



SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 Version 2 Revision Date 06.12.2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Lead (II) oxide

Product Number : 5176

Brand : Better Equipped

Index-No. : 082-001-00-6

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.

CAS-No. : 1317-36-8

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : Not for sale to the general public

1.3 Details of the supplier of the safety data sheet

Company : Better Equipped,
Wrenbury Business Park,
Wrenbury Road,
Wrenbury,
Nantwich, Cheshire,
CW5 8EB, UK

Telephone +44 (0) 800 9707142

Fax +44 (0) 800 066 4443

E-mail address sales@betterequipped.co.uk

1.4 Emergency telephone number

Emergency Phone # +44 (0)1270 781238

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Carcinogenicity, Oral (Category 2), H351

Reproductive toxicity (Category 1A), H360Df

Effects on or via lactation, H362

Specific target organ toxicity - repeated exposure, Oral (Category 1), Central nervous system, Kidney, Blood, H372

Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Central nervous system, Kidney, Blood, H372

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)

H302 + H332

Harmful if swallowed or if inhaled

H351

Suspected of causing cancer if swallowed.

H360Df

May damage the unborn child. Suspected of damaging fertility.

H362

May cause harm to breast-fed children.

H372

Causes damage to organs (Central nervous system, Kidney, Blood) through prolonged or repeated exposure if swallowed.

H372

Causes damage to organs (Central nervous system, Kidney, Blood) through prolonged or repeated exposure if inhaled.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201

Obtain special instructions before use.

P260

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P263

Avoid contact during pregnancy/ while nursing.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	OPb
Molecular weight	:	223.2 g/mol
CAS-No.	:	1317-36-8
EC-No.	:	215-267-0
Index-No.	:	082-001-00-6

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Lead monoxide Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
CAS-No.	1317-36-8	Acute Tox. 4; Carc. 2; Repr. 1A; Lact. ; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H302, H332, H351, H360Df, H362, H373, H373, H400, H410 Concentration limits: ≥ 2.5 %: Repr. 2, H361f; ≥ 0.5 %: STOT RE 1, H372; M-Factor - Aquatic Acute: 1
EC-No.	215-267-0	
Index-No.	082-001-00-6	
		≤ 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Remove contaminated clothing. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media

High Volume Water Jet

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- 6.1.1 For non-emergency personnel

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

- 6.1.2 For emergency responders

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.

Provide appropriate exhaust ventilation at places where dust is formed.

7.1.2 Advice on general occupational hygiene:

- No smoking.
- Do not eat or drink.
- Wash hands after use.
- Remove contaminated clothing.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	ValueForm of exposure	Control parameters	Basis
Lead monoxide	1317-36-8	TWA	0.15 mg/m ³	Europe. Chemical Agents Directive - Annex I: Binding occupational exposure limit values
	Remarks	Binding		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Lead monoxide	1317-36-8	Lead	0.7000 mg/l	Blood	Chemical Agents Directive - Annex II: Binding biological limit values
		Lead	0.7 mg/l	Blood	Chemical Agents Directive - Annex II: Binding biological limit values

For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)

8.1.3 The relevant PNECs for the substance/s for the exposure scenarios:

PNEC's. The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole.

Hazard for Aquatic Organisms	
Freshwater	2.4 µg/L (1)
Intermittent releases (freshwater)	-
Marine water	3.3 µg/L (1)
Intermittent releases (marine water)	-
Sewage treatment plant (STP)	100 µg/L (1)
Sediment (freshwater)	186 mg/kg sediment dw (1)
Sediment (marine water)	168 mg/kg sediment dw (1)
Hazard for Air	
Air	No hazard identified (1)
Hazard for Terrestrial Organism	
Soil	212 mg/kg soil dw (1)
Hazard for Predators	
Secondary poisoning	10.9 mg/kg food (1)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use Local exhaust ventilation (LEV).

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	9.9 at 100 g/l at 20 °C
e)	Melting point/freezing point	Melting point/range: 886 °C - lit.
f)	Initial boiling point and boiling range	> 600 °C at ca.1,013 hPa - OECD Test Guideline 103
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	9.530 g/cm ³
n)	Water solubility	0.0702 g/l at 20 °C - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n- octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

None based on the data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

None under normal processing

10.4 Conditions to avoid

Incompatible materials

10.5 Incompatible materials

Hydrogen peroxide, Strong oxidizing agents, acids

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Lead oxides

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral

LD50 2 000 - 5 000 mg/kg bw (rat)

Interpretations of results - GHS criteria not met

Inhalation

LC50 (4 h) 5.05 mg/L air (rat)

Interpretations of results - Other

LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: Did not cause sensitisation on laboratory animals.

(OECD Test Guideline 406)

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: 2A - Group 2A: Probably carcinogenic to humans (Lead monoxide)

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Ingestion - Causes damage to organs through prolonged or repeated exposure. - Central nervous system, Kidney, Blood

Inhalation (dust/mist/fume) - Causes damage to organs through prolonged or repeated exposure. - Kidney, Central nervous system, Blood

Aspiration hazard

No data available

Additional Information

RTECS: OG1750000

Lead salts have been reported to cross the placenta and to induce embryo- and fetotoxicity. They also have a teratogenic effect in some animal species. No teratogenic effects have been reported with exposure to organometallic lead compounds. Adverse effects of lead on human reproduction, embryonic and fetal development, and postnatal (e.g., mental) development have been reported. Excessive exposure can affect blood, nervous, and digestive systems. The synthesis of hemoglobin is inhibited and results in anemia. If left untreated, neuromuscular dysfunction, possible paralysis, and encephalopathy can result. Additional symptoms of overexposure include: joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhea, constipation, nausea, vomiting, blue line on the gums, insomnia, and metallic taste. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death., Anorexia., Vomiting, Convulsions, Nausea, Headache, Weakness, anemia, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.298 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.132 mg/l - 48 h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Unused product may be returned and reused, in addition to disposal.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information**14.1 UN number**

ADR/RID: 2291

IMDG: 2291

IATA: 2291

14.2 UN proper shipping name

ADR/RID: LEAD COMPOUND, SOLUBLE, N.O.S. (Lead monoxide)

IMDG: LEAD COMPOUND, SOLUBLE, N.O.S. (Lead monoxide)

IATA: Lead compound, soluble, n.o.s. (Lead monoxide)

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

14.6 Special precautions for user

No data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

N/A

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

For further information please also refer to 'Control of Lead Regulations at work 2002'

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Lead monoxide

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Lead monoxide

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out



SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H332	Harmful if inhaled.
H351	Suspected of causing cancer if swallowed.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H361f	Suspected of damaging fertility.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (/\$/*_ORG_REP_INHA\$/) through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Revisions made since previous version of data sheet:

The following sections of this data sheet have been updated:

1.1, 1.2, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, 11, 12, 13, 14.7, 16

We strongly recommend reading the entire data sheet for this chemical in preparation ahead of use.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Better Equipped and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.