MATERIAL SAFETY DATA SHEET
PRODUCT NAME: COPPER IMPREGNATED GRADES

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

1.1 PRODUCT IDENTIFIER

Product name	POCO GRAPHITE SYNTHETIC GRAPHITE - COPPER IMPREGNATED GRADE
REACH Registration number	01-2119486977-12-0051
Product code	Not available.
Product description	Not available.
Product type	Solid block.
Other means of identification	Not available.

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

machining electrodes, other industrial manufacturing components.

1.3 Details of the supplier of the safety data sheet

Supplier's details

Erodex (UK) Ltd
Tipper Industrial Estate
Park Road
Halesowen
West Midlands
B63 2RH
United Kingdom
+44 (0)1384 892011

e-mail address of person responsible for this SDS

graham.eccles@erodex.com

1.3.1 REACH Importer of Record

Tetra Tech International, Inc.
Fuchsstrasse 1
67688 Rodenbach
Germany
Email: tanya.sagermann@tetratech.com

1.3.2 Competent Person

Tetra Tech International, Inc. (Only Representative)
Fuchsstrasse 1
67688 Rodenbach
Germany
Email: tanya.sagermann@tetratech.com

1.4 Emergency telephone number

National advisory body / Poison Centre

Telephone number	:	Toll free: CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3877
Hours of operation	:	(24/7)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aquatic Acute 1, H400
Aquatic Chronic 1, H410

Classification according to Directive 1999/45/EC [DPD]

The copper in this substance is classified as dangerous according to Directive 67/548/EEC and its amendments.

Classification	N; R50/53
Environmental hazards	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 16 for the full text of the R phrases or H statements declared above. See Section 11 for more detailed information on health effects and symptfoms.

2.2 Label elements

Hazard pictograms

ERODEX
THE LEADING EDGE

PRODUCT DATA SHEET

Signal word	Warning
Hazard statements	Very toxic to aquatic life with long lasting effects.
Precautionary statements	
Prevention	P273 - Avoid release to the environment.
Response	P391 - Collect spillage.
Storage	Not applicable.
Disposal	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazard symbol or symbols	
Indication of danger	Dangerous for the environment
Risk phrases	R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases	S61- Avoid release to the environment. Refer to special instructions/ safety data sheet.
Supplemental label elements	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not applicable.
Special packaging requirements	
Containers to be fitted with child-resistant fastenings	Not applicable.
Tactile warning of danger	Not applicable.

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www.erodex.com

2.3 Other hazards

Other hazards which do not result in classification

May form combustible dust concentrations in air during processing activities (including; but not limited to: cutting, sanding, drilling, machining, dust control equipment, other dust generating activities). Users of this material should perform combustibility testing, prior to use, specific to their use conditions if dust is to be generated.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture Mixture

			Classification		
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Type
Copper	EC: 231-159-6 CAS: 7440-50-8 Index: ID850	40-60	N; R50	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

See Section 16 for the full text of the R-phrases declared above.
See Section 16 for the full text of the H statements declared above.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact

Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids.

Inhalation
Move exposed person to fresh air.

Skin contact
In case of contact, immediately flush skin with plenty of water for at least 20 minutes.

Ingestion
Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Protection of first-aiders
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments
No specific treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media
None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture
Fine dust clouds may form explosive mixtures with air.

Hazardous thermal decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

5.3 Advice for firefighters

Special protective actions for fire-fighters
This material is very toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Additional information
Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency : personnel
Minimize exposure to dust. Keep unnecessary and unprotected personnel from entering. Provide adequate ventilation. Put on appropriate personal protective equipment.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Non-sparking tools should be used when working with dust. See also Section 8 for additional information on hygiene measures.

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. See section 13 for waste disposal information.

6.3 Methods and materials for containment and cleaning up

Small spill

Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill

If emergency personnel are unavailable vacuum or carefully scoop up spilled materials and place in an appropriate container for disposal. Avoid creating dusty conditions and prevent wind dispersal. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: HANDLING AND STORAGE

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling Protective measures

Provide adequate ventilation. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Non-sparking tools should be used when working with dust. Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Dust levels must be kept within prescribed limits. Spilled product should be cleaned up and a high standard of housekeeping maintained. Transfer product using proper grounding and bonding procedures to avoid static accumulation. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Maintain graphite blocks in stable position. Any machined generated dust should be maintained in closed container.

Seveso II Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 and Chronic 1 C9i: Very toxic for the environment	100 100	200 200

7.3 Specific end use(s)

Recommendations

Maintain blocks as shipped, no specific handling or storage identified. Dust or powder from machining process should be kept in closed container.

