KD-42

Material Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130
MSDS Number: AA06900-0000000060
Issue date: 11/3/2020 Revision date: 11/22/2021 Version: 4.0

1. Chemical product and company identification

1.1. Product identifier

Product form : Mixture
Trade name : KD-42

1.2. Recommended uses and restrictions

Use Categories

35 - Welding and soldering products, flux products

1.2.1. Recommended use

Welding and soldering products, flux products.

1.2.2. Restrictions on use

1.3. Supplier information

- Supplier

Company : KISWEL
Address : (51544) South Korea 704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam, Korea
Tel. : 055)269-7200
Fax : 055)266-4487

2. Hazards identification

2.1. Classification of the substance or mixture

Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Specific target organ toxicity - Single exposure, Category 2	H371
Specific target organ toxicity - Repeated exposure, Category 2	H373
Hazardous to the aquatic environment – Chronic Hazard, Category 3	H412

2.2. Label elements

2.2.1. Hazard pictograms (GHS KR)



2.2.2. Signal word (GHS KR)

Danger.

2.2.3. Hazard statements (GHS KR)

H317 - May cause an allergic skin reaction.
H334 - May cause allergic reactions, asthma or shortness of breath and etc if inhaled.
H371 - May cause damage to organs.
H373 - May cause damage to organs through prolonged or repeated exposure.
H412 - Harmful to aquatic life with long lasting effects.

2.2.4. Precautionary statements (GHS KR)

Precaution:

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face 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/hearing protection.
P284 - Wear respiratory protection.

Treatment:

P302+P352 - IF ON SKIN: Wash with plenty of water/….
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P311 - IF exposed or concerned: Call a POISON CENTER/doctor/….
P314 - Get medical advice/attention if you feel unwell.
P321 - Take … treatment.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor/….
P362+P364 - Take off contaminated clothing and wash it before reuse.

Storage:

P405 - Store locked up.

Disposal:

P501 - Dispose of contents/container according to waste related regulations.

2.3. Hazards - Other hazards which do not result in classification - Hazard Risk

Not applicable

3. Composition/information on ingredients

Product form : Mixture

Substance name	Other Names	Product identifier number	Concentration (%)
Iron	Iron, elemental / Direct reduced Iron / Iron, reduced / Elemental iron / IRON POWDER / iron	CAS-No.: 7439-89-6 KECI-No.: KE-21059	94.85 – 99.3
Manganese	Manganese, elemental / Manganese metal / manganese	CAS-No.: 7439-96-5 KECI-No.: KE-22999	0.5 – 3
Copper	C.I. 77400 / C.I. Pigment Metal 2 / Copper, elemental / CI 77400 / Copper metal / Copper, metallic / Pigment Metal 2 / Granulated copper / copper	CAS-No.: 7440-50-8 KECI-No.: KE-08896	0.1 – 1
Silicon Metal	Silicon powder / Silicon powder, amorphous / Ammonium hexafluorosilicate / SILICON / silicon	CAS-No.: 7440-21-3 KECI-No.: KE-31029	0.1 – 1

4. First-aid measures

4.1. First-aid measures after eye contact

Rinse eyes with water as a precaution.

4.2. First-aid measures after skin contact

Wash skin with plenty of water.

4.3. First-aid measures after inhalation

Remove person to fresh air and keep comfortable for breathing.

4.4. First-aid measures after ingestion

Call a poison center or a doctor if you feel unwell.

4.5. Other medical advice or treatment

Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.
Unsuitable extinguishing media : No data available

5.2. Special hazards arising from the substance or mixture

No data available

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ventilate spillage area.
Do not attempt to take action without suitable protective equipment.
For further information refer to section 8: "Exposure controls/personal protection".
Dispose of materials or solid residues at an authorized site.

6.2. Environmental precautions and protective procedures

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Mechanically recover the product.

7. Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station.
Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product.
Always wash hands after handling the product.

7.2. Conditions for safe storage

Storage conditions : Store in a well-ventilated place.
Keep cool.

