Shu Powders Africa PTY. LTD
Logra Industrial Park, No.40 Track 94040, Harrison Flats
Old Main Road, Cato Ridge, KwaZulu Natal 3680 South Africa
Postnet Suite 10015, Private Bag X7005, Hillcrest, 3650

Vat No: 4150236521 CK No: 2007/000865/07

Sub Micron Cobalt Powder

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier

Product Name	Sub Micron Cobalt Powder.
Product Code	SMS
Chemical Name	Cobalt.
Chemical Family	Metal.
Chemical Formula	Co.
Synonym(s)	Cobalt metal Powder.
CAS No.	7440-48-4.
EINECS No.	231-158-0.
REACH Registration No.	01-2119517392-44-0012

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

Identified use(s)	See Section: 7.3.
Uses advised against	None known.

1.3 Details of the supplier of the Safety Data Sheet

Company Identification	Shu Powders Africa (Pty)Ltd Logra Industrial Park 40 Track 94040 Harrison Flats Old Main Road Cato Ridge Kwa-Zulu Natal 3680 South Africa
Telephone	+27 (0)31 782 1061
E-Mail	sheq.queries@shusa.co.za

1.4 Emergency telephone number

Emergency Phone No. (24/7/365)	
Chem Tel - United States, Canada, Puerto Rico,US Virgin Islands	1-800-255-3924
Chem Tel – International Access	+01-813-248-0585

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP)

Respiratory Sensitisation Category 1B H334; May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sensitisation Category 1 H317; May cause an allergic skin reaction.
Eye irritant Category 2 H319; Causes serious eye irritation
Reproductive toxicity Category 2 H361f; Suspected of damaging fertility. Specific effect: Fertility impairment in males.
Aquatic Acute Category1 H400; Very toxic to aquatic life.
Aquatic Chronic Category 1 H410; Very toxic to aquatic life with long lasting effects.
Flammable Solid Category 1 H228

2.1.2 Directive 67/548/EEC & Directive 1999/45/EC

Xn R42/43; May cause sensitization by inhalation and skin contact.
Xi R36; Irritating to eyes.
Repr. Cat 3 R62; Possible risk of impaired fertility.
N R50/53; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
F; R11 Flammable Solid

2.2 Label elements

Product Name: Sub Micron Cobalt Powder.

Hazard Pictogram

GHS 08 GHS 09 GHS 02

Signal word(s): Danger.

Hazard statement(s):

H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H361f: Suspected of damaging fertility.
H410: Very toxic to aquatic life with long lasting effects.
H228: Flammable Solid

Precautionary statement(s):

P210: Keep away from heat/sparks/open flames/hot surfaces/no smoking.
P261: Avoid breathing dust.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P285: In case of inadequate ventilation wear respiratory protection.

P501: Dispose of contents/container to an approved waste disposal plant.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P264: Wash hands thoroughly after handling.
P272: Contaminated work clothing should not be allowed out of the workplace.
P363: Wash contaminated clothing before reuse.
P391: Collect spillage.
P405: Store locked up
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P304 + P341: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing.
P308 + P313: IF exposed or concerned: Get medical attention or advice.
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
P342 + P311: If experiencing respiratory symptoms: Call a poison center or doctor/physician.
P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.

2.3 Other hazards Not classified as PBT or vPvB**.**

2.4 Additional Information For full text of H/P statements and R/S phrases see section 16.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

EC Classification No. 1272/2008

Hazardous ingredient(s)	%W/W	EINECS No.	REACH Registration No.	GHS classification	EC Classification and R Phrases
Cobalt 7440-48-4	>99.9	231-158-0	01-2119517392-44-0012	Resp. Sens. 1B;H334, Eye Irr.2; 319 Skin Sens. 1; H317, Repr.2; H361f Aquatic Acute 1;H400, Aquatic Chronic 1; H410. Flammable solid 1; H228 M-factor: 10.	F; R11, Repr. Cat 3; R62,Xi;R36 Xn R42/43,N;R50/53.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.
Skin Contact	IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Eye Contact	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). If symptoms persist, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: Cough, Sore throat, Wheezing, Increased difficulty in breathing.
Ingestion: Abdominal pain, Vomiting.
Eye Contact: Redness.

