SECTION 1: IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1. Product identifier

Product name	Ferronickel; massive forms	
Chemical family	Alloy	
Chemical formula	not applicable (identified as FeNi)	
Synonyms	FeNi granules	
Trade name	Ferronickel	
CAS number	11133-76-9	
EC number	Not applicable	
Annex I index number	Not applicable	
Mixture	An alloy (special mixture) of Nickel, Iron and Cobalt	
REACH Registration number	NewCo Ferronikeli	FENI Industries
Iron (registration)	01-2119462838-24-0195	01-2119462838-24-0108
Nickel (registration)	01-2119438727-29-0051	01-2119438727-29-0039
Cobalt (notification)	02-2119810728-35-0000	02-2119810685-37-0000

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

1.2.1 Relevant identified uses

Stainless, special steels and special alloy clusters

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Cunico Marketing FZE - Jafza 18, office 0906 / PO Box 262635 / Jebel Ali Free Zone / Dubai, United Arab Emirates
Tel +971 (0) 4 884 1844 / Fax +971 (0) 4 884 8737
info@cunicomarketing.com

Competent person responsible for the SDS: Olivier Desevedavy: olivier.d@feni.com.mk

1.4 Emergency telephone number

Company number and office hours:
Feni Industries: +38943421440 (08:00 – 16:00)

Emergency numbers (poison control centers):
Madrid: +34 91562 0420 / Barcelona: +34 93227 9833 or +34 93227 5400 bleep 190 / Seville: +34 95437 1233

SECTION2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No. 1272/2008 (CLP/GHS)

HEALTH EFFECTS

STOT rep. exp. Cat 1: Causes damage to organs by inhalation (for particles under 0.1 mm diameter).
Skin sens. Cat 1: May cause an allergic skin reaction.
Carc. Cat. 2: Suspected of causing cancer by inhalation (inhalable size particles only).

ENVIRONMENTAL EFFECTS: The substance has no environmental classification in massive form.

2.2 Label elements

2.2.1 Labeling according to Regulation (EC) No. 1272/2008 (CLP/GHS)

SIGNAL WORD: WARNING

GHS07: exclamation mark

HAZARD STATEMENTS:

H317 - May cause an allergic skin reaction
EUH208 – Contains Cobalt. May cause an allergic respiratory system reaction.

PRECAUTIONARY STATEMENTS:

P101 – If medical advice is needed, have product container or label at hand
P 261 – Avoid breathing dust
P 272 – Contaminated work clothing should not be allowed out of the workplace.
P 280 – Wear protective gloves/protective clothing/eye protection/face protection
P302 + 352 – If on skin wash with plenty of soap and water
P308 + 313 – If exposed or concerned get medical advice/attention
P363 – Wash contaminated clothes before reuse

For more information on physicochemical, human health and environmental effects see sections 9 to 12 of this SDS.

2.3 Other hazards

According to point 1.3.4 of Annex I to CLP: metals in the massive form, as well as alloys, do not require a label if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the classification criteria of CLP. However, the supplier shall provide the information on the classification of an alloy to downstream users or distributors by means of the Safety Data Sheet.

According to our best knowledge, amount of inhalable particles in ferronickel granules is below 0.5%. This conducts us to notify that no inhalation hazard occurs in the form they are placed on the market. For that reason, the label contains elements only relevant to Skin Sensitization. The complete list of label elements can be found in Section 16 of this SDS.

Additional hazards might occur after exposure to airborne Ferronickel particles. The mixture contains Nickel which can cause damage to the lungs after repeated exposure (STOT-RE 1) and is also suspected for causing cancer through inhalation (Carcinogen Cat. 2).