8. Exposure controls/personal protection

8.1. Occupational Exposure Limits

KD-42	
No data available	

Copper (7440-50-8)	
Korea - Occupational Exposure Limits	
Local name	구리 # CopperNo data available
ISHA OEL TWA	1 mg/m³ (분진 및 미스트) # (Dust & mist, as Cu) 0.1 mg/m³ (흄) # (Fume)No data available
ISHA OEL STEL	2 mg/m³ (분진 및 미스트) # (Dust & mist, as Cu)No data available
Regulatory reference	고용노동부고시 제2020-48호 # MOEL Public Notice. No. 2020-48No data available
China - Occupational Exposure Limits	
OEL PC-TWA	1 mg/m³ (dust) 0.2 mg/m³ (fume)No data available
Catalogue of Occupational Hazard Factors	Category 3 - ChemicalsNo data available
India - Occupational Exposure Limits	
PEL (OEL TWA)	0.2 mg/m³ (fume)No data available
Indonesia - Occupational Exposure Limits	
NAB (OEL TWA)	1 mg/m³ (dust and mist) 0.2 mg/m³ (fume)No data available
Singapore - Occupational Exposure Limits	
PEL (OEL TWA)	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)No data available
Taiwan - Occupational Exposure Limits	
OEL TWA	0.2 mg/m³ (fume) 1 mg/m³ (dust and mist)No data available
OEL STEL	0.6 mg/m³ (fume) 2 mg/m³ (dust and mist)No data available
Vietnam - Occupational Exposure Limits	
OEL TWA	0.5 mg/m³ (dust) 0.1 mg/m³ (fume)No data available
OEL STEL	1 mg/m³ (dust) 0.2 mg/m³ (fume)No data available
Australia - Occupational Exposure Limits	
OES TWA [1]	1 mg/m³ (dust and mist) 0.2 mg/m³ (fume)No data available
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.2 mg/m³ (fume)No data available
USA - IDLH - Occupational Exposure Limits	
IDLH	100 mg/m³ (dust, fume and mist)No data available
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	1 mg/m³ (dust and mist) 0.1 mg/m³ (fume)No data available

Copper (7440-50-8)	
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	0.1 mg/m³ (fume) 1 mg/m³ (dust and mist)No data available
Iron (7439-89-6)	
Korea - Occupational Exposure Limits	
Local name	철 염 (가 용 성) # Iron salts (Soluble, as Fe)No data available
ISHA OEL TWA	1 mg/m³No data available
Regulatory reference	고 용 노 동 부 고 시 제 2020-48호 # MOEL Public Notice. No. 2020-48No data available
China - Occupational Exposure Limits	
Catalogue of Occupational Hazard Factors	Category 1 - DustsNo data available
Indonesia - Occupational Exposure Limits	
NAB (OEL TWA)	1 mg/m³No data available
Silicon Metal (7440-21-3)	
Korea - Occupational Exposure Limits	
Local name	실 리 콘 # SiliconNo data available
ISHA OEL TWA	10 mg/m³No data available
Regulatory reference	고 용 노 동 부 고 시 제 2020-48호 # MOEL Public Notice. No. 2020-48No data available
Indonesia - Occupational Exposure Limits	
NAB (OEL TWA)	10 mg/m³ (not containing Asbestos and the crystal content is <1%)No data available
Singapore - Occupational Exposure Limits	
PEL (OEL TWA)	10 mg/m³No data available
Australia - Occupational Exposure Limits	
OES TWA [1]	10 mg/m³ (containing no asbestos and <1% crystalline silica-inhalable dust)No data available
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)No data available
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)No data available
Manganese (7439-96-5)	
Korea - Occupational Exposure Limits	
Local name	망 간 및 무 기 화 합 물 # Manganese&Inorganic compounds, as MnNo data available
ISHA OEL TWA	1 mg/m³ 1 mg/m³ (흄) # (Fume)No data available
ISHA OEL STEL	3 mg/m³ (흄) # (Fume)No data available
ISHA PEL TWA	1 mg/m³No data available
Regulatory reference	고 용 노 동 부 고 시 제 2020-48호 # MOEL Public Notice. No. 2020-48No data available
China - Occupational Exposure Limits	
OEL PC-TWA	0.15 mg/m³No data available

