SAFETY DATA SHEET

Creation date of English version: March 16, 1993
Revision date: June 14, 2023

1. Identification

Product name	**RED LEAD -Special Grade**
Synonyms	Lead(Ⅱ,Ⅳ)oxide, Lead oxide, Lead oxide red, Trilead tetraoxide,Orange Lead, Minium, Pigment Red 105,C.I.77578, Mennige, Entan 鉛丹, Qiandan 鉛丹、
CAS No.	1314-41-6
Molecular weight	685.6
Chemical formula	Pb_3O_4
Company name	MONAMI Co.,Ltd.
Address	1-13, 2Chome, Hinodechou, Toyonaka City, Osaka 561-0821 Japan
Phone number	+81-6-6331-1719(Available Monday-Friday, 9:00 a.m.-5:00 p.m. JST)

2. Hazard identification

(1)Physical hazards

Explosives	Not an explosive
Flammable gases	Not a flammable gas
Aerosols and chemicals under pressure	Not a flammable aerosol
Oxidizing gases	Not an oxidizing gas
Gases under pressure	Not a gas under pressure
Flammable liquids	Not a flammable liquid
Flammable solids	Not a flammable solid
Self-reactive substances and mixtures	Not a self-reactive substance
Pyrophoric liquids	Not a pyrophoric liquid
Pyrophoric solids	Not a pyrophoric solid
Self-heating substances and mixtures	Not a self-heating substance
Substances and mixtures which, in contact with water, emit flammable gases	Not a substance which emits flammable gas in water
Oxidizing liquids	Not an oxidizing liguid
Oxidizing solids	Classification not possible
Organic peroxides	Not an organic peroxide
Corrosive to metals	Classification not possible
Desensitized explosives	Not a desensitized explosive

(2)Health hazards

Acute toxicity	(Oral)	Classification not possible
	(Dermal)	Classification not possible
	(Gases)	Not applicable
	(Vapors)	Classification not possible
	(Dust/mist)	Classification not possible
Skin corrosion/ irritation		Classification not possible
Serious eye damage/ eye irritation		Classification not possible
Respiratory or skin sensitization		Classification not possible
Germ cell mutagenicity		Classification not possible
Carcinogenicity		Category 1B
Reproductive toxicity		Category 1A
Specific target organ toxicity-Single exposure		Category 1
Specific target organ toxicity-Repeated exposure		Category 1
Aspiration hazard		Classification not possible

(3)Environmental hazards

Hazardous to tha aquatic environment	Classification not possible
Hazardous to tha ozone layer	Classification not possible

(4)GHS label elements

Hazard symbol(s)

Signal word(s) Danger

Hazard statements	May cause cancer. May damage fertility or the unborn child. Causes damage to blood, nervous system and kidney. Causes damage to blood, nervous system and kidney through prolonged or repeated exposure.
Precautionary statements	Obtain, read and follow all safety instructions before use..
Handling	Do not handle until all safety precautions have been read and understand. Do not breathe dust. Wear protective gloves/ protective clothing/ eye protection/face protection. Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this produst.
First-aid measures	If exposed or concerned, get emergency medical help immediately. Get medical help if you unwell.
Storage	Store locked up.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.

3. Composition/information on ingredients

Chemical name	Lead(Ⅱ,Ⅳ) oxide
Percent	≧97.0%

4. First-aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing.
Skin	Wash with plenty of water.
Eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and casy to do. Continue rinsing.
Ingestion	Rinse mouth. Do not induce vomiting.
General	If exposed or concerned, get medical advice.

5. Fire-fighting measures

Flammable properties	Non-flammable solid
Flash point	Not applicable
Autoignition temperature	Not applicable
General information	As in any fire, wear a self-contained breathing apparatus and full facepiece in pressure-demand. During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Sop leak if safe to do so.
Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Other information	Do not allow water runoff to sewers or waterways, which can cause environmental damage.

6. Accidental release measures

Personal precautions	Use personal protective equipment as indicated in Section 8. Ensure adequate ventilation. Avoid dust formation.
Environmental precautions	Do not let this material enter the environment.
Methods for containment and cleaning up	Cover powder spill with sheet or tarp to prevent further leakage or spillage if safe to do so. Vacuum or sweep up material and place into a suitable disposal container.

7. Handling and storage

Handling	To avoid exposure, wear personal protective equipment and use with adequate ventilation as indicated in Section 8. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Wash thoroughly after handling.
Storage	Stpre locked up. Keep containers tightly closed.

8. Exposure controls, personal protection

Exposure Limits	
ACGIH(searched in April 2023])	TLV-TWA 0.05 mg/m³ , as Pb
NIOSH-PEL(2019)	TWA 0.05 mg/m³ (as Pb)
Engineering controls	Provide general and/or local exhaust ventilation to keep airborne concentrations low. Ensure that an eyewash facility and a safety shower.
Personal protection equipment	
Eyes	Wear appropriate protective eyeglasses, safety goggles or full face shield.
Skin	Wear appropriate gloves, boots and clothing including lab coat, apron or overalls.
Respirators	Use appropriate respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Refer to OSHA's 29 CFR 1910.134 or European Standard EN 149.

