

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

# MSUPPLY - 1.4542

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

**Relevant identified uses:** Stainless steel powder for additive manufacturing; powder metallurgy  
**Uses advised against:** No information available

### 1.3. Details of the supplier of the safety data sheet

#### Supplier

m4p material solutions GmbH

Mittelweg 13  
D 39130 Magdeburg

**Telephone** +49 (0)177 8036000

**Telefax:** +49 (0)391 7214941

#### Information contact

Herr Dr. Andreas Pelz

**Information telephone** +49 (0)177 8036000

**Information telefax** +49 (0)391 7214941

**E-mail (competent person)** a.pelz@metals4printing.com

**Website** www.metals4printing.com

### 1.4. Emergency telephone number

Giftnotruf München  
Euro Emergency Call: 112

**Telephone** +49 (0)89 19240

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008:

Skin Sens. 1/1A/1B, H317; Carc. 2, H351; STOT RE 1, H372; Aquatic Chronic 3, H412

### 2.2. Label elements

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

**Hazard pictograms**



GHS07, GHS08

Warning

**Signal word:**

**Hazard statements:**

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H372 Causes damage to organs through prolonged or repeated exposure.

H412 Harmful to aquatic life with long lasting effects.

### 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.
P261	Avoid breathing 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.
P302+352	IF ON SKIN: Wash with plenty of water.
P308+313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/attention if you feel unwell.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
P362+364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container to disposal.

### Special labelling of particular preparations:

May cause an allergic skin reaction.

## 2.3. Other hazards

This substance does not meet the PBT criteria of REACH, Annex XIII.

## SECTION 3: Composition / information on ingredients

### 3.1. Substances

not applicable

### 3.2. Mixtures

Mixture related information

#### Composition/information on ingredients

Substance:	CAS-No.:	REACH-no.:	Concentration:	Classification: EC 1272/2008 (CLP):	M, ATE, Note
Niobium	7440-03-1		max. 0,45%	Flam. Sol. 1/2, H228	
Iron	7439-89-6	01-2119462838-24-xxxx	Balance	-	M = 1
Copper	7440-50-8	01-2119480154-42-xxxx	3,5-5,0%	Aquatic Acute 1, H400; Aquatic Chronic 1, H410	M = 0
Nickel	7440-02-0	01-2119480401-47-xxxx	3,0-5,0%	Skin Sens. 1/1A/1B, H317; Carc. 2, H351; STOT RE 1, H372; Aquatic Chronic 3, H412	M = 1
Chromium	7440-47-3	01-2119485652-31-xxxx	15,0-17,0%	-	M = 0

(Full text of H- and EUH-statements: see section 16.)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**General information:** In case of accident or unwellness, seek medical advice immediately  
Take off immediately all contaminated clothing.

**In case of inhalation:** Provide fresh air.  
In case of respiratory tract irritation, consult a physician.

**Following skin contact:** After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

**After eye contact:** In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Seek medical attention if problems persist.

**After ingestion:** Rinse mouth immediately and drink plenty of water. Seek medical attention if problems persist.

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

Allergic skin reactions.

When in doubt or if symptoms are observed, get medical advice.

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

Treat symptomatically.

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media** Dry sand. D powder.

**Unsuitable extinguishing media** Water. Foam. Carbon dioxide (CO<sub>2</sub>).

#### 5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated:

Pyrolysis products, toxic.

#### 5.3. Advice for firefighters

##### General information

Co-ordinate fire-fighting measures to the fire surroundings.

##### Special protective equipment for fire-fighters:

In case of fire: Wear self-contained breathing apparatus.

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### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Remove persons to safety.

Provide adequate ventilation.

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.

Do not allow to enter into soil/subsoil.

#### 6.3. Methods and material for containment and cleaning up

Treat the recovered material as prescribed in the section on waste disposal.

#### 6.4. Reference to other sections

Safe handling: see section 7  
 Personal protection equipment: see section 8  
 Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advices on safe handling

Avoid contact with skin and eyes. Avoid generation of dust. Do not breathe dust.  
 Provide adequate ventilation and spot extraction at critical points.

#### Precautions against fire and explosion:

Usual measures for fire prevention.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep the packing dry and well sealed to prevent contamination and absorption of humidity.

#### Hints on joint storage

Keep away from food, drink and animal feedingstuffs.

