·m⁻¹K⁻¹

specific electrical resistance:

0,435

$\Omega \text{ mm}^2 \cdot \text{m}^{-1}$

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10. Stability and reactivity

Conditions to be avoided: Heat generating reactions can be expected if the product comes into contact with aluminium and water. The product weakens aluminium.

Substances to be avoided: Chlorine, bromine, metals, light metal alloys, aluminium (amalgam formation).

Hazardous decomposition products: None, if the product is used as directed.

Other Information: The product has an alloying effect on metal surfaces such as copper, tin, lead, zinc, gold and silver jewellery, above all, if such surfaces are pure and free from oxides. If necessary, the product should be tested under the specific conditions of application to determine any reactions with materials and chemical substances.

11. Toxicological information

Assessment based on raw materials:

Exposure quantities are significantly below acute toxicity limits even when complete absorption is assumed.

Experience gained in practice: Effects on humans

No adverse health effect has been observed or reported.

Inhalation: The extremely low vapor pressure of Galinstan makes absorption through inhalation negligible.

Ingestion: No adverse health effect has been observed or reported. Galinstan passes through the digestive system without effect.

Skin: Skin oils may be reduced through continuous contact.

Eyes: Direct contact with the surface of the eye may cause irritation. Eye protection is recommended when potential direct eye contact is possible.

12. Ecological information

General instructions:

The product is not miscible with water and shows a tendency toward sedimentation.

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13. Instruction for disposal

Product

Recommendation:

Recycling should be given preference over the disposal. If recycling is not possible, the product should be disposed according to the locally valid laws on waste disposal and regulations (the competent authorities should be able to give the necessary information).

Cleaning agent recommended: 2% hydrochloric acid heated to approx. 60°C. Or, use surfactant (detergent) /water solution for hard surfaces; detergent and warm water for fabric.

Note: Fully emptied and cleaned packages can be recycled as valuable materials.

14. Transport information

Road/Rail:

1760 Corrosive liquid, n.o.s. (Gallium solution)
Cl. 8, 66 c ADR/RID
As of: September 1996

Air transport: LATA

Corrosive liquid, n.o.s. (Gallium solution)
Class 8, UN 1760
Packing Group III
37th ed., 1 Jan. 1996

Marine transport:

Corrosive liquids, n.o.s. (Gallium Solution)
UN 1760, page 8147, III
EmS 8-12, MFAG 760
As of: September 1996

15. Regulatory information

The above-mentioned product is not a hazardous substance within the meaning of the Decree on Dangerous Substances.

16. Other data