

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE

1.1 PRODUCT IDENTIFIER: 17-4 PH

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
PROC27a	Production of metal powders (hot processes)
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.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

2.1.1 CLP



CLP

Hazard statements	
Aquatic Chronic 3 H412	Harmful to aquatic life with long lasting effects.
Carc. 2 H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
STOT RE 1 H372	Causes 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.
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

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

2.1.2 CHIP



CHIP

Xn	Harmful
Carc. Cat 3	
R20	Harmful by inhalation.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitisation by skin contact.
S20/21	When using do not eat, drink or smoke.
S22	Do not breathe dust.
S36	Wear suitable protective clothing.
S60	This material and its container must be disposed of as hazardous waste.

2.2 Label Elements



Warning

Hazard statements:

Aquatic Chronic 3 H412	Harmful to aquatic life with long lasting effects.
Carc. 2 H351	Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).
STOT RE 1 H372	Causes 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.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.

2.3 Other Hazards

No Information

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Conc. %	CAS No	EC No	REACH Registration No	Classification according to CHIP (Chemicals Hazard Information for Packaging and Supply Regulations 2002)	Classification according to 67/548/EEC
Iron 70.00-80.00	7439-89-6	231-096-4		S20/21 S22 S60	P202 P260 P270 P272 P281 P501
Chromium 10.00-20.00	7440-47-3	231-157-5		S20/21 S22 S60	P202 P260 P270 P272 P281 P501
Nickel 1.00-4.00	7440-02-0	231-111-4	01-2119438727-29-0000	Xn Carc. Cat 3 R40 R43 S20/21 S22 S36 S60	Aquatic Chronic 3 H412 Carc. 2 H351 STOT RE 1 H372 Skin Sens. 1 H317 P201 P202 P260 P261 P264 P270 P272 P273 P280 P281 P302 + P352 P308 + P313 P314 P333 + P313 P363 P405 P501
Copper 1.00-10.00	7440-50-8	231-159-6	17-2119429821-40-0000	R20 S20/21 S22 S60	P202 P260 P270 P272 P281 P501

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

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.
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 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

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

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

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 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
 PROC27a Production of metal powders (hot processes)
 PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
 SU17 General manufacturing

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

3.2 Mixture

CAS No	Name	Legal Basis	WEL 8hr Limit		WEL 15min Limit	
			ppm TWA (8hour)	mg/m3 TWA (8hour)	ppm TWA (short term)	mg/m3 TWA (short term)
7439-89-6	Iron	HSE EH40/2005 Workplace exposure limits	-	Inhalable 10 Respirable 4	-	-
7440-02-0	Nickel	HSE EH40/2005 Workplace exposure limits	-	0.5	-	-
7440-50-8	Copper	HSE EH40/2005 Workplace exposure limits	-	1	-	2

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: FFP3 dust mask to EN149:2001

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

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH

DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Grey powder
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	See label

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:	When wetted with tap or rain water may produce hydrogen gas
10.4 Conditions to avoid:	Oxidising agents and moisture.
10.5 Incompatible materials:	No data
10.6 Hazardous decomposition products:	No data

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Oral: Non toxic - LD50 ORAL RAT >9000 mg/kg 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	Respiratory tract: Nickel metal induced asthma is very rare. The data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer. 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.
Germ cell mutagenicity	Oral rat, lowest published toxic dose: 250 ?g/kg (1 day prior to copulation)

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

11.1 Information on toxicological effects continued...

Acute toxicity	Oral: Non toxic - LD50 ORAL RAT >9000 mg/kg 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	Respiratory tract: Nickel metal induced asthma is very rare. The data is not sufficient to conclude that nickel metal is classified as a respiratory sensitizer. 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.
Germ cell mutagenicity	Oral rat, lowest published toxic dose: 250 ?g/kg (1 day prior to copulation)
Carcinogenicity	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. 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 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

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

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)

12.7 Additional information No data

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

13.1.1 Product/Packaging disposal:

EWC for waste product, ferrous alloys 12-01-02, non-ferrous alloys 12-01-04
 EWC for non product contaminated packaging, steel drums 15-01-04, card 15-01-01, plastic 15-01-02, wood 15-01-03
 EWC for product contaminated packaging, all types 15-01-10

13.1.2 Waste treatment – relevant information:

Chemical residues are generally classified as special waste and as such, are covered by Directive 2008/98/EC of the European Parliament. 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

14.2 UN proper shipping name

14.3 Transport hazard class(es)

14.4 Packing group

14.5 Environmental hazards

14.6 Special precautions for user

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

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
 ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

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.

EU EC directive 98/24/EC on the Protection of the health and safety of workers from the risks related to chemical agents at work

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: 09/11/2011
Reason for revision: Element Fe amended

16.2 List of abbreviations.

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
 CEN European Committee for Standardisation
 CLP Classification Labelling Packaging Regulation ; Regulation (EC) No 1272/2008
 CAS# Chemical Abstracts Service number
 COSHH Control of Substances Hazardous to Health
 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
 ECHA European Chemicals Agency
 ES Exposure Scenario
 ext-SDS Extended Safety Data Sheet (SDS with ES attached)
 EWC European Waste Catalogue (replaced by LoW – see below)
 GES Generic Exposure Scenario
 GHS Globally Harmonized System
 LC50 Lethal Concentration to 50 % of a test population
 LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
 MSDS Material Safety Data Sheet
 OEL Occupational Exposure Limit
 PBT Persistent, Bioaccumulative and Toxic substance
 PEC Predicted Effect Concentration
 PNEC(s) Predicted No Effect Concentration(s)
 PPE Personal Protection Equipment
 REACH Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
 STOT Specific Target Organ Toxicity
 RE Repeated Exposure
 (STOT) SE Single Exposure
 SVHC Substances of Very High Concern
 TWA Time Weighted Average (long term 8 hours) (short term 15 minutes unless specified otherwise)
 UN United Nations
 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.

COMPANY INFORMATION

COMPANY NAME: ORTHO SPECIALTIES
COMPANY ADDRESS: 3820 OHIO AVE - SUITE 15
ST. CHARLES, IL 60174
COMPANY PHONE: 630-443-0225
COMPANY FAX: 630-443-0224
COMPANY WEB ADDRESS: www.orthospecialties.com

17-4 PH	
DOCUMENT NUMBER:	SDS66
REVISION DATE:	09/26/2014
REVISION:	REV. E
NUMBER OF PAGES:	11

16.4 Classification and procedure used to derive the classification for mixtures according to Regulation 1272/2008/EC & 1907/2006/EC.

Classification in accordance with 67/458/EEC & 1999/45/EC until 1st June 2015.

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.