Manganese (7439-96-5)	
OEL PC-TWA (Highly Toxic Goods)	0.15 mg/m³ (dust and fume)No data available
OEL PC-STEL (Highly Toxic Goods)	0.45 mg/m³ (dust and fume)No data available
Catalogue of Occupational Hazard Factors	Category 3 - ChemicalsNo data available
India - Occupational Exposure Limits	
PEL (OEL TWA)	1 mg/m³ (fume)No data available
PEL (OEL STEL)	0.03 mg/m³ (fume)No data available
PEL (OEL C)	5 mg/m³ (dust)No data available
Indonesia - Occupational Exposure Limits	
NAB (OEL TWA)	0.1 mg/m³ (inhalable particulate) 0.02 mg/m³ (respirable particulate)No data available
Chemical category	A4 - not classifiable as a human carcinogenNo data available
Singapore - Occupational Exposure Limits	
PEL (OEL TWA)	1 mg/m³ (dust and fume)No data available
OEL STEL	3 mg/m³ (fume)No data available
Singapore - BTLV	
BTLV	50 µg/l Parameter: Manganese - Medium: urineNo data available
Taiwan - Occupational Exposure Limits	
OEL TWA	1 mg/m³ (category C3 special chemical-fume)No data available
OEL STEL	2 mg/m³ (category C3 special chemical-fume)No data available
OEL C	5 mg/m³ (category C3 special chemical)No data available
Vietnam - Occupational Exposure Limits	
OEL TWA	0.3 mg/m³No data available
OEL STEL	0.6 mg/m³No data available
Australia - Occupational Exposure Limits	
OES TWA [1]	1 mg/m³ (dust and fume)No data available
OES STEL	3 mg/m³ (fume)No data available
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.02 mg/m³ (respirable particulate matter) 0.1 mg/m³ (inhalable particulate matter)No data available
ACGIH chemical category	Not Classifiable as a Human CarcinogenNo data available
USA - IDLH - Occupational Exposure Limits	
IDLH	500 mg/m³No data available
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	1 mg/m³ (fume)No data available
NIOSH REL STEL	3 mg/m³No data available
USA - OSHA - Occupational Exposure Limits	
OSHA PEL C	5 mg/m³ (fume)No data available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Personal protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Eye protection:
Safety glasses

Hand protection:
Protective gloves

Skin and body protection:
Wear suitable protective clothing

Personal protective equipment symbol(s):



9. Physical and chemical properties

a)	Appearance	:	No data available
	Physical state	:	Solid
b)	Odour	:	No data available
c)	Odour threshold	:	No data available
d)	pH	:	No data available
e)	Melting / freezing point	:	No data available / Not applicable
f)	Initial boiling point and boiling range	:	No data available
g)	Flash point	:	Not applicable
h)	Evaporation rate	:	No data available
i)	Flammability (solid, gas)	:	Non flammable.
j)	Upper / lower flammability or explosive limits	:	Not applicable
k)	Vapour pressure	:	No data available
l)	Solubility	:	No data available
m)	Vapour density	:	No data available
n)	Relative density	:	No data available
o)	Partition coefficient n-octanol/water	:	No data available
p)	Auto-ignition temperature	:	Not applicable
q)	Decomposition temperature	:	No data available
r)	Viscosity, kinematic	:	Not applicable
	Viscosity, dynamic	:	No data available
s)	Molecular mass	:	No data available

10. Stability and reactivity

10.1. Chemical stability and Possibility of hazardous reactions

The product is non-reactive under normal conditions of use, storage and transport.
Stable under normal conditions.
No dangerous reactions known under normal conditions of use.

10.2. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.3. Incompatible materials

No data available

10.4. Hazardous decomposition products

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

11. Toxicological information

11.1. Information on exposure routes

Oral : Not classified
Skin and eyes contact : May cause an allergic skin reaction.
Inhalation : May cause allergic reactions, asthma or shortness of breath and etc if inhaled.

