

GHS MSDS

acc. 1907/2006/EC (REACH)



NICKEL POWDER (5000-SERIES)

Created 03/2012

Revised ----

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SECTION 1: CHEMICAL COMPOSITION AND COMPANY IDENTIFICATION

1.1. Product Identifier

CuLox Nickel Powder 5000 Series

1.2. Relevant Identified uses of the substances or mixture and uses advised against

Cookware Coatings, Hard Metal Binder. High temperature anti-seize lubricants. Powder Coatings, Waterborne coatings. Printing inks.

1.3. Details of the supplier of the safety data sheet

CuLox Technologies, Inc.

178 General Pulaski Walk, PO Box 108
Naugatuck, CT 06790
USA

Phone: +1 203 729-7940

Fax: +1 203 729-5989

Responsible person:

E-Mail (competent person)

culox@snet.net

1.4. Emergency phone No.

+1 203 729-7940

SECTION 2: HAZARDS IDENTIFICATION

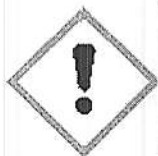
2.1. Classification of the substance or mixture

Health	Environmental	Physical
Skin Sensitization – Category 1	Aquatic Toxicity – Chronic 2	-----
Carcinogenicity – Category 2	-----	-----
STOT* Repeated Exposure – Category 1	-----	-----

*Single Organ Target Toxicity

2.2. Label elements

Symbols: Exclamation mark, Health Hazard, Environment



Signal Word: **Danger**

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Hazard statements:

- H351 Suspected of causing cancer by inhalation
- H372 Causes damage to organs through prolonged or repeated exposure by inhalation
- H317 May cause an allergic skin reaction
- H412 Harmful to aquatic life long lasting effects

Precautionary statements:

- P201 Obtain special instructions before use
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P273 Avoid release to the environment
- P281 Use personal protective equipment as required
- P308 + P313 IF exposed or concerned: Get medical advice/attention
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances

Name of Product:	Nickel Powder
IUPAC-Name:	Nickel (2+)
CAS-No.:	7440-02-0
EC-No.:	231-111-4
INDEX-No.:	028-002-01-4 (+Nickel powder; [particle diameter <1 mm])
Purity:	typically 99.8%
Synonym(s):	
MW:	58.69
Formula:	Ni

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information:

In all cases of doubt call in a physician

In case of inhalation:

Remove person to fresh air. If not breathing, give artificial respiration. Oxygen may be administered if breathing is difficult. Seek immediate medical attention.

In case of skin contact:

Wash with plenty of water and soap and rinse thoroughly. Remove contaminated clothing and shoes. Seek immediate medical attention. If Skin irritation or rash occurs: Get medical advice/attention.

In case of eye contact:

Immediately flush eyes with plenty of water at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.

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In case of ingestion:

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.

Self protection at first aid:

Avoid substance contact.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: itching, eczema

4.3. Indication of any immediate medical attention and special treatment needed

Not available

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media:

Use water spray, foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media:

No information available

5.2. Special hazards arising from the substance or mixture

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. May oxidize to nickel oxide if exposed to high temperatures within a fire. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form Nickel Carbonyl, Ni(CO)₄, a toxic gas. Metal powders when heated in reducing atmosphere may become pyrophoric. Combustion products: Nickel oxide fume, carbon dioxide and carbon monoxide

5.3. Advice for firefighters

LARGE FIRES: Do not scatter spilled material with high pressure water streams.

Self contained breathing apparatus and suitable protective clothing required. Use water spray to keep the fire-exposed container cool.

SECTION 6: ACCIDENTAL RELEASE MEASURE

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency responders

Avoid substance contact. Avoid inhalation of dust. Provide sufficient ventilation

For emergency responders

For suitable protective equipment refer to Section 8

6.2. Environmental precautions

Do not let enter drains, prevent release to the environment

6.3. Methods and material for containment and cleaning up

Collect spills by sweeping or vacuuming with vacuum exhaust passing through a high efficiency particulate arresting (HEPA) filter if exhaust is discharged into the work place. Wear appropriate nationally approved respirators if collection and disposal of spills is likely to cause the concentration limits of airborne nickel to exceed the locally prescribed exposure limits. Nickel containing material is normally collected to recover nickel values.