### 7.3. Specific end use(s)

none

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### occupational exposure limit value

Substance:	CAS-No.:		Source:	Occupational exposure limit value:[ppm]	Occupational exposure limit value:[mg/m³]	Limitation of exposure peaks:	Remark:
Manganese	7439-96-5	De	TRGS 900		0,02 A; 0,2 E	8(II)	DFG, Y, 10,20
Chromium	7440-47-3	De	TRGS 900		2 E	1(I)	EU, 10
Nickel	7440-02-0	De	TRGS 900		0,006 A	8(II)	AGS, 24, Sh, Y
Copper	7440-50-8	De			0,01A	Überschreitungs faktor 2 Dauer 15 min, Mittelwert; 4 mal pro Schicht; Abstand 1 h Kategorie II - Resorptiv wirksame Stoffe	Empfehlung der MAK-Kommission

## DNEL-/PNEC-values

### DNEL value

Substance:	CAS-No.:	DNEL/DMEL
Manganese	7439-96-5	worker inhalative xxx(langfrisitg, systemisch) 0,2 mg/m <sup>3</sup> worker dermal xxx(langfrisitg, systemisch) 0,004 mg/kg bw/day population inhalative xxx(langfrisitg, systemisch) 0,041 mg/m <sup>3</sup> population inhalative xxx(langfrisitg, lokal) 0,041 mg/m <sup>3</sup> population dermal xxx(langfrisitg, systemisch) 0,002 mg/kg bw/day
Chromium	7440-47-3	worker inhalative xxx(langfrisitg, lokal) 0,5 mg/m <sup>3</sup> population inhalative xxx(langfrisitg, lokal) 0,027 mg/m <sup>3</sup>
Nickel	7440-02-0	worker inhalative xxx(langfrisitg, systemisch) 0,05 mg/m <sup>3</sup> worker inhalative xxx(langfrisitg, lokal) 0,05 mg/m <sup>3</sup> worker inhalative short-term, local 11,9 mg/m <sup>3</sup> worker dermal xxx(langfrisitg, lokal) 0,035 mg/kg bw/day population inhalative xxx(langfrisitg, systemisch) 60 xxx(ng/m <sup>3</sup> ) population inhalative xxx(langfrisitg, lokal) 60 xxx(ng/m <sup>3</sup> ) population inhalative short-term, local 0,8 mg/m <sup>3</sup> population dermal xxx(langfrisitg, lokal) 0,035 xxx(mg/cm <sup>2</sup> ) population oral xxx(langfrisitg, systemisch) 0,011 mg/kg bw/day population oral short-term, systemic 0,37 mg/kg bw/day
Copper	7440-50-8	worker dermal xxx(langfrisitg, systemisch) 137 mg/kg bw/day worker dermal short-term, systemic 273 mg/kg bw/day population oral xxx(langfrisitg, systemisch) 0,041 mg/kg bw/day
Iron	7439-89-6	worker inhalative xxx(langfrisitg, lokal) 3 mg/m <sup>3</sup> population inhalative xxx(langfrisitg, lokal) 1,5 mg/m <sup>3</sup>

### PNEC Value

Substance:	CAS-No.:	PNEC
Manganese	7439-96-5	aquatic, freshwater 0,034 mg/l intermittent release, freshwater 0,028 mg/l aquatic, marine water 0,003 mg/l sediment, freshwater 3,3 mg/kg dw sediment, marine water 0,34 mg/kg dw soil 3,4 mg/kg dw
Chromium	7440-47-3	aquatic, freshwater 6,5 µg/l sediment, freshwater 205,7 mg/kg dw soil 21,1 mg/kg dw
Nickel	7440-02-0	aquatic, freshwater 7,1 µg/l intermittent release, freshwater 0 xxx(ng/l) aquatic, marine water 8,6 µg/l intermittent release, marine water 0 xxx(ng/l) sediment, freshwater 109 mg/kg dw sediment, marine water 109 mg/kg dw soil 29,9 mg/kg dw secondary poisoning 120 µg/kg food
Copper	7440-50-8	aquatic, freshwater 7,8 µg/l aquatic, marine water 5,2 µg/l sediment, freshwater 87 mg/kg dw sediment, marine water 676 mg/kg dw soil 65 mg/kg dw

### Additional information

none

## 8.2. Exposure controls

### Occupational exposure controls:

Provide adequate ventilation as well as local exhaustion at critical locations.

Technical measures and the application of suitable work processes have priority over personal protection equipment.

### General protection and hygiene measures:

When using do not eat, drink, smoke, sniff.

Wash hands before breaks and after work.

Apply skin care products after work.

Wash contaminated clothing prior to re-use.

### Personal protection equipment

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

### Respiratory protection

Respiratory protection necessary at: In the case of the formation of dust.

### Hand protection

Tested protective gloves are to be worn:

DIN-/EN-Norms:

EN ISO 374

### Eye/face protection

Tightly sealed safety glasses.

### Body protection:

Suitable protective clothing:

Overall.

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

Only wear fitting, comfortable and clean protective clothing.

### Environmental exposure controls

refer to chapter 7. No further action is necessary.

### Consumer exposure controls

refer to chapter 7. No further action is necessary.

### Exposure Scenario:

none

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

Physical state: solid: Powder

Colour: grey

Odour: odourless

Odour threshold: not applicable

#### Safety relevant basis data

Melting point/freezing point: ~ 1450 °C

Initial boiling point and boiling range: no information available

Flammability: not flammable

lower flammability or explosive limits: no information available

Upper flammability or explosive limits: no information available

Flash point: not determined. The study does not need to be conducted because the substance is inorganic.

