

Product name: Solid lead (Pb) in various manufactured forms **Date:** October 5th 2022

Document Nr.: SDS00170PB5708

Version: 4.0

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Section 1: Identification of the substance or mixture and the company

1.1. Product Identifier

Solid Lead (Pb) in various manufactured forms EC #: 231-100-4

CAS #: 7439-92-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Target material for vacuum deposition (sputtering or thermal evaporation).

Substrate material for sample preparation and experiments.

The substance is not subject to registration according to REACH.

1.3. Details of the supplier of the Safety Data Sheet

Rave Scientific

100 Franklin Square Dr.

Suite 101

Somerset, NJ 08873

Telephone: 1-732-898-3828

Email: info@ravescientific.com

Web: www.ravescientific.com

1.4 Emergency telephone number

911 (USA) or your national emergency telephone number for chemical spills, leaks, fires, exposures or accidents

Section 2: Hazards identification

2.1. Classification of the substance or mixture according to Regulation EC Nr. 1272/2008

Physical:	Not classified
Health:	Specific target organ toxicity – repeated exposure, cat 1 Reproductive toxicity, cat 1A
Environment:	Hazardous to the aquatic environment, Cat 1
Other hazards:	Not classified

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2.2 Labelling elements accordance to Regulation EC Nr. 1272/2008

Hazard pictogramm(s):



GHS08



GHS09

Signal word:

Danger

Hazard statement(s):

H360FD: May damage fertility. May damage the unborn child.
H362: May cause harm to breast-fed children
H372: Causes damage to organs through prolonged or repeated exposure
H410: Very toxic to aquatic life with long lasting effects

Precautionary statement(s):

P201: Obtain special instructions before use
P102: Keep out of reach of children
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233: Keep container tightly closed
P260: Do not breathe dust
P263: Avoid contact during pregnancy and while nursing
P280: Wear protective gloves/eye protection
P308+P313: If exposed or concerned: Get medical advice/attention
P370/378: In case of fire: Use foam or dry agent for extinction
P405: Store locked up
P501-2: Dispose of contents/container to an authorised waste collection point

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, the substance is not a PBT or a vPvB

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Section 3: Composition / information on components**3.1. Substances**

1. CAS No 2. EC No 3. Index No 4. REACH No	% (weight)	Name	Classification according to regulation Nr 1272/2008 [CLP]
7439-92-1 231-100-4 082-013-00-1 01-2119457558-25-xxxx	100	Lead (Pb)	Substance of very high concern. Repr. 1A; H360D: C >= 0.03%

3.2 Mixtures

Not applicable

Section 4: First aid measures**4.1. Description of first aid measures**

- General information:** The usual precautions for handling chemical substances should be observed. If symptoms should occur, seek medical advice.
Immediately remove any clothing soiled by the product
- Contact with eyes:** Rinse cautiously with water for several minutes. If possible, remove contact lenses. Continue rinsing.
- Contact with skin:** Wash with water and soap.
Seek medical attention if irritation persists.
- Inhalation:** Fresh air, keep warm and at rest.
Seek medical attention if ill effects occur
- Ingestion:** If swallowed, do not induce vomiting
Seek immediate medical advice

4.2. Important symptoms and effects, either immediate or delayed

No further relevant information available

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4.3. Indication of any immediate medical attention and special treatment

No further relevant information available

Section 5: Firefighting Measures

5.1. Extinguishing media

Water, foam, dry extinguishing powder, ABC powder
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Non-combustible

5.3 Advice to firefighters

Fight fire from a safe distance, with adequate cover
Do not allow firefighting water to enter drains or water courses
In case of fire, do not breathe fumes
Wear self-contained breathing apparatus for fire fighting

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing including eye/face protection
Avoid contact with skin, eyes and clothes.
Do not breathe dust.

6.2 Environmental precautions

Avoid release to the environment
Do not allow to enter public sewers and waterways
Retain contaminated washing water and dispose of it in a safe way.

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6.3 Methods and material for containment and clean up

Pick up mechanically
Covering of drains
Control of dust
Place in appropriate containers for disposal.

6.4 Reference to other sections

See Section 7 for information on safe handling
See section 8 for information on personal protection equipment
See section 13 for disposal information

Section 7: Handling and storage

7.1. Precautions for safe handling

Avoid exposure.
Avoid dust formation.
Remove any dust deposits.
Avoid release to the environment
Wash hands before breaks and after work.
Keep away from food, drink and animal feeding stuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed, in a cool, well-ventilated place
Keep out of reach of children

7.3 Specific end uses(s)

No information available.

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Section 8: Exposure control and personal protection

8.1. Control parameters

Exposure limits

Occupational exposure limits (OEL)

Ingredient	Material Name	Source	TWA	STEL	Peak	Notes
Lead	Lead (Pb)	EU	0.15 mg/M3	Not available	Not available	2022/431/EU

8.2 Exposure controls

Control procedures:	Ensure adequate ventilation
Personal protection:	Take precautions to avoid contact with eyes and skin when handling the products
Inhalation:	In case of insufficient ventilation, wear suitable respiratory equipment
Hands and skin:	Wear suitable gloves against chemicals; recommended gloves: Nitrile
Eyes:	Wear safety goggles with side protection or full-face protection
Environment:	Keep away from drains, surface and ground water.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance/physical state:	Solid
Colour:	Silvery grey
Odour:	Odourless
pH	No data available
Melting point:	327.5°C
Boiling point/range:	>600°C
Flammability:	non-combustible
Flash point:	not determined
Relative evaporation rate:	not determined
Explosion limits: upper limit:	not determined
lower limit:	not determined
Vapour pressure:	1.33 hPa @ 970°C
Relative density:	11.35 g/cm ³ @ 20°C
Solubility in water:	0.185g/l @ 20°C
Auto-ignition:	425°C
Viscosity:	not relevant

