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

1.1. Product identifier

m4p™ Ni-625

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

Relevant identified uses: 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

Signal word: Danger
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 hands 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 and soap.
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 waste disposal.

Special labelling of particular preparations:
May cause an allergic skin reaction.

2.3. Other hazards
This substance doesn´t 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
Nickel	7440-02-0	01-2119480401-47-XXXX	Balance	Skin Sens. 1/1A/1B, H317; Carc. 2, H351; STOT RE 1, H372; Aquatic Chronic 3, H412	M = 1
Molybdenum	7439-98-7	01-2119472304-43-XXXX	8,0-10,0%	-	
Niobium	7440-03-1	01-2119489003-42-XXXX	3,2-4,2%	Flam. Sol. 1/2, H228	
Chromium	7440-47-3	01-2119485652-31-XXXX	20,0-23,0%	-	M = 0
Iron	7439-89-6	01-2119462838-24-XXXX	<5,0%	-	M = 1
Manganese	7439-96-5		<0,5%	Flam. Sol. 1/2, H228	
Silicon	7440-21-3		<0,5%	-	
Titanium	7440-32-6		<0,4%	Flam. Sol. 1/2, H228	
Aluminium	7429-90-5		<0,4%	Flam. Sol. 1/2, H228; Water-react. 2/3, H261	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
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
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.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media	Dry sand. D powder.
Unsuitable extinguishing media	Water. Foam. Carbon dioxide (CO2).

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Provide adequate ventilation. Remove all sources of ignition. Remove persons to safety. Wear personal protection equipment.

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.

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 absorbtion 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:
Nickel	7440-02-0	De	TRGS 900		0,006 A	8(II)	AGS, 24, Sh, Y
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
Aluminium	7429-90-5	De	TRGS900		1,25	2	allgemeiner Staubgrenzwert

DNEL-/PNEC-values

DNEL value

Substance:	CAS-No.:	DNEL/DMEL
Nickel	7440-02-0	worker inhalative long-term, systemic 0,05 mg/m³ worker inhalative long-term, local 0,05 mg/m³ worker inhalative short-term, local 11,9 mg/m³ worker dermal long-term, local 0,035 mg/kg bw/day population inhalative long-term, systemic 60 xxx(ng/m³) population inhalative long-term, local 60 xxx(ng/m³) population inhalative short-term, local 0,8 mg/m³ population dermal long-term, local 0,035 xxx(mg/cm²) population oral long-term, systemic 0,011 mg/kg bw/day population oral short-term, systemic 0,37 mg/kg bw/day
Manganese	7439-96-5	worker inhalative long-term, systemic 0,2 mg/m³ worker dermal long-term, systemic 0,004 mg/kg bw/day population inhalative long-term, systemic 0,041 mg/m³ population inhalative long-term, local 0,041 mg/m³ population dermal long-term, systemic 0,002 mg/kg bw/day
Chromium	7440-47-3	worker inhalative long-term, local 0,5 mg/m³ population inhalative long-term, local) 0,027 mg/m³
Iron	7439-89-6	worker inhalative long-term, local 3 mg/m³ population inhalative long-term, local 1,5 mg/m³

Molybdenum	7439-98-7	worker inhalative long-term, systemic 11,17 mg/m³ population inhalative long-term, systemic 3,33 mg/m³ population oral long-term, systemic 4,85 mg/kg bw/day
Aluminium	7429-90-5	worker inhalative long-term, systemic 3,72 mg/m³ worker inhalative long-term, local 3,72 mg/m³ population oral long-term, systemic 7,9 mg/kg bw/day
Titanium	7440-32-6	population oral long-term, systemic 350 mg/kg bw/day

PNEC Value

Substance:	CAS-No.:	PNEC
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
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
Molybdenum	7439-98-7	aquatic, freshwater 12,7 mg/l aquatic, marine water 1,91 mg/l sewage treatment plant 21,7 mg/l sediment, freshwater 22600 mg/kg dw sediment, marine water 1984 mg/kg dw soil 39 mg/kg dw
Titanium	7440-32-6	aquatic, freshwater 0,076 mg/l aquatic, marine water 0,6 mg/l sewage treatment plant 60 mg/l sediment, freshwater 600 mg/kg dw sediment, marine water 60 mg/kg dw soil 60 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. Suitable respiratory protection apparatus: particulates filter device (DIN EN 143).

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

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:	1200-1500 °C
Initial boiling point and boiling range:	No data available
Flammability:	non-flammable
lower flammability or explosive limits:	No data available
Upper flammability or explosive limits:	No data available
Flash point:	No data available
Ignition temperature:	No data available
Decomposition temperature:	No data available
pH:	not applicable
Kinematic viscosity:	not applicable
Water solubility (g/L):	insoluble
Partition coefficient: n-octanol/water:	No data available
Vapour pressure:	No data available
Density:	3,5-4,5g/cm³ (Bulk density)
Relative density:	No data available
Particle properties:	No data available

9.2. Other information
none

SECTION 10: Stability and reactivity

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

10.2. Chemical stability
The substance is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions
No hazardous reaction when handled and stored according to provisions.

10.4. Conditions to avoid
moisture

10.5. Incompatible materials
Strong acids
Strong bases
Mineral acids
Oxidizing agents

10.6. Hazardous decomposition products
In case of fire may be liberated: Pyrolysis products, toxic. Carbon dioxide. Carbon monoxide.

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
Aluminium	7429-90-5	LC50 inhilation (Rat) > 888 mg/l/4 h LC50 fish (96 h) 1,55 mg/l LD50 oral (rat) > 2000 mg/kg
Iron	7439-89-6	LD50 oral (rat) 30000 mg/kg
Nickel	7440-02-0	LD50 oral (rat) > 9000 mg/kg

Skin corrosion/irritation:
No information available.

Serious eye damage/irritation:
No information available.

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:
No information available.

Reproductive toxicity:
No information available.

STOT-single exposure:
No information available.

STOT-repeated exposure:
No information available.

11.2. Information about other hazards
No information available.

SECTION 12: Ecological information

12.1. Toxicity
May cause long lasting harmful effects to aquatic life.

Ecotoxicity

Substance:	CAS-No.:	Ecotoxicity
Aluminium	7429-90-5	LC50 fish (96 h) 1,55 mg/l
Iron	7439-89-6	LC50 fish (96 h) 1,29 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
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

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

12.3. Bioaccumulative potential
No information available.

12.4. Mobility in soil
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
No information available.

12.7. Other adverse effects
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
Non-contaminated packages may be recycled.

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

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

	Yes	No
ADR/RID / IMDG / ICAO-TI / IATA-DGR:	☐	☐
Marine pollutant:	☐	☐

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

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!

15.2. Chemical Safety Assessment
For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

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

H228	Flammable solid
H261	In contact with water releases flammable gases.
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.

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

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