11.2. Health hazards

Acute toxicity (oral):

Not classified

Acute toxicity (dermal):

Not classified

Acute toxicity (inhalation):

Not classified

Copper (7440-50-8)	
LD50 oral rat	300 – 500 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Guideline: other:MAFF 4200 (1985)
LC50 Inhalation - Rat	> 5.11 mg/l air Animal: rat, Guideline: OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class Method)

Iron (7439-89-6)	
LD50 oral rat	98600 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LC50 Inhalation - Rat	> 250 mg/m³ air (6 h, Rat, Male, Experimental value, Inhalation (dust))

Silicon Metal (7440-21-3)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit

Manganese (7439-96-5)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Guideline: EU Method B.1 bis (Acute Oral Toxicity - Fixed Dose Procedure)
LC50 Inhalation - Rat	> 5.14 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation))
LC50 Inhalation - Rat (Dust/Mist)	> 5.14 mg/l Source: ECHA

Skin corrosion/irritation:

Not classified

Serious eye damage/irritation:

Not classified

Respiratory sensitization:

May cause allergic reactions, asthma or shortness of breath and etc if inhaled.

Skin sensitization:

May cause an allergic skin reaction.

Carcinogenicity:

Not classified

Mutagenicity:

Not classified

Reproductive toxicity:

Not classified

STOT-single exposure:

May cause damage to organs.

STOT-repeated exposure:

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard:

Not classified

KD-42	
Viscosity, kinematic	Not applicable

Copper (7440-50-8)	
Density	0.47 g/ml Type: 'tap density' Temp.: 20 °C
False	False

Iron (7439-89-6)	
Density	7.87 g/cm³ Type: 'density' Temp.: 20 °C
False	False

Silicon Metal (7440-21-3)	
Density	2.33 g/cm³ Type: 'density' Temp.: 25 °C
Viscosity, dynamic	Not applicable (solid)
False	False

Manganese (7439-96-5)	
Density	7200 kg/m³
False	False

12. Ecological information

12.1. Ecotoxicity

Ecology - general : Harmful to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Harmful to aquatic life with long lasting effects.

Copper (7440-50-8)	
LC50 - Fish [1]	0.0068 – 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
LC50 - Fish [2]	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Crustacea [1]	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 96h - Algae [1]	0.031 – 0.054 mg/l (Species: Pseudokirchneriella subcapitata [static])
EC50 72h - Algae [1]	0.0426 – 0.0535 mg/l (Species: Pseudokirchneriella subcapitata [static])
Partition coefficient n-octanol/water (Log Pow)	-0.57 Source: EPISUITE

Iron (7439-89-6)	
LC50 - Fish [1]	8.65 mg/l Source: ECHA
LC50 - Other aquatic organisms [1]	106.3 mg/l Source: ECHA
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	> 10000 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	18 mg/l Source: ECHA

Silicon Metal (7440-21-3)	
LC50 - Fish [1]	100 mg/l (Pisces)
EC50 72h - Algae [1]	250 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	250 mg/l (Equivalent or similar to OECD 201, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Weight of evidence)

Manganese (7439-96-5)	
LC50 - Fish [1]	> 3.6 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	> 1.6 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	4.5 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	2.8 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
NOEC (chronic)	1.7 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '8 d'
BCF - Fish [1]	81 (Pisces)
BCF - Other aquatic organisms [1]	300000 (Mollusca)
BCF - Other aquatic organisms [2]	125000 (Crustacea)

12.2. Persistence and degradability

Copper (7440-50-8)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Iron (7439-89-6)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Silicon Metal (7440-21-3)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Manganese (7439-96-5)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Copper (7440-50-8)	
Partition coefficient n-octanol/water (Log Pow)	-0.57 Source: EPISUITE
Bioaccumulative potential	Bioaccumulation: not applicable.

Iron (7439-89-6)	
Bioaccumulative potential	No bioaccumulation data available.

Silicon Metal (7440-21-3)	
Bioaccumulative potential	Not bioaccumulative.

Manganese (7439-96-5)	
BCF - Fish [1]	81 (Pisces)
BCF - Other aquatic organisms [1]	300000 (Mollusca)
BCF - Other aquatic organisms [2]	125000 (Crustacea)
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

Copper (7440-50-8)	
Partition coefficient n-octanol/water (Log Pow)	-0.57 Source: EPISUITE
Ecology - soil	Adsorbs into the soil.

