

17-4 PH

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier:

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Contains the following substances with hazardous properties.

- Nickel

1.2 Relevant Identified uses of the substance or mixture and uses advised against:

Identified uses:

0	Other Process or activity:
AC7	Metal articles
ERC2	Formulation of preparations (mixtures)
ERC3	Formulation in materials
PROC14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC22	Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
SU17	General manufacturing

Uses advised against:

Use of nickel in articles intended for direct and prolonged contact with the skin where the release of nickel exceeds the limit set out in Directives 94/27/EC and 2004/6/EC and REACH regulation 1907/2009 (Annex XVII).

Use of nickel in nickel-containing food contact materials for which migration into foodstuff would exceed more than 0.1 mg/kg of nickel in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials

Use of nickel in immersion-type kettles which would release more than 0.05 mg/l of nickel into the water in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials

Use of nickel in commercially available "do-it-yourself" home electroplating kits.

1.3 Details of the supplier of the Safety Data Sheet

1300 NE alpha Drive
McMinnville, OR 97218
503-472-8320
Fax: 503-435-2432
www.worldclasstech.com

1.4 Emergency Telephone Number:

MSDS conforming to EC Directive 1907/2006 and 1272/2008

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+44 (0)1639 634121 available 09:00 to 17:00 GMT Monday to Friday (English language only)

Section 2: Hazards Identification

2.1 Classification of the substance or mixture:

2.1.1 CLP



Warning



Warning

CLP

Hazard statements

Carc. 2 H351.1

Suspected of causing cancer if inhaled.

STOT RE 2 H373

May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

Skin Sens. 1 H317

May cause an allergic skin reaction.

Precautionary statements

P201

Obtain special instructions before use.

P202

Do not handle until all safety precautions have been read and understood.

P260

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

P264

Wash thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P272

Contaminated work clothing should not be allowed out of the workplace.

P273

Avoid release to the environment.

P280

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

P281

Use personal protective equipment as required.

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P308 + P313

IF exposed or concerned: Get medical advice/attention.

P314

Get medical advice/attention if you feel unwell.

P333 + P313

If skin irritation or rash occurs: Get medical advice/attention.

P363

Wash contaminated clothing before reuse.

P405

Store locked up.

P501

Dispose of contents/container in accordance with local and national regulations

2.2 Label Elements

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Warning

Hazard statements:

Carc. 2 H351.1

STOT RE 2 H373

Skin Sens. 1 H317

Precautionary statements:

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P302 + P352

Suspected of causing cancer if inhaled.

May cause damage to organs (or state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

May cause an allergic skin reaction.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

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

Avoid release to the environment.

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

IF ON SKIN: Wash with plenty of soap and water.

2.3 Other Hazards

No Information

Section 3: Composition/Information on Ingredients

3.1 Substance

Conc. %	CAS No	EC No	REACH Registration No	Classification according to (EC) No 1272/2008
Iron				
70.00-80.00	7439-89-6	231-096-4	01-2119462838-24-0000	P202 P260 P270 P272 P281 P501
Chromium				
10.00-25.00	7440-47-3	231-157-5	01-2119485652-31-0000	P202 P260 P270 P272 P281 P501
Nickel				

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1.00-10.00	7440-02-0	231-111-4	01-2119438727-29-0000	Carc. 2 H351.1 STOT RE 2 H373 Skin Sens. 1 H317 P201 P202 P260 P261 P264 P270 P272 P273 P280 P281 P302 + P352 P308 + P313 P314 P333 + P313 P363 P405 P501
HC Copper				
1.00-10.00	7440-50-8	231-159-6	17-2119429821-40-0000	P202 P260 P270 P272 P281 P501

Section 4: First-Aid Measures

4.1 Description of first aid measures

- Skin Contact:** Wash off thoroughly with soap and water. If rash develops seek medical attention.
- Eye Contact:** Irrigate thoroughly with water for at least 10 minutes – obtain medical attention if irritation persists
- Inhalation:** Remove from exposure, rest and keep warm. In severe cases or if exposure has been great, obtain medical attention.
- Ingestion:** Wash out mouth thoroughly with water. Obtain medical attention if further symptoms develop.

4.2 Most important symptoms and effects, both acute and delayed

- Skin Contact:** Rash may develop.
- Eye Contact:** Mechanical irritation.
- Inhalation:** Possible asthma like symptoms.