The mixture does not meet the criteria for a PBT or vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Ingredient	EC nb	CAS number	Content	Classification (CLP)
Nickel (massive)	231-111-4	7440-02-0	15 – 35%	Skin sens., cat 1; carc., cat.2, STOT RE cat. 1
Iron	231-096-4	7439-89-6	65 – 85%	-
Cobalt (massive)	231-158-0	7440-48-4	< 1%	Skin sens., cat 1, Resp. sens., cat 1, Aquatic Chronic 4

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice: If wounded, cleanse thoroughly, in order to remove any ferronickel particles. If medical advice is needed, have product label or safety data sheet available.
Following inhalation: Seek medical attention.
Following skin contact: Wash thoroughly with water. For rashes seek medical advice. Show label or data sheet if possible.
Following eye contact: Wash eyeball thoroughly with water for at least 10 minutes. If discomfort persists seek medical attention.
After ingestion: Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

If generated, particles may cause slight irritation to eyes. The mixture contains Nickel which is classified as Skin sensitizer. Dermal exposure may cause allergic reaction (contact dermatitis). Additional hazards occur after exposure to Ferronickel airborne particles. Repeated exposure to airborne FeNi particles of inhalable size is suspected of causing cancer to humans and also damage to lungs. When inhaled, it can cause damage to the lungs after repeated exposure (STOT-RE 1) and is also suspected for causing cancer through inhalation (Carcinogen Cat. 2).

4.3 Indication of any immediate medical attention and special treatment needed

No special requirements.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1. Suitable extinguishing media

Any type to be selected according to materials burning in the immediate area.

5.1.2. Unsuitable extinguishing media

No special requirements.

5.2 Special hazards arising from the substance or mixture

Dust may oxidize to metal oxides (Nickel Monoxide) after exposure to high temperatures within a fire.

5.3 Advice for firefighters

Special protective equipment: None specific needed. Wear protective equipment if required for other materials within the immediate vicinity.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ferronickel inhalable dust may be generated during prolonged storage in not sufficiently ventilated place.
Avoid generation of dusty atmospheres. Do not inhale dusts.
Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.
Use personal protective equipment where required, according to Section 8.

6.2 Environmental precautions

Prevent spilled material from entering surface water, marine environment, underwater streams or sewage.

6.3 Methods and material for containment and cleaning up

Pick up and replace in original storage. Nickel-containing material is normally collected to recover nickel values. Do not release in water or in places where it can be transferred easily to water bodies or underwater acquifers.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 16 for hazards related to airborne Ferronickel particles.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures

Prevent the generation of inhalable dusts e.g. by the use of suitable ventilation. Wear appropriate nationally approved respirators if handling is likely to cause the concentration limits of airborne nickel to exceed the locally prescribed exposure limits. Wear suitable protective clothing and gloves.

7.1.2 Advice on general occupational hygiene

Do not eat, smoke or drink when handling the substance.
Do not inhale dusts, where present. As packed nickel product may constitute a manual handling risk.

7.2 Conditions for safe storage, including any incompatibilities

Keep in the container supplied, and keep the container closed when not in use. Containers should be stored under cover in a clean and dry environment.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1.1 Control parameters

The following sources of information on Occupational Exposure Limits from Member States were used:

http://osha.europa.eu/en/topics/ds/oel/index.stm/members.stm
http://www.dguv.de/ifa/en/gestis/limit_values/index.jsp

Iron is not dangerous, so the relevant OELs are those for normal inhalable and respirable dust, which are much higher than those for Nickel. The following table includes current national limit values for Ferronickel constituents.

Area	**Country**	**Current OELs (mg / m^3) – 8 hours**			
EU		**Metallic Nickel**	**Insoluble Nickel**	**Cobalt metal**	**Iron metal#**
	Finland	1	0.1		
	Norway	0.05	0.05		
	UK	0.5 (MEL#)	0.5	0.1	
	France	1 (VME)*	1		10
	Germany	No legally binding OEL currently in place			
	Belgium	1	0.2**	0.02	10
	Denmark	0.05	0.05	0.01	10
	Italy	1	1		
	Sweden	0.5		0.05	10
	Greece	1	1	0.1	10
	Spain	1		0.02	10
Non EU	Japan	1 (1968)			
	Korea	1 (2006)			
	China	1 (2007)			
	Canada- Québec	1		0.02	
	USA-OSHA	1		0.1	
	USA-ACGIH	1.5	0.2	0.02	

*VME = Valeur Moyenne d'Exposition. The value of 1 mg/rn^3 applies to nickel carbonate, dihydroxide, subsulfide, monoxide, sulphide trioxide and for other chemical forms not otherwise specified, such as "insoluble nickel compounds" and nickel sulfide roasting fume and dust.