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6.4. Reference to other sections

Refer to Section 8 and 13

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid substance contact. Do not breathe dust. Provide appropriate ventilation or local exhaust system if dusts are generated. Any unavoidable deposit of dust must be regularly removed. Wear appropriate respirator if handling is likely to cause the concentration of airborne nickel. Refer to Section 8.2

7.2. Conditions for safe storage, including any incompatibilities

Store locked up.

Keep container tightly closed and sealed until ready for use.

Store away from acids or reactive substances.

7.3. Specific end use(s)

Refer to Section 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

An indicative, inhalable Nickel Occupational exposure Limit of 0.05 mg/m^3 for workers is given and justified by the CRS – instead of a DNEL-DMEL in the long term – local and systemic effect – inhalation risk characterisation for Nickel-substances. Current nickel OELs in some countries are given as follows:

Country/Body	Status of Standard	Values of Standards ¹ (mg Ni/m ³)
Austria	current	0.05 ²
Belgium	current	1.0
Denmark	current	0.05
Finland	current	1.0
France	current	1 (VME) ³
Germany	current	0.5 (TRK) ⁴
Ireland	current	1.0
Italy	current	1.0
Luxembourg	current	1.0
Netherlands	current	0.1
Norway	current	0.05
Portugal	current	1.0
Spain	current	1.0
Sweden	current	0.5 (metallic nickel) 0.1 (nickel oxide, carbonate) 0.01 (nickel subsulphide)
<i>Continued next page</i>		
Country/Body	Status of Standard	Values of Standards ¹ (mg Ni/m ³)
United Kingdom	current	0.5 (MEL) ^{5,6}
Japan	current	1.0

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Korea	current	1.0
China	current	1.0

- 1 8-hour TWA (Time-Weighted Average) unless otherwise noted. All values refer to "total" nickel unless otherwise noted.
- 2 This TLV applies to nickel metal alloys, nickel sulfide, sulfidic ores, oxidic nickel, and nickel carbonate in inhalable dust, as well as any nickel compound in the form of inhalable droplets.
- 3 VME=Valeur Moyenne d'Exposition. The value 1 mg/m³ applies to Ni carbonate, dihydroxide, subsulphide, monoxide, sulfide, trioxide and for other chemical forms non-otherwise specified such as "insoluble Ni compounds" and Ni sulfide roasting fume and dust.
- 4 TRK=Technische Richtkonzentrationen.
- 5 MEL=Maximum Exposure Limit.
- 6 This value is based on "total inhalable" aerosol as measured with the 7-hole sampler.

8.2. Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or local exhaustion to keep the airborne concentrations of vapours below their respective threshold limit value. See Section 7.1

Individual protection measures:

- Eye / face protections: Safety goggles / face shield
- Skin protection: Protective gloves. Chemical resistant protective clothing
- Respiratory protection: If exposed to dust concentrations above the exposure limit, use appropriate, certified respiration protective equipment. Respiratory Protective equipment (FFP2) {approved with regard to EN 149} is required for unenclosed Processes involving powders.
Respiratory cartridges or canisters must be changed following the recommendations of the supplier.

Environmental exposure controls:

Avoid release to environment

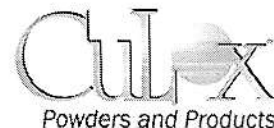
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	solid, powder – silvery flake
Odour:	odorless
Odour treshold:	n/a
pH:	not available
Melting point/freezing point:	1453°C
Initial boiling point:	2732°C
Flash point:	not applicable
Evaporation rate:	not applicable
Flammability:	non flammable
Upper/lower flammability or explosive limits:	non explosive
Vapour pressure	negligible
Vapour density:	not applicable
Relative density:	8.9 g/cm ³
Solubility in water:	insoluble

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Partition coefficient: n-octanol/water:	not applicable
Auto-ignition temperature:	very fine divided metal can smoulder in the presence of oxygen in the air
Decomposition temperature:	not applicable
Viscosity:	not applicable
Explosive properties:	non explosive
Oxidising properties:	non oxidising

9.2. Other information

None

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Stable under normal temperatures and pressures. Material does not pose a dust explosion hazard.

10.2. Chemical stability

The product is stable under normal conditions (room temperature)

10.3. Possibility of hazardous reactions

This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, Ni(CO)₄, a toxic gas.

10.4. Conditions to avoid

Metal powders when heated in reducing atmospheres may become pyrophoric.

10.5. Incompatible materials

Violent reactions possible with strong acids, strong oxidizing agents, acids anhydrides, in contact with nitrous acids and its salts nitrosamines may be released.