Industrial sector specific solutions

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Copper	EH40/2005 WELs (United Kingdom (UK), 1/2012). STEL: 2 mg/m³, (as Cu) 15 minutes. Form: Dusts and Mists TWA: 1 mg/m³, (as Cu) 8 hours. Form: Dusts and Mists TWA: 0.2 mg/m³, (as Cu) 8 hours. Form: Fume

Recommended monitoring procedures

Ensure dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling dusts generated from this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.

Skin protection

Hand protection

Use gloves appropriate for work or task being performed. Recommended: Chemical-resistant gloves.

Body protection

No special protective clothing is required.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Solid block.
Colour	Gray to black.
Odour	Odourless.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Graphite: Sublimation temperature: 3648.9°C (6600°F). Copper: Melting point: 1083°C (1980°F).
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Burning time	Not available.
Burning rate	Not available.

Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	2.36
Solubility(ies)	Insoluble in water.
Solubility in water	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature #	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2 Other information

No additional information.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

Minimize dust generation and accumulation.

10.5 Incompatible materials

Reactive or incompatible with the following materials: oxidising materials and acids.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

There is no data available.

Irritation/Corrosion

Skin	There is no data available.
Eyes	There is no data available.
Respiratory	There is no data available.

Sensitisation

Skin	There is no data available.
Respiratory	There is no data available.

Mutagenicity	There is no data available.
Carcinogenicity	There is no data available.
Reproductive toxicity	There is no data available.
Teratogenicity	There is no data available.
Specific target organ toxicity (single exposure)	There is no data available.
Specific target organ toxicity (repeated exposure)	There is no data available.
Aspiration hazard	There is no data available.

Information on the likely routes of exposure	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	No known significant effects or critical hazards.
Potential delayed effects	No known significant effects or critical hazards.

Long term exposure

Potential immediate effects	No known significant effects or critical hazards.
Potential delayed effects	No known significant effects or critical hazards.
Potential chronic health effects	No known significant effects or critical hazards.
General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Other information	Not available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Product/ ingredient name	Result	Species	Exposure
Copper	Acute EC50 1100 µg/l Fresh water Acute EC50 2.1 µg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia longispina - Juvenile (Fledgling, Hatchling, Weanling)	4 days 48 hours
	Acute IC50 13 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata Exponential growth phase	72 hours
	Acute IC50 5.4 mg/L Marine water	Aquatic plants - Plantae - Exponential growth phase	72 hours
	Acute LC50 0.072 µg/l Marine water Acute LC50 7.56 µg/l Marine water Chronic NOEC 2.5 µg/l Marine water	Crustaceans - Amphipoda - Adult Fish - Periophthalmus waltoni - Adult Algae - Nitzschia closterium - Exponential growth phase	48 hours 96 hours 72 hours
	Chronic NOEC 7 mg/L Fresh water Chronic NOEC 0.02 mg/L Fresh water Chronic NOEC 2 µg/l Fresh water Chronic NOEC 0.8 µg/l Fresh water	Aquatic plants - Ceratophyllum demersum Crustaceans - Cambarus bartonii Mature Daphnia - Daphnia magna Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	3 days 21 days 21 days 6 weeks

12.2 Persistence and degradability

There is no data available.

12.3 Bioaccumulative potential
There is no data available.

12.4 Mobility in soil

Soil/water partition coefficient (KOC)	There is no data available.
Mobility	There is no data available.

12.5 Results of PBT and vPvB assessment

PBT	Not applicable.
vPvB	Not applicable.

12.6 Other adverse effects
No known significant effects or critical hazards.

SECTION 13: DISPOSAL CONSIDERATIONS

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods
Product

Methods of disposal

The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste

Packaging

The classification of the product may meet the criteria for a hazardous waste.

Methods of disposal

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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

Not available

SECTION 15: REGULATORY INFORMATION

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Europe inventory

All components are listed or exempted.

Integrated pollution prevention and control list (IPPC) - Air
Listed

Integrated pollution prevention and control list (IPPC) - Water
Listed

Seveso II Directive
This product is controlled under the Seveso II Directive.

Danger criteria
Category
E1: Hazardous to the aquatic environment - Acute 1 and Chronic 1
C9i: Very toxic for the environment

15.2 Chemical Safety Assessment
This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

ATE = Acute Toxicity Estimat
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Aquatic Acute 1, H400	Expert judgment
Aquatic Chronic 1, H410	Expert judgment

Full text of abbreviated H statements

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Aquatic Acute 1, H400	AQUATIC TOXICITY (ACUTE) - Category 1
Aquatic Chronic 1, H410	AQUATIC TOXICITY (CHRONIC) - Category 1

Full text of abbreviated R phrases

R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD]

N - Dangerous for the environment

History

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