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Ingestion: No information

4.3 Indications of any immediate medical attention and special treatment needed

Skin Contact: Treat symptomatically

Eye Contact: Treat symptomatically

Inhalation: Treat symptomatically

Section 5: Fire Fighting Measures

5.1 Extinguishing Media

DO NOT use water jet. Use extinguishing type class D powder or sand.

5.2 Special Hazards arising from the substance or mixture

Avoid formation of dust cloud as this may lead to an increased risk of a dust explosion.

5.3 Advice for fire fighters

No information

Section 6: Accident Release Measures

6.1 Personal precautions

6.1.1 For non-emergency personnel: Wear suitable protective clothing and equipment.

6.1.2 For emergency responders: Wear suitable protective clothing and equipment.

6.2 Environmental precautions: Take precautions to ensure product does not contaminate ground or enter the drainage system.

6.3 Methods and material for containment and clear up

6.3.1 For containment: Not applicable

6.3.2 For cleaning up:

Small spillage: Vacuum with equipment fitted with HEPA filtration.

Large spillage: Solids should be carefully transferred to salvage containers. Any residues should be treated as small spillages.

6.3.3 Other information: No Information.

6.4 Reference to other sections No Information

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Section 7: Handling and Storage

7.1 Precautions for safe handling

Protective measures:	Avoid contact with skin and eyes. Do not breathe dust. Wash hand and face thoroughly after working with material.
Measures to prevent fire:	Not applicable.
Measures to protect the environment:	Use appropriate containment to avoid environmental hazard.
Advice on general occupational hygiene:	Work using a suitable extraction/ventilation system. Contaminated clothing should be removed and washed before re-use.

7.2 Conditions for safe storage

Technical measures and storage conditions:	Store sealed containers in dry conditions and keep the container closed when not in use
Packaging materials:	Keep in the container supplied, or suitable metal, plastic or polythene container.
Requirements for storage rooms and vessels:	Containers should be stored under cover in a clean and dry environment.
Storage class:	Not applicable.
Further information on storage conditions:	Local regulations should be followed regarding the storage of this material.

7.3 Specific end uses

Identified uses:	
0	Other Process or activity:
AC7	Metal articles
ERC2	Formulation of preparations (mixtures)
ERC3	Formulation in materials
PROC14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC2	Use in closed, continuous process with occasional controlled exposure
PROC22	Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting
PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
SU17	General manufacturing

Section 8: Exposure Controls and Personal Protection

8.1 Control Parameters

CAS No.	Name	Legal Basis	PEL 8hr limit		PEL 15min limit	
			ppm TWA (8 hour)	mg/m3 TWA (8 hour)	ppm TWA (short term)	mg/m3 TWA (short term)
7439-89-6	Iron	OSHA 29 CRF	-	Total dust	-	-

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		1910.1000 Z3		15, Respirable 5.		
7440-02-0	Nickel	OSHA 29 CRF 1910.1000 Z1	-	1	-	-
7440-50-8	HC Copper	OSHA 29 CRF 1910.1000 Z1	-	1.0	-	-

8.2 Exposure Controls



8.2.1 Appropriate engineering controls:

Substance/mixture related measures to prevent exposure during identified uses: Not applicable

Structural measures to prevent exposure: Enclosed processes

Organisational measures to prevent exposure: Substance/Mixture only to be used by those trained in its safe use.

Technical measures to prevent exposure: Enclosed processes or local exhaust ventilation

8.2.2 Personal protection equipment:

8.2.2.1 Eye and face protection: Safety glasses

8.2.2.2 Skin protection:

Hand protection: Impervious gloves

Other skin protection: Barrier cream

8.2.2.3 Respiratory protection: A suitable respirator complying with Respiratory Protection standard (CFR 1910.134)

8.2.2.4 Thermal hazards: Not applicable

8.2.3 Environmental exposure controls:

Substance/mixture related measures to prevent exposure: Not applicable

Instruction measures to prevent exposure: Not applicable

Organisational measures to prevent exposure: Substance/Mixture only to be used by those trained in its safe use.

Technical measures to prevent exposure: Not applicable

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Grey powder

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Odour	Odourless
Odour Threshold	No data
pH	No data
Melting point/freezing point	1440
Initial boiling point and boiling range	No data
Flash point	No data
Evaporation rate	No data
Flammability (solid,gas)	No data
Upper/lower flammability or explosive limits	No data
Vapour pressure	No data
Vapour density	No data
Relative density	7.76
Solubility(ies)	No data
Partition coefficient; n-octanol/water	No data
Auto-ignition temperature	No data
Decomposition temperature	No data
Viscosity	No data
Explosive properties	No data
Oxidising properties	No data
Particle size	100%<1mm

9.2 Other Information

No data.