10.6. Hazardous decomposition products

Please refer to section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

a) acute toxicity:

	Value	Unit	Species
LD50 (oral)	9000	mg/kg bw	rat
LD50 (dermal)	not available		
NOAEC (inhal)	10.2	mg/L air (66 min.)	observed 14 days after exposure

b) skin corrosion/irritation
slight irritation

c) serious eye damage/irritation
not classified

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d) respiratory or skin sensitisation

sufficient data from human studies: May cause allergic skin reactions

e) germ cell mutagenicity

not classified, test with mammalian cells – negative

f) carcinogenicity

suspected of causing cancer by inhalation

g) reproductive toxicity

not classified as toxic to reproduction

h) STOT-single exposure

not classified

i) STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure by inhalation

j) aspiration hazard

not classified

Other information

Further hazardous properties cannot be excluded. The product should be handled with the care usual when dealing with chemicals.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Classified as Aquatic Chronic category 2 under GHS classification. Toxic to aquatic life with long lasting effects.

	<i>Value (range)</i>	<i>Duration</i>	<i>Species</i>
<i>Short term toxicity</i>			
LC50-Fish	0.23 to 320 mg/L	96 h	Pimephales promelas-Danio rerio
LC50-Invertebrates	0.013 to 4970 mg/L	48 h	Ceriodaphnia-Daphnia magna
IC50-algae	12.6 424 µg/L	72 h	Selenastrum capricornutum (OECD 201)
EC50 (bacteria)	33 mg/L	48 h	activated sludge (STP)
<i>Long term toxicity</i>			
Fish-NOEC / L(E)C10	40 – 1379 µg/L	--	Danio rerio-oncorhynchus mykiss
Invertebrates NOEC / L(E)C10	1.4 – 425 µg/L	--	Lymnea stagnalis-chironimus tentans
Algae NOEC / EC10	12.6 – 425 µg/L	--	Scenedesmus accumulatus- Pseudokirchnerel subcapitata

12.2. Persistence and degradability

Abiotic degradation – not applicable

Biodegradation – not applicable

12.3. Bioaccumulative potential

Bioaccumulation in aquatic environment is low

12.4. Mobility in soil

Not applicable endpoint

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12.5. Results of PBT and vPvB assessment

Does not apply to inorganic substances

12.6. Other adverse effects

Not known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Chemicals and packages as waste must be disposed of in accordance with the respective national and local regulations. Containers should be cleaned of residual product before disposal. Consult your local or regional authorities.

Do not contaminate ground or surface waters via drainage, by cleaning of equipment or disposal of wastes.

SECTION 14: TRANSPORTATION INFORMATION

14.1. UN number

not classified as dangerous good

14.2. International Maritime Dangerous Goods Code

not regulated

14.3. International Civil Aviation Organization Technical Instructions for the Carriage of Dangerous Good by Air

not regulated

14.4. U.S. Dept. of Transportation Regulations

Apply to nickel powders if they are less than 100 micron in particle size and if they are packaged in quantities greater than 100 pounds

14.5. Canadian Transportation of Dangerous Goods Act

not regulated

14.6. European Agreement Concerning the International Carriage of Dangerous Goods by Road

not regulated

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

not applicable

SECTION 15: REGULATORY INFORMATION

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

EU regulations

Refer to Directive on Major accident hazard 96/82/EC: 9a Dangerous for the environment-50t200t

Refer to Directive 94/33/EC on the protection of young people at work

Authorization and/or restrictions on use:

Refer to Regulation 552/2009/EC amending Regulation 1907/2006/EC: Annex XVII point 27

National Regulations: (Germany)

Refer to Regulations on occupational restrictions as:

To adolescent persons according to § 22 ArbSchG

Water Hazard Class: WGK: 2 Reg. No.: 7616 Status: V: KBwS-Decision

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SECTION 16: OTHER INFORMATION

16.1. Relevant

R-Phrases

R40	Limited evidence of a carcinogenic effect.
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R43	May cause sensitisation by skin contact.
R52-53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements

H351	Suspected of causing cancer by inhalation.
H372	Causes damage to organs through prolonged or repeated exposure by inhalation.
H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effect.

Precautionary Statements

P201	Obtain special instructions before use.
P260	Do not breath dust/fumes/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308+P313	If exposed or concerned: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.

Training: Operators should be trained regularly on safe handling and emergency response.

Note: CuLox Technologies, Inc. believes that the information in this Material Safety Data Sheet is accurate. However, CuLox Technologies, Inc. makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.