4.3 Indication of immediate medical attention and special treatment needed

No special requirements.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media	As appropriate for surrounding fire. Extinguish with dry chemical, carbon dioxide.
Unsuitable Extinguishing Media	None.

5.2 Special hazards arising from the substance or mixture

In the event of a fire the following can be released: Cobalt oxide dust. Acrid Smoke. Metal Fumes.

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Dike fire control water for later disposal. Do not allow to enter drains, sewers or watercourses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid breathing dust. Wear appropriate personal protective equipment, avoid direct contact.

6.2 Environmental precautions

Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Sweep spilled substances into containers if appropriate moisten first to prevent dusting. Use vacuum equipment for collecting spilt materials,

		where practicable. Collect spillage. Transfer to a lidded container for disposal or recovery.
6.4	**Reference to other sections**	For handling advice see section 7. For personal protection see section 8. For waste disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Provide adequate ventilation. Avoid breathing dust. Keep away from fire, sparks and heated surfaces. Contaminated work clothing should not be allowed out of the workplace. In case of inadequate ventilation wear respiratory protection. Wear protective gloves/protective clothing/eye protection/face protection. See Section: 8.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat.
	Storage Temperature	Ambient.
	Storage Life	Stable under normal conditions.
	Incompatible materials	Acids, Strong oxidising agents.
7.3	**Specific end use(s)**	• Manufacture of cobalt • Use of cobalt in the manufacture of inorganic cobalt substances • Use of cobalt in the manufacture of cobalt carboxylates and resinates • Manufacture of cobalt in the catalyst industry • Industrial use of cobalt as catalyst • Manufacture and industrial use of cobalt containing alloys, steels and tools • Industrial use of cobalt in surface treatment processes • Manufacture and industrial use of batteries using cobalt • Industrial use of cobalt in the manufacture of inorganic pigments & frits, glass, ceramic ware, varistors and magnets (calcination/sintering processes) • Manufacture and industrial use of coatings and inks using cobalt as drier and/or pigment • Industrial use of cobalt in the production of diamond tools • Welding in industrial and/or professional settings • Professional use of dental alloys containing cobalt • Professional use of diamond tools and other cobalt-containing tools • Production of hardmetal powder • Production of sintered hardmetal-containing articles • Waste stage: Recycling of hardmetal-containing scrap materials

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note:
Cobalt	7440-48-4	-	0.1	-	-	WEL, OEL (United Kingdom)
		-	0.05	-	-	Co, HTP 2009 Finland
		-	0.1	-	-	OSHA, USA
		-	0.05	-	-	NIOSH, USA
		-	0.02	-	-	TLV (ACGIH), USA
		-	0.05	-	-	NOHSC, Australia
		-	0.1	-	-	Minister of Labour, South Africa
		-	0.02	-	-	SER, Netherlands

8.1.2 Biological limit value

Not established.

8.1.3 PNECs and DNELs

DNEL	Oral	Inhalation	Dermal
Industry - Long Term – Local effects	-	40 µg/m³	-
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	-	-
Industry - Short term - Systemic effects	-	-	-
Consumer - Long Term - Local effects	-	6.3 µg/m³	-
Consumer - Long Term - Systemic effects	9.5 µg/kg bw/day	-	-
Consumer - Short term - Local effects	-	-	-
Consumer - Short term - Systemic effects	-	-	-

	Predicted No effect Concentration (PNEC)
Aquatic Compartment	0.51µg/l (Fresh water).
Marine Compartment	2.36 µg Co/L
Aquatic Compartment - sediment	11.2 mg Co/kg sediment dry wt
Aquatic Compartment – sediment, Added Risk Approach	9.5 mg Co/kg sediment dry wt
Marine Compartment - sediment	9.5 mg Co/kg sediment dry wt
Terrestrial Compartment	7.9 mg/kg Soil dw.
Sewage Treatment Plant - microorganisms	0.373 mg Co/L
Atmospheric Compartment	-