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9.2 Other information

VOC: not relevant

Section 10: Stability and reactivity

10.1. Reactivity

This material is not reactive under normal ambient conditions

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

May react violently with strong oxidiser, Fluorine, Nitric Acid, Hydrogen peroxide

10.4 Conditions to avoid

No specific conditions to avoid

10.5 Incompatible materials

There is no additional information

10.6 Hazardous decomposition products

Metal oxide fumes

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Section 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure:

Inhalation: Not classified

Skin contact: Not classified

Eye contact: Not classified

CMR effects: Carcinogenicity classification criteria not met based on available data
Germ cell mutagenicity classification criteria not met based on available data
Reproductive toxicity classification: May damage the unborn child. May damage fertility.
May cause harm to breast-fed children.

STOT-single exposure: not classified

STOT- repeated exposure: Causes damage to organs through prolonged or repeated exposure

Aspiration hazard: classification criteria not met based on available data

Toxicological data:

Ingredient	Toxicity	Notes
Lead (Pb)	Dermal (rat) LD50: 2000mg/kg	
	Oral (rat) LD50: 2000 mg/kg	

Symptoms related to physical, chemical and toxicological characteristics

If swallowed: vomiting, nausea, gastrointestinal complaints

If in eyes: Data are not available

If inhaled: Data are not available

If on skin: Data are not available

11.2. Endocrine disrupting properties

Not listed

11.3. Toxicity

There is no additional information

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Section 12: Ecological information**12.1. Toxicity**

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LC50	107 ug/l	fish	ECHA	96 h
ErC50	123 ug/l	algae	ECHA	72 h

12.2 Persistence and degradability

Data are not available

12.3 Bio-accumulative potential

Data are not available

12.4 Mobility in soil

Data are not available

12.5 Results of PBT and vPvB assessment

No information available

12.6 Endocrine disrupting properties

Not listed

12.7 Other adverse effects

Data are not available

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Section 13: Disposal considerations

13.1. Waste treatment methods

Product: This material and its container must be disposed of in a safe way. Do not discharge into drains or the environment, dispose to an authorised waste collection point.

National regulations: Disposal should be in accordance with local, state or national legislation.

Section 14: Transport information

14.1. UN number

UN-number: 3077

14.2 UN proper shipping name

Proper shipping name: Environmentally hazardous substance, solid, N.O.S.

14.3 Transport hazard class(es)

Class: 9
ADR/RID-Classification code: 9

14.4 Packing group

Packing: III
Limited Quantity: 5 kg

14.5 Incompatible materials

ADR/RID- Environmentally hazardous: Hazardous to the aquatic environment
IMDG-Marine pollutant: No relevant data
IATA/ICAO-Environmentally hazardous: No relevant data

14.6 Special precautions for user

ADR/RID-Tunnel code: -
IMDG-EMS: F-E, S-D
Special provisions: 274,335,375,601

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14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code

Not applicable

Section 15: Regulatory information

15.1. Safety, health, and environmental regulations/legislation specific for the substance or mixture

UN-number: 3077

15.2 Chemical safety assessment

No information available

Section 16: Other information

RoHS Directive Compliant

This product is not compliant with RoHS since it consists of 100% lead (Pb)

WEEE

This product is not a piece of electrical or electronic equipment, and it therefore not governed by Directive 2002/96/EC on waste electrical and electronic equipment (WEEE)

Abbreviations:

Asp. Tox	Aspiration hazard
Carc.	Carcinogenicity
ErC50	Concentration of test substance which results in 50% reduction in growth rate
Exp.	Exposure
Flam.	Flammable
GHS	Global Harmonised System of Classification of Labelling Chemicals
Irrit.	Irritant
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
N/A	Not applicable
N/E	Not estimated
PBT	Persistent Bio accumulative and Toxic
WEL	Workplace Exposure Limit
Repr.	Reproductive toxicant
RoHS	Restriction of Hazardous Substance
SEM	Scanning Electron Microscope
STEL	Short-Term Exposure Limit
STOT	Specific Target Organ Toxicity

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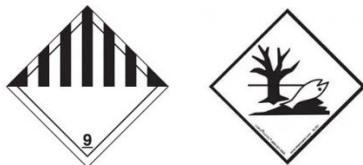
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TCLo	Lowest published toxic concentration	(Contd. of page 11)
vPvB	very Persistent and very Bio accumulative	
WEEE	Waste Electrical and Electronic Equipment	

DSD / DPD label elements



Relevant phrases

H360FD: May damage fertility. May damage the unborn child.

H362: May cause harm to breast-fed children

H372: Causes damage to organs through prolonged or repeated exposure

410: Very toxic to aquatic life with long lasting effects

This product should be stored, handled, and used in accordance with good industrial hygiene practices and in accordance with any legal regulation.

The information contained herewith is based on the present state of our knowledge and is intended to describe the product from the point of view of safety requirements. It does not guarantee any specific properties.

It is the responsibility of the user to query and verify any information seeming suspect or where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, state, federal and international regulations.

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