Section 10: Stability and Reactivity

10.1 Reactivity:	No data
10.2 Chemical stability:	Stable under normal conditions.
10.3 Possibility of hazardous reactions:	No Data
10.4 Conditions to avoid:	Oxidising agents.
10.5 Incompatible materials:	No data
10.6 Hazardous decomposition products:	No data

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Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity	Human, lowest published toxic dose: 0.1 mg/kg, causing gastrointestinal nausea or vomiting, hypermotility, diarrhea.
Skin corrosion/irritation	No data
Serious eye damage/irritation	Mechanical irritation may be expected.
Respiratory or skin sensitisation	<p>Respiratory tract: Nickel metal induced asthma is very rare. The data is not sufficient to conclude that nickel metal is classified as a respiratory sensitiser.</p> <p>Skin: Nickel metal is a well-known skin sensitizer. Direct and prolonged skin contact with metallic nickel may induce nickel allergy and elicit nickel allergic skin reactions in those people already sensitised to nickel, so called nickel allergic contact dermatitis.</p>
Germ cell mutagenicity	Oral rat, lowest published toxic dose: 250 ?g/kg (1 day prior to copulation)
Carcinogenicity	<p>a) Ingestion: The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded that there is no evidence that nickel metal is carcinogenic when ingested.</p> <p>b) Inhalation: To date, there is no evidence that nickel metal causes cancer in humans based on epidemiology data from workers in the nickel producing and nickel consuming industries. A recent animal (rat) inhalation study showed no increased respiratory cancer risk for nickel metal powder indicating that no carcinogen classification is warranted for nickel metal The U.S. National Toxicology Program has listed metallic nickel as</p>

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reasonably anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC)(Vol 49) found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans (Group 2B).

Reproductive toxicity	No data
Summary of evaluation of the CMR properties	No data
STOT-single exposure	No data
STOT-repeated exposure	No data
Aspiration hazard	No data

Section 12: Ecological Information

12.1 Toxicity

Long-term Ecotoxicity No data

12.2 Persistence and degradability

Abiotic Degradation No data
Physical- and photo-chemical elimination No data
Biodegradation No data

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow) No data
Bioconcentration factor (BCF) No data

12.4 Mobility in soil

Known or predicted distribution to environmental compartments No data
Surface tension No data
Adsorption/Desorption No data

12.5 Results of PBT & vPvB assessment

No data

12.6 Other adverse effects

Elevated levels of copper are toxic in aquatic environments and may adversely affect fish, invertebrates, plants, and amphibians. Acute toxic effects may include mortality of organisms; chronic toxicity can result in reductions in survival, reproduction, and growth.
(Information from USA EPA-822-R-07-001 dated Feb 2007)

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12.7 Additional information

No data

Section 13: Disposal Considerations

13.1 Waste treatment methods

13.1.1 Product/Packaging disposal:

Consult local and national guidelines for the disposal of discarded packaging.

13.1.2 Waste treatment – relevant information:

Chemical residues are generally classified as special waste. Contact your local waste disposal authority for advice or pass to a chemical recovery company.

13.1.3 Sewage disposal - relevant information:

13.1.4 Other disposal recommendations:

Section 14: Transport Information

14.1 UN Number

None

14.2 UN proper shipping name

Not classified hazardous for transport

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IPBC code

Not Applicable

Section 15: Regulatory Information

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

UK The use of this product must be assessed in accordance with the requirements of the COSHH Regulations 2002 as amended.

This preparation contains substances which are listed in the Toxic Substances Control Act (TSCA)

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Substances on the TSCA Inventory are considered "existing" chemicals in U.S. commerce, and substances not on the TSCA Inventory are considered "new" chemicals. If a substance is determined to be a "new" chemical substance for TSCA purposes, it is subject to TSCA section 5 Premanufacture Notice (PMN) requirements, unless the substance meets a TSCA reporting exclusion (e.g., is a naturally-occurring material) or is exempt from PMN reporting (e.g., is an exempted polymer). (The TSCA Inventory must be consulted to determine if a specific substance is "new" or "existing.") For substances that are "existing" chemical substances in U.S. commerce, the TSCA Inventory can be used to determine if there are restrictions on manufacture or use.

Authorisation and/or restrictions on use

Authorisations: Not applicable

Restrictions: see section 1.2 on uses advised against.