9. Physical and chemical properties

Appearance	Bright red to orange powder
Odor	Odorless
Specific gravity	9.1 /20℃ (Water=1)
Melting point	Decomposes above 500℃
Vapor pressure	Not applicable
Solubility	Insoluble in water or alcohol. Soluble in nitric acid and hydrogen peroxide.

10. Stability and reactivity

Stability	Stable under recommended storage conditions.
Conditions to avoid	Excessive heat, contact with incmpatible materials.
Incompatibility	Strong oxidizing agents including hydrogen peroxide, and strong reducing agents such as aluminum, sodium metal.
Hazardous decomposition products	Lead oxides formed under fire conditions
Hazardous polymerization	Will not occur.

11. Toxicological information

Acute toxicity	(Oral)	Rat LD_{50}＞10,000mg/kg (IUCLID(2000))
	(Dermal)	Classification not possible because of no information found.
	(Gases)	Because this material is solid, it should be set as "Not applicable".
	(Vapors)	Classification not possible because of no information found.
	(Dust/mist)	Classification not possible because of no information found.
Skin corrosion/irritation		Classification not possible because of no information found.
Serious eye damage/eye irritation		Classification not possible because of no information found.
Respiratory or skin sensitization		Classification not possible because of no information found.
Germ cell mutagenicity		No data of this material is found, but several studies have reported that lead induces chromosomal aberrations to human in ATSDR (2007), and inorganic lead compounds are classified into category 3A, which corresponds to category 1B～2 in GHS, by MAK and BAT (2005).
Carcinogenicity		Each organization has classified inorganic lead compounds as probably or possibly carcinogenic as follows: Group 2A by IARC (2006), Category R by NTP (2005), and Category A3 by ACGIH (2001), Based on the above mentioned, this material should be classified into Category 1B.
Reproductive toxicity		Since it is described that lead (inorganic lead) compounds indicate reproductive toxicity in humans by ACGIH-TLV (2005) and ATSDR (2007), this material should be set as Category 1A.
Specific target organ toxicity Single exposure		Although there is a description that the influence (spasms, nausea, vomiting) on a nervous system or an alimentary system is observed by RTECS (2004), it is the data near the fatal dose and treats as reference. On the other hand, acute effects of inorganic lead compounds have been reported as follows:

	•Hematological - Anemia with hemoglobin synthesis inhibition due to delta-aminolevulinic acid/heme syntheic enzyme inhidition and shortened survival of red blood cells. •Neurological - Headache, tremor, dizziness, malaise, extensor paralysis, mononeuritis, mental impairment, convulsions, and coma. •Kidney - Fanconi syndrome, azotemia, isolated proximal tubular defects, rickets, or osteomalacia (Delayed nephrotoxicity [i.e., chronic tubulointerstitial nephritis] may develop in some patients.) Based on the above mentioned, this material should be considered as Category 1 (Blood, Nervous System, Kidney).
Specific target organ toxicity Repeated exposure	Since it has been observed that acute and chronic effects of inorganic lead compounds in human are almost the same, that the effect is shown on blood and the kidney in the two-year repetitive exposuer test of a rat in RTECS (2004), and that inorganic lead compounds have effects on blood, central nervous systems, and kidneys in ACGIH-TLV (2005), this material should also be considered as Category 1 (Blood, Nervous System, Kidney).
Aspiration hazard	Classification not possible because of no information found.

12. Ecological information

Ecotoxicity	Classification not possible because of no information found.
Persistence and degradahility	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	This material is not listed in the Annexes to the Montreal Protocol.

13. Disposal considerations

Comply with local regional and national regulations. Contact an official licensed waste disposal company.
If necessary, the waste generator should identify the contents of discarded material to the disposal company.
Do not dump this material into sewers, on the ground or into any body of water.

14. Transport information

UN number Not regulateed

Observe national, regional and local regulations on labeling and packaging applicable to this material.
Keep the containers (paper bags, fabric bags, drums, etc.) tightly closed, and protect against direct sunlight, moisture and physical damage.
Securely fasten the containers to prevent deterioration and leakage.

15. Regulatory information

Refer to local, regional and national regulations on the treatment of chemicels including this material.
This material is listed on the following chemical substance inventories.
ENCS(Japan) 1-527
ECL(Korea) KE-27408, IECSC(China), PICCS(Philippines), AICS(Australia), TSCA(USA), DSL(Canada)
EINECS(EU) 215-235-6

16. Other information

Abbreviations
ACGIH: American Conference of Governmental Industrial Hygienists
ATSDR: Agency for Toxic Substances and Disease Registry
IUCLID: Intemational Uniform Chemical Information Database
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
RTECS: Registry of Toxic Effects of Chemical Substances

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