8.2	**Exposure controls**	
8.2.1	**Appropriate engineering controls**	Provide adequate ventilation.
8.2.2	**Personal protection equipment**	
	Eye/face protection	Wear eye protection with side protection (EN166).
	Skin protection (Hand protection/ Other)	Wear protective clothing and gloves: Butyl rubber, Neoprene, PVC.
	Respiratory protection	A suitable dust mask or dust respirator with filter type P (EN143 or EN405) may be appropriate.
	Thermal hazards	Not applicable.
8.2.3	**Environmental Exposure Controls**	Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Information on basic physical and chemical properties**	
	Appearance	Powder.
	Colour	Silver-Grey.
	Odour	Odourless.
	Odour Threshold (ppm)	Not established.
	pH (Value)	Not applicable.
	Melting Point (°C)	1494°C @1013hPa.
	Boiling point/boiling range (°C):	2927°C @1013hPa.
	Flash Point (°C)	Not applicable.
	Evaporation rate	Not applicable.
	Flammability (solid)	Flammable Solid.
	Explosive limit ranges.	Not available.
	Vapour Pressure (mm Hg)	Not applicable.
	Vapour Density (Air=1)	Not applicable.
	Relative Density	8.89 @ 20°C.
	Solubility (Water)	2.94mg/l @ 20°C.
	Solubility (Other)	Not available.
	Partition Coefficient (n-Octanol/water)	Not available.
	Auto Ignition Temperature (°C)	Not applicable.
	Decomposition Temperature (°C)	Not available.
	Viscosity (mPa.s)	Not applicable.
	Explosive properties	Not applicable.
	Oxidising properties	Not oxidising.
9.2	**Other information**	None.

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Stable under normal conditions.
10.4	**Conditions to avoid**	Heat and dust generation.
10.5	**Incompatible materials**	Acids, Strong oxidising agents.
10.6	**Hazardous Decomposition Product(s)**	Cobalt oxide dust, Acrid smoke, Metal fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ingestion	LD50(rat) = 7510mg/kg. Low oral toxicity. Main Symptoms: Abdominal pain, Vomiting.
Inhalation	Low acute toxicity. Main Symptoms: Cough, Sore throat, Wheezing, Increased difficulty in breathing.
Skin Contact	LD50(Dermal) >2000mg/kg. Low acute toxicity.
Eye Contact	Low acute toxicity. Main Symptoms: Redness.
Skin corrosion/irritation	Not classified. OECD TG 439:95.1% (Non Irritant)
Serious eye damage/irritation	Eye Irrit. 2; causes serious eye irritation OECD TG 437:1.79 (Irritation)
Respiratory or skin sensitization	Resp. Sens. 1B; May cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin Sens. 1; May cause an allergic skin reaction.
Mutagenicity	There is no evidence of mutagenic potential.
Carcinogenicity	No evidence of carcinogenicity.
Reproductive toxicity	Repr. 2; Suspected of damaging fertility. Specific effect: fertility impairment in males.
STOT - single exposure	None anticipated.
STOT - repeated exposure	None anticipated.
Aspiration hazard	None anticipated.
11.2 Other information	None.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Aquatic Acute 1; Very toxic to aquatic life. Aquatic Chronic 1; Very toxic to aquatic life with long lasting effects. By analogy with similar materials: Cobalt dichloride. Fish: LC50 = 1.5 µg/l (Fresh water) Aquatic invertebrates: LC50 = 0.61 mg/l (Fresh water) ; 2.32 mg/l (Sea water) EC10 (Fresh water Fish) = 351.4 mg/l. NOEC Aquatic invertebrates: = 5.47 µg/l (Fresh water) ; 206 µg/l (Sea water) Algae: LC50 = 144 µg/l (Fresh water) ; 24.1 µg/l (Sea water) NOEC Algae = 4.9 µg/l (Fresh water) ; 1.23 µg/l (Sea water).
12.2 Persistence and degradability	The methods for determining the biological degradability are not applicable to inorganic substances.
12.3 Bioaccumulative potential	Aquatic plants: Bioconcentration factor (BCF) : >100 – 5000. Aquatic invertebrates: BCF <300. Fresh water, Fish: BCF/ BAF <10. Marine, Fish: BCF/ BAF <10. The substance has low potential for bioaccumulation.
12.4 Mobility in soil	The substance is essentially insoluble in water.
12.5 Results of PBT and vPvB assessment	Not applicable.
12.6 Other adverse effects	None anticipated.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods — Recover or recycle if possible. Dispose of contents/container to: Licensed recycler. Dispose of contents in accordance with local, state or national legislation.