** For nickel subsulfide the value is 0.1 mg Ni/m^3 as inhalable.

Inhalable

8.1.2 PNECs and DNELs

Source: SDS table on Members pages (Key documents) of Nickel REACH Consortia website:
http://www.nickelconsortia.org/member-home.html
Values related to Nickel metal. DNEL and PNEC values of Iron metal are not relevant for the Exposure Scenario.

RISK VALUES: Human Health					
		WORKERS		CONSUMER-MvE	
Exposure pattern	**Route**	**Descriptors [corrected]**	**DNEL/DMEL/not quantifiable**	**Descriptors [corrected]**	**DNEL/DMEL/not quantifiable**
Acute-systemic effects	Dermal (mg Ni/kg bw/day)	Not relevant			
	Inhalation (mg Ni/m^3)	NOAEC = 12,000	DNEL = 680, (MMAD <12 µm)	Not relevant- compliance with more conservative acute-local effects DNEL is also protective against acute systemic effects	
	Oral (mg Ni/kg bw/day)	Not relevant		LOAEL = 0.012 [Ni sulphate]	DNEL= 0.012 [Ni ion] DNEL = 1.2 [Ni massive]
Acute-local effects	Dermal (mg Ni/cm^2)	Not relevant			
	Inhalation (mg Ni/m^3)	LOAEC = 4.0 (from 28 d study)	DNEL= 4.0 (MMAD = 1.5 µm)	LOAEC = 4.0 (from 28 d study)	DNEL = 2.4
Long term-systemic effects	Dermal (mg Ni/kg bw/day)	Not relevant			
	Inhalation (mg Ni/m^3)	SCOEL proposed nickel OEL = 0.01 "inhalable"	OEL = 0.05 (inhalable fraction)	Other: CSTEE (ambient air guidelines for Ni) = 0.00002	DNEL = 0.00002
	Oral (mg Ni/kg bw/day)	Not relevant		NOAEL =110	DNEL = 2.2 [Ni massive]
Long term -local effects	Dermal (mg Ni/cm^2)	NOAEL= 0.07	DNEL = 0.07	Not relevant	
	Inhalation (mg Ni/m^3)	SCOEL proposed nickel OEL = 0.01 "inhalable"	OEL = 0.05 (inhalable fraction)	Other: CSTEE (ambient air guidelines for Ni) = 0.00002	DNEL = 0.00002

RISK VALUES: Environment					
Compartment	**Category**	**Threshold Value**	**Relative Absorption Factor (RAF)**	**Assessment Factor (AF)**	**PNEC Value**
Aquatic	Freshwater	7.2 ug Ni/L (HC5)	Not relevant	2	3.6 ug Ni/L
	Marine	17.2 ug Ni/L (HC5)	Not relevant	2	8.6 ug Ni/L
Sediment	Freshwater	Pending outcome of testing program	Not relevant	Pending outcome of testing program	Pending outcome of testing program
	Marine	Pending outcome of testing program	Not relevant	Pending outcome of testing program	Pending outcome of testing program
Terrestrial	Soil	59.8 mg Ni/kg (HC5)	Not relevant	2	29.9 mg Ni/kg
Sewage Treatment Plant (STP)	Microbial activity	33 mg Ni/L (Lowest NOEC)	Not relevant	100	0.33 mg Ni/L
Secondary Poisoning: Aquatic	Oystercatcher (aquatic bird)	123 mg Ni/kg	1	10	12.3 mg Ni/kg
	European otter (freshwater-mammalian)	23 mg Ni/kg	0,025	10	2.3 mg Ni/kg
	Harbor seal (marine mammalian)	46 mg Ni/kg	0,025	10	4.6 mg Ni/kg
Secondary Poisoning: Terrestrial	Earthworm eating bird	85 mg Ni/kg	1	10	8.5 mg Ni/kg
	Shrew (terrestrial mammalian)	1.2 mg Ni/kg	0.036 (100% worms) 0.025 (30% worms, 70% isopods)	10	.12 mg Ni/kg

8.2 Exposure controls

8.2.1 Occupational Exposure Controls

As supplied, this product does not pose a health hazard by inhalation. Mechanical extraction ventilation may be required if user operations change it to other physical or chemical forms, whether as end products, intermediates or fugitive emissions, which are inhalable. Maintain airborne nickel levels as low as possible. Avoid repeated skin contact.

