

# SAFETY DATA SHEET

Product names: **WYKALLOY, PHASEALLOY, ORIGINAL D**

SDS Drawn up: 2013-08-21 SDS Revised:

## 1. Identification of the substance / preparation and of the company

Trade names: Wykalloy, Phasealloy, Original D  
Chemical name: Mercury, Hg, CAS-no [7439-97-6] and metal powder (alloy)  
Field of application: Metallic powder + metallic mercury in a plastic pestel, to produce amalgam for dental fillings  
Supplier: Wykle  
Postal address: 2222 College Parkway Telephone no: 775-887-7500  
Postcode and town: Carson City NV 89706 Fax no: 775-882-7952  
Country: USA E-mail: [info@wyklerresearch.com](mailto:info@wyklerresearch.com)  
Emergency telephone: 813-248-0585 Contact: Dave Koepper

## 2. Hazards identification

Classification: Very toxic and Dangerous for the environment.

Adverse physicochemical effects: Heating up mercury will release toxic fumes. Mercury is incompatible with alkali metals, acetylenes, azides, ammonia, amines, halogens, carbides, metals, acids.

Adverse human health effects: Mercury vapour is highly toxic. Mercury may cause adverse health-effects.

Adverse environmental effects: Mercury is very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Further information: Do not mix mercury with other materials without taking precautions. Persons with impaired kidney or respiratory function, or a history of allergies or a known sensitization to mercury may be more susceptible to the effects of the substance.

Classification of the substance or mixture: Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]:

Specific target organ toxicity - repeated exposure (Category 1); Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1); Acute toxicity, Inhalation (Category 2); Reproductive toxicity (Category 1B)

Classification according to EU Directives 67/548/EEC as amended

May cause harm to the unborn child. Very toxic by inhalation. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Label information



Pictogram

Signal word: Danger

Hazard Statements: H330 Fatal if inhaled. H360 May damage fertility or the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P201 Obtain special instructions before use. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P273 Avoid release to the environment. P284 Wear respiratory protection. P310 Immediately call a POISON CENTER or doctor/ physician. P501 Dispose of contents/ container to an approved waste disposal plant.

## 3. Composition / information on ingredients

Component	CAS-no	Einecs-no	Content (%)	Classification**
Mercury, Hg	7439-97-6	231-106-7	50,0	Repr. 1B, Acute Tox. 2, STOTRE 1, Aquatic Acute 1, Aquatic Chronic 1, H330, H360. H372, H410*
Silver, Ag	7440-22-4	231-131-3	21,6	
Tin, Sn	7440-31-5	231-141-8	15,4	
Copper, Cu	7440-50-8	231-159-6	13,0	

\* The full wordings of the phrases are listed in Section 16

#### 4. First aid measures

Inhalation: Get fresh air. Rest and keep warm. Get medical attention in case of indisposition or difficulty in breathing.

Skin contact: Take off contaminated clothing. Immediately wash off with water and soap for at least 15 minutes.

Eye contact: Keep the eyelids wide apart and flush with plenty of water for at least 15 minutes. Get medical attention in case of discomfort, e.g. redness/irritation.

Ingestion: Drink plenty of water. Induce vomiting, provided that the person is fully conscious. Get medical attention.

Further information: Never give any food and/or drink to an unconscious person. Please show this safety data sheet to the doctor on duty. Get medical attention in case of uncertainty.

#### 5. Fire-fighting measures

Suitable extinguishing media: Use any means suitable for extinguishing surrounding fire, the presence of other products or chemicals taken into consideration.

Extinguishing media which must not be used: Do not use extinguishing media inappropriate to surrounding fire conditions, the presence of other products or chemicals taken into consideration.

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases: Smoke may contain toxic mercury. The fumes are heavier-than-air and will accumulate near the floor and in low-lying spaces. Avoid inhaling smoke.

Special protective equipment: Protective equipment in compliance with national regulations.

Further information: Remove receptacles from the area and/or cool them down with water. Prevent extinguishing media, contaminated with mercury, from reaching the outlets. Disposal in compliance with local regulations and national legislation could be required.

#### 6. Accidental release measures

Personal precautions: Avoid inhaling aerosols/vapours. Avoid skin-contact. Personnel should wear suitable respiratory protective equipment, according to national legislation, in case of insufficient ventilation during the cleaning-up procedure. Personnel should wear suitable protective clothing and gloves, in order to avoid skin-contact.

Environmental precautions: Prevent the spillage from reaching the outlets.