13.2 Additional Information — No information available.

SECTION 14: TRANSPORT INFORMATION

	Land Transport	Sea Transport	Air Transport
14.1 UN - Number	3089	3089	3089
14.2 UN proper shipping name	Metal Powder, flammable, n.o.s.	Metal Powder, flammable, n.o.s.	Metal Powder, flammable, n.o.s.
14.3 Transport Hazard Classes	4.1	4.1	4.1
14.4 Packing Group	III	III	III
14.5 Environmental hazards	Environmentally hazardous	Marine Pollutant	Environmentally hazardous
14.6 Special Precautions for users	None	Ems (fire): F-G Ems (spill):S-G	None.
14.7 Transport in bulk in according to Annex II of MARPOL 73/78 and IBC Code	Not applicable.	Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations

Authorisations and/or restrictions on use	None known.
Candidate List of Substances of Very high concern for authorisation	Not Listed.
REACH: Annex XIV List of substances subject to authorisation	Not Listed
REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not Listed.
Community Rolling Action Plan (CoRAP); Draft 29/02/2012	Not Listed.

15.1.2 National regulations — None known.

15.2 Chemical Safety Assessment — Available.

TSCA Status — All components of this product are in the US TSCA inventory.

TSCA 12(b) Export Notification — No components of this product are subject to TSCA 12(b) export notification requirements.

California Proposition 65 — This material may contain the following chemicals known to the State of California to cause cancer or birth defects and are subject to the requirements of California Proposition 65: Cobalt Metal Powder (7440 – 48 -4) – Cancer

Clean Air Act S112 Extremely Hazardous Air pollutants	Cobalt compounds
SARA 302 Extremely Hazardous substance list	This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substance List.
SARA (311, 312) Hazard Class	Chronic Health Hazard
SARA Section 313 Toxic Chemicals	Cobalt Compounds 100 %
Australian Inventory Chemical Substances	All components are listed on the Australian Core Inventory of chemical Substances (ACOIN).
Canadian Inventory	All Components are on the Domestic Substance List (DSL).
EINECS Regulations	All components are on the European Inventory of Existing and New Chemical Substances (EINECS).
Japan	All components are listed on the Japanese Existing and New Chemical Substances (ENCS).
Korean Chemical Inventory	All components are on the Korean List of Existing Chemical substances.
Philippine Inventory	All components are listed on the Philippines Inventory of Chemical and Chemical Substances (PICCS).
Chinese Inventory	All Components are listed on the Chinese Inventory of Existing Chemical Substances.

SECTION 16: OTHER INFORMATION

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
WEL	Workplace Exposure Limit (UK HSE EH40)
OEL	Occupational Exposure Limits
OSHA	Occupational Safety and Health Administration
NIOSH	National Institute of Occupational Safety and Health
TLV (ACGIH)	Threshold Limit Value (American Conference of Industrial Hygienists)
NOHSC	National Occupational Health and Safety Commission
SER	The Social and Economic Council of the Netherlands
NOEC	No Observable Effect Concentration
BAF	Bioaccumulation Factor
BCF	Bioconcentration Factor
OECD TG	Organisation for Economic Co-operation and Development Test Guideline
Eye Irrit. 2	Serious eye damage/irritation Category 2
Resp. Sens. 1B	respiratory or skin sensitization Category 1B
Skin Sens. 1	respiratory or skin sensitization Category 1
Aquatic Acute 1	Hazardous to the aquatic environment Acute Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment Chronic Category 1
Xi	Irritant
Xn	Harmful
N	Hazardous to the aquatic environment
Repr. Cat 3	Reproductive toxicity category 3

Risk Phrases

R42/43	May cause sensitization by inhalation and skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R36	Irritating to eyes.
R62	Possible risk of impaired fertility.

Hazard statement(s)

H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H228	Flammable solid
H319	Causes serious eye irritation
H361f	Suspected of damaging fertility.

Hazard pictogram(s)

GHS08 

GHS09 

GHS 02 

Sources of Key data used to compile the Data Sheet:
Chemical Safety Report

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