8.2.2 Personal Protective Equipment

Respiratory Protection: If dust is generated, use an approved respirator with particulate filters.
Eye Protection: When handling dusty materials use appropriate eye protection.
Hand and Skin Protection: Wear gloves and protective clothes (overalls) suitable for the working place and the conditions therein. Gloves are required to prevent skin sensitization.

See section 2 of the individual exposure scenario in Annex I for a detailed description of the required exposure controls measures for workers.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Property	Value
Physical state at 20°C and 101.3 kPa	Solid Hard metal Colour: brown/silver solid Odourless
Melting / freezing point	approx. 1440 - 1460°C
Boiling point	Not determined since melting point >300°C
Relative density	7.83 at 22°C ± 0.5°C
Vapour pressure	Not determined since melting point > 300°C
Surface tension	NOT APPLICABLE: Surface tension does not need to be determined because FeNi is not designed or anticipated to have surfactant properties.
Water solubility	Insoluble: 6.20×10^{-4} g/L at 20°C ± 0.5°C (based on the combined solubility of nickel and iron)
Partition coefficient n-octanol/water (log value)	NOT APPLICABLE: The partition coefficient does not need to be determined for inorganic substances.
Flash point	NOT APPLICABLE: The flash point does not need to be determined because nickel is inorganic.
Flammability	Non-flammable
Explosive properties	Non-explosive
Self-ignition temperature	Not applicable
Oxidizing properties	Non-oxidizing because it does not contain chemical groups associated with oxidizing properties.
Granulometry	Shots: 3-30 mm
Stability in organic solvents and identity of relevant degradation products	NOT APPLICABLE: Stability in organic solvents and identity of relevant degradation products is not an applicable endpoint for inorganic substances.
Dissociation constant	NOT APPLICABLE: Elements by definition do not dissociate; thus dissociation constants are not applicable
Viscosity	NOT APPLICABLE: Viscosity data is not required since ferronickel is a solid.

9.2 Other information

Not applicable.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions. Incompatible with strong oxidizing agents and acids.

10.2 Chemical stability

Chemically stable mixture under normal conditions.

10.3 Possibility of hazardous reactions

Stable under normal conditions.

10.4 Conditions to avoid

This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air. Under special conditions nickel can react with carbon monoxide in reducing atmospheres to form nickel carbonyl, $Ni(CO)_4$, a toxic gas. Metal powders when heated in reducing atmospheres may become pyrophoric.

10.5 Incompatible materials

Strong oxidising agents.

10.6 Hazardous decomposition products

None

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

The following table contains data on Nickel and Iron.

Toxicity endpoints	Description of effects
Absorption	ORAL = 0.09% [Ni] DERMAL = 0.2% [Ni] INHALATION = 6.1% [Ni]
Acute toxicity	Nickel has no acute toxicity ORAL: LD_{50} >9000 mg/kg bw DERMAL: No studies have been found on acute toxicity by the dermal route INHALATION: NOEAC (66min) >= 10.2 mg/L in air Iron has no acute toxicity ORAL: LD_{50} > 7500 mg/kg bw INHALATION: 250 mg/m³ air
Irritation corrosion	SKIN: Non irritant. See sensitisation. EYE: Non irritant
Sensitisation	Ferronickel is classified as a dermal sensitizer based on its Nickel and Cobalt content.
Repeated dose toxicity	Nickel: ORAL: NOEC = 2.2 mg/kg bw; LOAEL= 6.7 mg/kg bw INHALATION: LOAEC = 0.1 mg/m³ air (lung) DERMAL: Not applicable. Iron: ORAL: LOAEL: 26 mg/kg bw/day. Practically not toxic INHALATION: NOAEC: 5 mg/m³. Practically not toxic STOT-RE 1 Classification for inhalable particles (<0.1mm in diametre) based on Ni-met classification
Mutagenicity	Ferronickel is not classified for mutagenicity.
Carcinogenicity*	INHALATION Nickel metal has been consistently negative for respiratory carcinogenicity in human studies and was also negative in an animal inhalation study. Classification of Carc. Cat. 2 is decided based on existing Nickel metal classification. ORAL None.
Reproductive toxicity	Nickel and Iron metal are not classified as reproductive toxicants.