Methods for cleaning up: Spillage should be collected with a pair of forceps or with a pipette and covered with water in a well-sealed bottle. Small amounts of spillage should be covered with metal powder (alloy) and be collected. Droplets in cracks or joints should be collected by using foil, e.g. zinc, tin or copper foil. The mercury contents will adhere to the foil. The contaminated area should be cleaned-up by using a decontamination solution, suitable for the removal of mercury contents and with the capacity of reducing the emission of mercury vapours, and by wiping off the area with e.g. a dampened paper-napkin. Spillage and waste from the cleaning-up procedure should be disposed of according to local regulations and national legislation.

Further information: Spillage should be immediately collected. Tables, floors etc. should be solid, without joints or cracks, making sure spillage will not accumulate there. Do not use vacuum cleaner when collecting spillage. Vacuum-cleaning will atomize and vaporize the mercury, whereupon the vapours will spread on the premises. Vacuum-cleaning is not a suitable cleaning method where mercury is handled. Wiping off with a wet mop is a more suitable alternative.

#### 7. Handling and storage

Handling: The product should be handled with care and in accordance with strict hygiene practises. Avoid inflicting damage on the packaging.

Storage: Keep in a tightly closed container, stored in a dry, well ventilated area. Recommended storage temperature not > 25°C. Avoid inflicting damage on the packaging. Isolate from any source of heat or ignition.

Further information: Empty containers may contain residues, such as mercury vapours and/or liquid. Empty containers should immediately be disposed of or handled and stored in the same way as non-empty containers, in accordance with the existing legislation and regulations, when there is no possibility of immediate disposal.

## 8. Exposure controls / personal protection

Exposure limit values: Mercury: OSHA Permissible Exposure Limit (PEL): 0,1 mg/m<sup>3</sup>. NIOSH Recommended Exposure Limit (REL): Hg Vapour: Time Weighted Average (TWA): 0,05 mg/m<sup>3</sup> (skin). Other: C 0,1 mg/m<sup>3</sup> (skin). NIOSH Immediately Dangerous to Life or Health (IDLH): 10 mg/m<sup>3</sup> (as Hg). Silver: OSHA PEL: TWA 0,01 mg/m<sup>3</sup>. NIOSH REL: TWA 0,01 mg/m<sup>3</sup>. NIOSH IDLH: 10 mg/m<sup>3</sup> (as Ag). Tin: OSHA PEL: TWA 2 mg/m<sup>3</sup>. NIOSH REL: TWA 2 mg/m<sup>3</sup>. NIOSH IDLH: 100 mg/m<sup>3</sup> (as Sn). Copper: OSHA PEL: TWA 1 mg/m<sup>3</sup>. NIOSH REL: TWA 1 mg/m<sup>3</sup>. NIOSH IDLH: 100 mg/m<sup>3</sup> (as Cu).

Exposure controls: All work should take place in well ventilated areas, in accordance with the existing legislation and regulations. When using the product, do not eat, drink or smoke. Working-clothes should be changed often. See also heading 7. Handling and storage.

Occupational exposure controls:

- respiratory protection: Protective measures, e.g. a mask, could be needed.
- hand protection: Protective gloves should be used.
- eye protection: Eye protectors should be used.
- skin protection: Protective clothing should be used in order to avoid exposure.

Environmental exposure controls: Avoid contaminating dishwashers and sterilizers with mercury. Autoclaves and sterilizers should be connected to a ventilator. Vapours containing mercury will be released when the temperature rises. See also heading 7. Handling and storage.

## 9. Physical and chemical properties

Information on mercury: General information:

- Appearance: Silvery liquid.
- Odour: No odour or no distinctive odour.

Important health, safety and environmental information:

- |   |                 |                                   |                          |
|---|-----------------|-----------------------------------|--------------------------|
| · pH:                                     | -               | · Boiling point/interval:         | 357°C.                   |
| · Flash point:                            | Incombustible   | · Flammability (solid, gas):      | Incombustible            |
| · Explosive properties:                   | Incombustible   | · Oxidising properties:           | -                        |
| · Vapour pressure:                        | 0,16 Pa (20°C). | · Density:                        | 13,6 g/cm <sup>3</sup> . |
| · Water solubility:                       | Insoluble.      | · Solubility in organic solvents: | Insoluble.               |
| · Vapour density:                         | 6,9 (air = 1).  | · Evaporation rate:               | -                        |
| · Partition coefficient: n-octanol/water: | -               | · Viscosity:                      | -                        |

Information on metallic powder: General information:

- Appearance: Fine silver-grey metal powder.
- Odour: No odour.

Important health, safety and environmental information:

- |   |               |                                   |                         |
|---|---------------|-----------------------------------|-------------------------|
| · pH:                                     | -             | · Boiling point/interval:         | -                       |
| · Flash point:                            | Incombustible | · Flammability (solid, gas):      | Incombustible           |
| · Explosive properties:                   | Incombustible | · Oxidising properties:           | -                       |
| · Vapour pressure:                        | -             | · Density:                        | 3,3 g/cm <sup>3</sup> . |
| · Water solubility:                       | Insoluble.    | · Solubility in organic solvents: | Insoluble.              |
| · Vapour density:                         | -             | · Evaporation rate:               | -                       |
| · Partition coefficient: n-octanol/water: | -             | · Viscosity:                      | -                       |

## 10. Stability and reactivity

Conditions to avoid: Intense heating. Highly toxic fumes emits when heated.