Ignition temperature: no information available

Decomposition temperature: no information available

pH: not applicable

Kinematic viscosity: not applicable

<b>Water solubility (g/L):</b>	insoluble
<b>Partition coefficient: n-octanol/water:</b>	no information available
<b>Vapour pressure:</b>	no information available
<b>Density:</b>	~ 4-5 g/cm <sup>3</sup>
<b>Relative density:</b>	no information available
<b>Particle properties:</b>	no information available

## 9.2. Other information

no information available

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

This material is considered to be non-reactive under normal use conditions.

### 10.2. Chemical stability

With proper storage and handling the product is stable.

### 10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

### 10.4. Conditions to avoid

No further relevant information available.

### 10.5. Incompatible materials

Acids, oxidizing and reducing agents.

### 10.6. Hazardous decomposition products

Metal oxides

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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

There are no data available on the preparation/mixture itself.

#### Acute toxicity

Substance:	CAS-No.:	Toxicological information
Iron	7439-89-6	LD50 oral (rat) 30000 mg/kg
Copper	7440-50-8	LD50 oral (rat) 300 mg/kg
Nickel	7440-02-0	LD50 oral (rat) > 9000 mg/kg

#### Skin corrosion/irritation:

not classified

#### Serious eye damage/irritation:

not classified

#### Respiratory or skin sensitisation:

May cause an allergic skin reaction.

#### CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carcinogenicity:

May cause cancer.

Germ cell mutagenicity:  
There is no information available.  
Reproductive toxicity:  
There is no information available.

**STOT-single exposure:**  
There is no information available.

**STOT-repeated exposure:**  
There is no information available.

**11.2. Information about other hazards**  
not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

There are no data available on the mixture itself.

#### Ecotoxicity

Substance:	CAS-No.:	Ecotoxicity
Iron	7439-89-6	LC50 fish (96 h) 1,29 mg/l
Copper	7440-50-8	LC50 fish (96 h) 0,665 mg/l LC50 crustaceans (48h) 0,044 mg/l EC50 crustaceans (48 h) 0,02 mg/l EC50 Algae (72 h) 0,57 mg/l
Nickel	7440-02-0	LC50 fish (96 h) 40 mg/l LC50 crustaceans (48h) 8,85 mg/l EC50 crustaceans (48 h) 1 mg/l
Chromium	7440-47-3	LC50 fish (96 h) MW 40,5 mg/l LC50 crustaceans (48h) MW 0,53 mg/l EC50 crustaceans (48 h) 0,07 mg/l EC50 Algae (72 h) MW 8,75 mg/l

### 12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3. Bioaccumulative potential

There is no information available.

### 12.4. Mobility in soil

There is no information available.

### 12.5. Results of PBT and vPvB assessment

This substance does not meet the criteria for classification as PBT or vPvB.

### 12.6 Endocrine disruptive effect

There is no information available.

### 12.7. Other adverse effects

There is no information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Appropriate disposal/Product:**

Dispose of waste according to applicable legislation.

**Appropriate disposal / Package**

Handle contaminated packages in the same way as the substance itself.

**List of proposed waste codes / waste designations according to EWC / AVV**

According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

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## SECTION 14: Transport information

### 14.1. UN number

UN No.: n.a. No dangerous goods in the sense of the transport regulations.

### 14.2. UN proper shipping name

Land transport (ADR/RID)

-

Sea transport (IMDG), Air transport (ICAO-TI / IATA-DGR)

-

### 14.3. Transport hazard class(es)

Hazard label(s) / Label: - Classification code: / Classification Code: -

### 14.4. Packing group

Packing group/ Packing Group: -

### 14.5. Environmental hazards

ADR/RID / IMDG / ICAO-TI / IATA-DGR:  
Marine pollutant:

Yes

No

### 14.6. Special precautions for user

Land transport (ADR/RID)

transport category: - tunnel restriction code: -  
Special provisions: - Limited quantity (LQ): -

Sea transport (IMDG)

EmS-No: -

Special provisions: - Limited quantity (LQ): -

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

Remark none

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## SECTION 15: Regulatory information

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

### EU legislation

Contains no REACH candidate substance.  
Contains no substance listed in REACH Annex XIV.

**Regulation (EC) No. 1005/2009 on substances that lead to the depletion of the ozone layer**  
not relevant

**Regulation (EC) No 850/2004 [POP-Regulation]**  
not relevant

**Use restriction according to REACH annex XVII**  
no.27: nickel and nickelcompounds

### National regulations

Observe in addition any national regulations!

**Other regulations, restrictions and prohibition regulations**  
No information available.

## 15.2. Chemical Safety Assessment

For this substance a chemical safety assessment has not been carried out.

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## SECTION 16: Other information

### Relevant H- and EUH-phrases (Number and full text):

#### Hazard statements

H228	Flammable solid.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

#### Training advice

none

#### Recommended restrictions of use:

Reserved for industrial and professional use.

#### Further remarks:

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

#### Documentation of changes:

none

#### Key literature references and sources for data

Data arise from reference works and literature.  
ECHA - European Chemical Agency  
Information of suppliers

### **Abbreviations and acronyms**

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

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