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

1.1 Product identification:

Product name:	Iron(III) chloride solution 40 %.
Registration number (REACH):	not relevant (mixture)
Unique formula identification (UFI):	07V2-10WJ-800E-4P3P

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

Relevant identified uses:	Laboratory chemicals. Analytical and laboratory applications.
Uses advised against:	Not to be used for private purposes (household). Food, drinks and animal feed.

1.3 Details of the supplier of the safety data sheet:

Responsible distributor :	ASSYST bvba / A.S.O.W. bvba Hellegatstraat 13a 2590 Berlaar Belgium Tel: +32 495 50 61 14 / +32 496 83 70 27 Website: www.assyst.org / www.artsuppliesonweb.com Email: ao@assyst.org / vera.opsommer@assyst.org

1.4 Emergency phone number:

For Belgium:	Call the **Poison Control Centre (070 245 245 - free)**, if not available: **02 264 96 30** (normal rate) or your doctor. In life-threatening situations, always call the European emergency number **112**.
NHS 24 Direct	For help from a GP, visit your GP surgery's website, use an online service to contact your GP, or call the surgery. **For urgent medical help**, use the NHS 111 online service, or **call 111** if you are unable to get help online. **For life-threatening emergencies, call 999** for an ambulance. There is more information about getting medical help on the NHS website.

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture:

Classification according to directive (EC) No 1272/2008 and its amendments.

CLP classification : The product is classified as dangerous according to Regulation 1272/2008/EC
For metallic corrosive(s) substance or mixture 1 Met. Corr. 1 H290
Acute oral toxicity 4 Acute Tox. 4 H302
Skin corrosion/irritation 2 Skin Irrit. 2 H315
Serious eye damage/eye irritation 1 Eye Dam. 1 H318
Skin sensitisation 1 Skin Sens. 1 H317
Full text of H-Statements: see section 16

2.2 Labelling elements:

Labelling according to regulation (EC) No 1272/2008 [CLP/GHS]:

Hazard pictograms:

Signal word: Danger

Contains:

- ✓ Iron(III) chloride
- ✓ Nickel dichloride
- ✓ Hydrochloric acid...%

Hazard statements:

H290 May be corrosive to metals
H302 Harmful if swallowed
H315 Causes skin irritation
H317 May cause allergic skin reaction
H318 Causes serious eye damage
Safety recommendations:
Precautions - prevention
P280 Wear protective gloves/eye protection
Precautions - reaction
P302+P352 IF ON SKIN: Wash with plenty of water
P305+P351+P338 IF CONTACT WITH EYES: Rinse gently with water for several minutes; remove contact lenses, if possible; continue rinsing
P310 Consult an ANTIGENCENTRUM/doctor immediately
Labelling of packages with a total content not exceeding 125 ml
Signal word: Danger

Symbol/symbols:
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
P280 Wear protective gloves/eye protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes; remove contact lenses, if possible; continue rinsing.
P310 Immediately consult a POISON CENTER/doctor.
Contains: Iron(III) chloride, Nickel dichloride, Hydrochloric acid...%.
Labelling of packages with a total content not exceeding 10 ml
Signal word: Not required

Symbol/symbols:
Hazard statements: Not required
Safety recommendations: Not required
2.3 Other hazards:
Results of PBT and vPvB assessment
Does not contain any PBT/vPvB substance at a concentration of ≥ 0.1%.
Endocrine-disrupting properties
Contains no endocrine disruptor (ED) at a concentration of ≥ 0.1%.

SECTION 3: Composition and information on ingredients

3.2 Mixtures:

Substance name:	Product identification	%	Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP].
Iron(III) chloride	CAS No. 7705-08-0 EC No 231-729-4 REACH reg. no. 01-2119497998-05	39 - 41	With. Corr. 1 / H290 Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Dam. 1 / H318
Hydrochloric acid...%	CAS No. 7647-01-0 EC No 231-595-7 Catalogue no. 017-002-01-X REACH reg. no. 01-2119484862-27	≤ 1	With. Corr. 1 / H290 Skin Corr. 1B / H314 Eye Dam. 1 / H318 STOT SE 3 / H335 **Note:** B GHS-HC IOELV
Nickel dichloride	CAS No: 7718-54-9	< 0,1	Acute Tox. 3 / H301

	EC No 231-743-0 Catalogue no. 028-011-00-6		Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Resp. Sens. 1 / H334 Skin Sens. 1 / H317 Muta. 2 / H341 Carc. 1A / H350i Repr. 1B / H360D STOT RE 1 / H372 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410 **Note**: GHS-HC IOELV

Note:

B: Some substances (such as acids and bases) are marketed as aqueous solutions of varying concentrations and these solutions must therefore be classified and labelled differently according to the hazard associated with each concentration. Where Note B is mentioned in Part 3, a general designation such as: "nitric acid ... %". In this case, the supplier must state on the label the concentration as a percentage. Unless otherwise stated, it is assumed that the concentration is calculated on the basis of the percentage by weight.