Materials to avoid: E.g. alkali metals, acetylenes, azides, ammonia, amines, halogens, carbides, metals, acids.

Hazardous decomposition products: Highly toxic fumes emits when heated.

Further information: The metal powder (alloy) reacts with mercury, forming amalgam.

## 11. Toxicological information

Dangerous-to-health effects and symptoms related to:

- inhalation: The toxic effects of mercury are slow. Inhalation of high amounts of mercury vapour or dust may produce nausea, diarrhoea, headache, pneumonia, risk of pulmonary oedema, difficulty in breathing, kidney disease, adverse health-effects in the central nervous system, low blood-pressure, heart disease.
- ingestion: Consuming mercury may cause the same effects as inhaling.
- skin contact: Elemental mercury may cause allergic dermatitis. Mercury may permeate the skin. See also inhalation.
- eye contact: Mercury may cause e.g. redness and/or irritation.

Further information: Mercury may accumulate in the body, causing adverse health-effects. Mercury may produce toxic effects in cyto- and protoplasm. Further adverse health-effects can not be ruled out. Persons with impaired kidney or respiratory function, or a history of allergies or a known sensitization to mercury may be more susceptible to the effects of the substance.

## 12. Ecological information

Ecotoxicity: Inorganic Hg-compounds in general: P. promelas: LC50 = 0,19 mg/L. Hg-ions: L. idus: LC50 = 0,013 mg/L. Algae: Sc. Quadricauda, toxic effects when  $\geq 0,07$  mg/L.

Mobility:-

Persistence and degradability: Slow process of transformation of mercury into organic mercury.

Bioaccumulative potential: Slow process of transformation of mercury into organic mercury. Organic mercury may bioaccumulate in fish.

Other adverse effects:-

## 13. Disposal considerations

Product: Should be disposed of in accordance with local regulations and national legislation.

Contaminated packaging: Should be disposed of in accordance with local regulations and national legislation.

## 14. Transport information

ADR/RID ((Road / rail transport)

UN- number: 2809 or 3506

UN proper shipping name:

MERCURY

Transport hazard class: 8

Packaging group: III

ICAO/IATA (Air transport)

UN-number: 2809 or 3506

UN proper shipping name:

MERCURY

Transport hazard class: 8

Packaging group: III

IMDG (Maritime transport)

UN-number: 2809 or 3506

UN proper shipping name:

MERCURY

Transport hazard class: 8

Packaging group: III

Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

## 15. Regulatory information

Health, safety and environmental information shown on the label:

According to GHS (CLP):



Pictogram

Signal word Danger

Hazard Statements: H330 Fatal if inhaled. H360 May damage fertility or the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P201 Obtain special instructions before use. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P273 Avoid release to the environment. P284 Wear respiratory protection. P310 Immediately call a POISON CENTER or doctor/ physician. P501 Dispose of contents/ container to an approved waste disposal plant.

According to European Directive 67/548/EEC as amended.



Hazard symbols:

Categories of danger: T+, Very toxic. N, Dangerous for the environment

Risk phrases:

R26 Also very toxic by inhalation.  
R48/23 Also toxic: danger of serious damage to health by prolonged exposure through inhalation  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R61 May cause harm to the unborn child.

Safety-phrases:

S7 Keep container tightly closed.  
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
S60 This material and its container must be disposed of as hazardous waste.  
S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Further information:

This product meets the demands of ISO 24234 (mercury and alloys for dental amalgam) and MDD 93/42/EEC. The product is CE-marked.

#### 16. Other information

Full wordings of the phrases mentioned in section 3:

Repr. 1B Reproductive toxicity (Category 1B), Acute Tox. 2 - Acute toxicity, inhalation (Category 2); STOT RE 1 - Specific target organ toxicity - repeated exposure (Category 1), Aquatic Acute 1 - Acute aquatic toxicity (Category 1), Aquatic Chronic 1 - Chronic aquatic toxicity (Category 1)

The safety data sheet is revised in order to: Classification and labeling according to Regulation (EC) No 1272/2008 and the European Directive 67/548/EEC as amended.

The information in this safety data sheet is based upon our present knowledge. The information is presented with the intention of describing the safest way of handling the product. The safety data sheet is therefore not to be regarded as a complete chemical description of the product. Consequently, the user is responsible for making sure that the product is meant to be used in the actual field of application and that it serves the purpose intended.