* See Section 16 for further details on Carcinogenicity

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Transformation/Dissolution (T/D P) testing for Ferronickel showed that Ferronickel particles larger than 3 mm should not be classified for Aquatic Toxicity. Based on the mixture rules of CLP Regulation (Annex I, Section 4.1.3) in order for Ferronickel to be classified as Aquatic Chronic 3 or 4, it should contain more than 25% (w/w) of particles smaller than 3 mm. For Ferronickel massive, this condition does not exist, so it can be safely said that ferronickel massive is not classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

The PBT and vPvB criteria of Annex XIII to the Regulation does not apply to inorganic substances, such as ferronickel. The methods for determining the biological degradability are not applicable to inorganic substances

12.3 Bioaccumulative potential

Nickel does not tend to bioaccumulate or biomagnify in aquatic or terrestrial systems.

12.4 Mobility in soil

A log Kp soil for Nickel has a value of 2.86 (Aqua regia digestion).

12.5 Results of PBT and vPvB assessment

The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances, such as iron, nickel and cobalt in ferronickel. Ferronickel is not PBT or vPvB.

12.6 Other adverse effects

Not applicable

For an overview of PNECs check section 8.1.2 and for more information on how the environmental classification was derived, contact your supplier.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Recover or recycle if possible. Waste characterization and disposal according to local, state national or European waste legislation. Disposal remains the responsibility of the waste treatment operator.

SECTION 14: TRANSPORT INFORMATION

Land Transport (ADR-RID): Not Regulated.
Inland Waterway Transport (ADN): Not Regulated.
Marine Transport (IMDG Code): Not Regulated.
Air Transport (ICAO - IATA): Not Regulated.

U.S. Dept. of Transportation Regulations: Not Regulated.
Canadian Transportation of Dangerous Goods Act: Not Regulated.

SECTION 15: REGULATORY INFORMATION

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

15.1.1 Worldwide Chemical Inventories

- EINECS (EU): No EINECS number
- MITI (Japan): all components are listed in Handbook
- TSCA (USA): all components are listed in TSCA
- DSL(Canada): all components are listed in DSL
- WHMIS Classification: D2A
- AICS (Australia): all components are listed in AICS
- ECL(Korea): all components are listed in ECL; KE-25818
- PICCS (Philippines): all components are listed in PICCS
- IECSC(China): all components are listed in IECSC

15.1.2 Other regulatory information

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals

Not relevant

Restrictions under Title VIII of Regulation (EC) No 1907/2006

Not relevant

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for this mixture. Chemical Safety Assessments have been carried out for its individual constituents (Iron, Nickel and Cobalt).

SECTION 16: OTHER INFORMATION

16.1 Full labeling information according to CLP if in powder form

SIGNAL WORD: DANGER
GHS07: exclamation mark GHS08: Health Hazard

HAZARD STATEMENTS:
H317 – May cause an allergic skin reaction
H351 – Suspected of causing cancer
H372 – Causes damage to organs
EUH208 – Contains Cobalt. May cause an allergic respiratory system reaction.

PRECAUTIONARY STATEMENTS:
Prevention
P101 – If medical advice is needed, have product container or label at hand
P201 – Obtain special instructions before use
P202 – Do not handle until all safety precautions have been read and understood
P260 – Do not breathe dust or fume
P261 – Avoid breathing dust/fume/gas/vapors/spray
P264 – Wash hands, 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
P280 – Wear protective gloves/protective clothing/eye protection/face protection
P281 – Use personal protective equipment as required
Response
P302/352 – If on skin wash with plenty of soap and water
P308/313 – If exposed or concerned get medical advice/attention
P333+P313 – If skin irritation or rash occurs: Get medical advice/attention
P314 – Get medical advice/attention if you feel unwell.
P321 – See Safety Data Sheet for specific treatment
P363 – Was contaminated clothes before reuse

Storage
P405 – store locked up

Disposal
P501 – Dispose of contents/container to contents/container in accordance to local; regional; national and international regulations
Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.2 Abbreviations used: on request via your supplier