Iron (7439-89-6)	
Surface tension	Not applicable (solid)

Iron (7439-89-6)	
Ecology - soil	Adsorbs into the soil.

Silicon Metal (7440-21-3)	
Ecology - soil	Highly mobile in soil.

Manganese (7439-96-5)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

Ozone : Not classified
Other adverse effects : No data available

13. Disposal considerations

13.1. Disposal method

Dispose of contents/container in accordance with licensed collector's sorting instructions.

13.2. Disposal precaution

No data available

14. Transport information

UN RTDG	ADR	IMDG	IATA
14.1. UN number			
Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Marine pollutant			
Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available			

14.6. Special precautions for user

No data available

15. Regulatory information

15.1. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing Not applicable
Hazardous Substances Requiring Permission Not applicable
Threshold Limit Values Chemicals Applicable 7440-50-8: Copper
7439-89-6: Iron salts (Soluble, as Fe)

		7440-21-3: Silicon 7439-96-5: Manganese&Inorganic compounds, as Mn
Hazardous Substances Below Permissible Level	Applicable	7439-96-5: Manganese and its inorganic compounds
Hazardous Substances Subject to Working Environment Measurement	Applicable	7440-50-8: Copper 7439-96-5: Manganese and its inorganic compounds
Hazardous Substances Subject to Workers Requiring Health Examination	Applicable	7440-50-8: Copper 7439-96-5: Manganese and its inorganic compounds
Hazardous Substances Subject to Control	Applicable	7440-50-8: Copper and its compounds 7439-89-6: Iron and its compounds 7439-96-5: Manganese and its inorganic compounds

15.2. Chemicals Control Act

No data available

15.3. ACT ON REGISTRATION, EVALUATION, ETC. OF CHEMICALS (K-REACH)

No data available

15.4. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act	Applicable	(Class 2 Combustible solid - category 4 Iron Powder (Designated quantity: 500kg); Class 2 Combustible solid - category 5 Metal powder (Designated quantity: 500kg))
	Applicable	7440-50-8: Copper 7439-89-6: Iron powder (Class 2 Combustible solid - category 4 Iron Powder (Designated quantity: 500kg)) 7440-21-3: Silicon powder (Class 2 Combustible solid - category 5 Metal powder (Designated quantity: 500kg)) 7439-96-5: Manganese powder (Class 2 Combustible solid - category 5 Metal powder (Designated quantity: 500kg))

15.5. Wastes Control Act

No data available

15.6. Other Domestic and International Regulatory Information

Domestic

Persistent Organic Pollutants(POPs) Control Act	Not applicable
Ozone Depleting Substances(ODS)	Not applicable

International

EU Regulatory Information

EU Candidate list (SVHC)	Contains no substance on the REACH candidate list
EU authorization list (REACH Annex XIV)	Contains no REACH Annex XIV substances
EU restriction list (REACH Annex XVII)	Not applicable

US Regulatory Information

CERCLA Section 103 (40CFR302.4)	Contains listed substances
EPCRA Section 302 (40CFR355.30)	Not applicable
EPCRA Section 304 (40CFR355.40)	Not applicable
EPCRA Section 313 (40CFR372.65)	Contains listed substances

International agreements

No data available

16. Other information

16.1. Data sources: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006,Classification according to Classification, Labelling and Packaging of Substances and Mixtures (SEA) Regulation published in the Official Journal numbered 28848 on December 11, 2013,ECHA (European Chemicals Agency),This MSDS is prepared based on Article 41 of the Occupational Safety and Health Act and Notice No.2016-19 of the Ministry of Employment and Labor (based on the availability of material safety and health data), taking into account the status of regulations related to Korea,This MSDS is prepared based on KOSHA, NITE, ESIS, NLM, SIDS, IPCS, NCIS, etc,Supplier's safety documents,No data available,This safety data sheet was compiled with data and information from the following sources : RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB.

16.2. Issue date: 11/3/2020

16.3. Revision number and date: 4.0, 22/11/2021

16.4. Other information: No data available

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.