Chemical safety assessment: No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

Section 16: Other Information

16.1 Revision Information

Revision:	Reason for revision:	
1	10/10/2011	Initial setup
2	09/11/2011	Element Fe amended
3	13/01/2012	Element Ni amended to add R48/23
4	19/01/2012	Element Ni amended to remove acute toxicity data
5	01/02/2012	Element Cr amended to add REACH registration number
6	10/04/2013	SDS updated to reflect current legislation and clarification
7	27/06/2013	After review WGK downgraded to 1
8	27/06/2013	Phrase harmful added to GHS07 pictogram
9	25/03/2014	Nickel in the range of 1% to <10% has been reclassified from STOT RE1 to STOT RE2 as per EN 2008/1272
10	17/11/2014	T replaced by Xn to correct classification
11	09/01/2015	CHIP phrase R48/23 reduced to R48/20 as Ni content below 10%
12	11/02/2015	Changed CHIP pictogram from toxic to harmful
13	08/06/2015	Removed CHIP information

16.2 List of abbreviations.

ATE Acute Toxicity Estimate

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road

AND European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

CEN European Committee for Standardisation

C&L Classification and Labelling

CLP Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008

CAS# Chemical Abstracts Service number

COM European Commission

CMR Carcinogen, Mutagen, or Reproductive Toxicant

COSHH Control of Substances Hazardous to Health

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CSA Chemical Safety Assessment
CSR Chemical Safety Report
DNEL Derived No Effect Level
DPD Dangerous Preparations Directive 1999/45/EC
DSD Dangerous Substances Directive 67/548/EEC
DU Downstream User
DUCC Downstream Users of Chemicals Co-ordination platform
EEA European Economic Area (EU + Iceland, Liechtenstein and Norway)
ECB European Chemicals Bureau
ECHA European Chemicals Agency
ECNumber
EINECS and ELINCS Number (see also EINECS and ELINCS)
EINECS European Inventory of Existing Commercial Substances
ELINCS European List of notified Chemical Substances
EN European Standard
EP European Parliament
EQS Environmental Quality Standard
ES Exposure Scenario
ext-SDS Extended Safety Data Sheet (SDS with ES attached)
EU European Union
Euphrac European Phrase Catalogue
EWC European Waste Catalogue (replaced by LoW – see below)
GES Generic Exposure Scenario
GHS Globally Harmonized System
HH Human Health
IATA International Air Transport Association
ICAO-TI Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG International Maritime Dangerous Goods
IT Information Technology
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
JRC Joint Research Centre
Kow octanol-water partition coefficient
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
LE Legal Entity
LoW List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)
LR Lead Registrant
M/I Manufacturer / Importer
MS Member States
MSDS Material Safety Data Sheet
OC Operational Conditions
OECD Organization for Economic Co-operation and Development
OECDWPMNM
OECD Working Party on Manufactured Nanomaterials
OEL Occupational Exposure Limit
OH Occupational Health
OR Only Representative
OSHA European Agency for Safety and Health at work
PBT Persistent, Bioaccumulative and Toxic substance
PEC Predicted Effect Concentration
PNEC(s) Predicted No Effect Concentration(s)

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PPE Personal Protection Equipment
(Q)SAR Qualitative Structure Activity Relationship
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals
Regulation (EC) No 1907/2006
RID Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP REACH Implementation Project
RMM Risk Management Measure
SC Supply Chain
SCBA Self-Contained Breathing Apparatus
SDS Safety Data Sheet
SIEF Substance Information Exchange Forum
SME Small and Medium sized Enterprises
STOT Specific Target Organ Toxicity
RE Repeated Exposure
SE Single Exposure
SVHC Substances of Very High Concern
TWA Time Weighted Average (long term 8 hours) (short term 15 minutes unless specified otherwise)
UIC Union des Industries Chimiques
UN United Nations
VCI Verband der Chemischen Industrie
vPvB Very Persistent and Very Bioaccumulative

16.3 Key literature references and sources for data

Testing in accordance with the method described in 49 CFR 173 Appendix E and UN Recommendations on the Transport of Dangerous Goods for flammability was used to establish the non-flammability of this product.

16.4 Classification and procedure used to derive the classification for mixtures according to Regulation 1272/2008/EC & 1907/2006/EC which implement the UN Global Harmonization of Safety Data Sheets within Europe and Hazard Communication Standard 29 CFR 1910.1200 within the United States of America.

16.6 Training advice:

16.7 Further information:

Testing in accordance with the method described in 49 CFR 173 Appendix E and UN Recommendations on the Transport of Dangerous Goods for flammability was used to establish the non-flammability of this product.