BAF	Bioaccumulation factor
CAS	Chemical Abstract Services- Registry Numbers
DMEL	Derived minimum effect level
DNEL	Derived no effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
LC50	Median lethal (L) concentration; the concentration causing 50 % lethality (L) or adverse effects (E).
LD50	Median lethal dose; the dose causing 50 % lethality
LOAEC	Low observed adverse effects concentration
LOAEL	Low observed adverse effect level
NOEC	No observed effects concentration
NOAEC	No observed adverse effects concentration
NOAEL	No observed adverse effect level
OEL	Occupational exposure limit
PBT	Persistent, bioaccumulative, toxic
PNEC	Predicted no effect concentration
STEL	Short term exposure level
TWA	Time-weighted average exposure

16.3 Summary of Carcinogenicity

Inhalation Carcinogenicity

Nickel metal has been consistently negative for respiratory carcinogenicity in human studies and was also negative in a recent animal inhalation study. These carcinogenicity results are consistent with the Nickel ion bioavailability model for cancer. This model indicates that it is the bioavailability of Nickel ion at nuclear sites of target respiratory cells that will be associated with tumor induction. There are many factors that can affect the bioavailability of Ni ion from nickel metal (e. g., toxicity, deposition, clearance, cellular uptake and dissolution) and which can explain the lack of carcinogenicity of nickel metal in animals.

Nickel metal carries a classification as a suspect carcinogen. It is classified as a Category 3; R40 carcinogen under EU Classification & Labeling; Category 2; H351 carcinogen under GHS and CLP; and Group 2B carcinogen (possible human carcinogen) by IARC (1990). These classifications were based on the lack of human evidence of carcinogenicity, but the presence of positive results for tumor induction in animals after injection or intratracheal instillation. In the late 1990s, the lack of a robust inhalation study led the EU to mandate the conduct of such a study (conclusion (i), EURA, 2008). The recent animal study by the relevant route of exposure (inhalation) showed no increased respiratory cancer incidence in animals exposed to nickel metal powder. This study (Oller et al., 2008) supersedes the results from injection/instillation studies and indicates that no carcinogen classification is warranted for nickel metal.

Oral Carcinogenicity

The lack of oral carcinogenic potential for nickel sulfate hexahydrate can be extrapolated to other soluble and insoluble nickel compounds. Nickel sulfate hexahydrate represents a worst-case scenario for systemic absorption of nickel since nickel sulfate hexahydrate is readily solubilized in gastrointestinal fluid and results in the highest systemic absorption of Ni (II) ions compared to less soluble nickel-containing substances (Ishimatsu et al., 1995). Rats are the best rodent model for studying the oral carcinogenicity of nickel since they have been demonstrated to be sensitive to the carcinogenic effects of nickel by other routes of exposure (e. g., inhalation).

Disclaimer:

- This Safety Data Sheet (SDS) is prepared with our best available knowledge and with our best faith. It is based on information that is currently under discussion. Right now, no CSR exists for Ferronickel and no official guidance regarding alloys exists at organizational and EU level. The information in this SDS will be updated when final decisions are reached;
- Ferronickel was not fully tested as a mixture (nickel, iron and cobalt were fully tested, but separately). At the time of the SDS's creation, no Chemical Safety Report (CSR) was available and no official guidance regarding special mixtures like alloys was published by ECHA. The information regarding the product's classification, that is included in this SDS, was produced based on data from the mixture's individual components (massive) and on data regarding properties of the mixture. This information is still under examination and the data in the current SDS will be updated as soon as additional information for the mixture becomes available;
- According to point 1.3.4 of Annex I to CLP: metals in the massive form, as well as alloys, do not require a label if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the classification criteria of CLP. However, the supplier shall provide the information on the classification of an alloy to downstream users or distributors by means of the Safety Data Sheet.

CUNICO RESOURCES NV provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Furthermore, this safety data sheet (including its Annex) is made up based on the legal requirements as set by EC 1907/2006 (REACH) based on information as is available per April 1, 2011. Further information received following the time scale as foreseen by REACH and the guidance policies as described in the REACH Implementation programs will be added when it becomes available.

05th July 2011 – updated 26th June 2015