GHS-HC: Harmonised classification (the classification of the substance is according to the annotation in accordance with 1272/2008/EC, Annex VI)

IOELV: Substance with a common indicative occupational exposure limit Full text of H phrases: see section 16

Substance name:	Product identification	Specific concentration limits	M-Factors	ATE	Exposure route
Iron(III) chloride	CAS No. 7705-08-0 EC No 231-729-4 REACH reg. no. 01-2119497998-05	-	-	500 mg/kg	Oral
Hydrochloric acid...%	CAS No. 7647-01-0 EC No 231-595-7 Catalogue no. 017-002-01-X REACH reg. no. 01-2119484862-27	With. Corr. 1; H290: C ≥ 0.1 %. Skin Corr. 1B; H314: C ≥ 25 %. Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Dam. 1; H318: C ≥ 25 %. Eye Irrit. 2; H319: 10 % ≤ C < 25 % STOT SE 3; H335: C ≥ 10%	-	-	-
Nickel dichloride	CAS No: 7718-54-9 EC No 231-743-0 Catalogue no. 028-011-00-6	Skin Irrit. 2; H315: C ≥ 20% Skin Sens. 1; H317: C ≥ 0.01 %. STOT RE 1; H372: C ≥ 1 % STOT RE 2; H373: 0,1 % ≤ C < 1 %	M-factor (acute) = 1 M-factor (chronic) =1	200 mg/kg 0.593 mg/l/4h	oral inhalation: dust/mist

Comments

See SECTION 16 for the full text.

SECTION 4: First aid measures

4.1 Description of first-aid measures:

General comments

Remove contaminated clothing.

When inhaled

Provide fresh air.

If in doubt or if symptoms persist, consult a doctor.

In case of skin contact

Rinse/shower skin with water.

After contact with skin, wash immediately with plenty of water.

In case of skin reactions consult doctor.

In case of skin irritation, consult doctor.

On eye contact

In case of contact with eyes, rinse immediately with opened eyelids for 10 to 15 minutes with running water and consult an ophthalmologist.

If swallowed

Immediately rinse out mouth and drink plenty of water.

Rinse mouth with water (only if the person is conscious).

Consult a doctor immediately.
4.2 Main acute and delayed symptoms and effects
Irritation, Allergic reactions, Vomiting, Corrosion, Stomach perforation, Danger of serious eye damage, Danger of blindness.
4.3 Indication of immediate required medical care and special treatment
None.

SECTION 5: Fire-fighting measures
5.1 Extinguishing media:
Suitable extinguishing agents:
Match fire-fighting measures to environment.
Spray water, foam, alcohol-resistant foam, dry extinguishing powder, BC powder, carbon dioxide (CO_2).
Unsuitable extinguishing agents
Full water jet.
5.2 Special hazards arising from the substance or mixture
Non-flammable.
5.3 Advice for firefighters
In case of fire and/or explosion, avoid breathing fumes.
With normal precautions, extinguish from a reasonable distance.
Wear self-contained breathing apparatus.
Wear chemical protective suit.

SECTION 6: Measures in case of accidental release of the substance or mixture
6.1 Personal precautions, protective equipment and emergency procedures:
For persons other than emergency services
Use the necessary personal protective equipment.
Avoid contact with skin, eyes and clothing.
Do not inhale vapour/spray mist.
6.2 Environmental precautions
Avoid getting the product into drains, surface water or groundwater.
Retain and remove contaminated wash water.
The product is an acid.
Before pouring into treatment plant, neutralise the product.
6.3 Containment and cleaning methods and materials
Advice on how to contain the spill
Covering drains.
Advice on how to clean up the spill
Incorporate with liquid-binding substances (sand, diatomaceous earth, acid binder, universal binder).
Other information relating to the discharge or release
Put into suitable retainers for disposal.
Ventilate the affected area.
6.4 Reference to other sections
Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Instructions for disposal: see section 13.

SECTION 7: Handling and storage:
7.1 Precautions for safe handling of the substance or mixture:
Handle and open packaging carefully.
Advice on general occupational hygiene
Wash hands before work breaks and end of work.

Keep away from food, drink and animal feed.

7.2 Conditions for safe storage, including incompatible products

Keep in tightly closed container.
Keep only in the original packaging.

Incompatible substances or mixtures

Note advice for chemical storage.
Incompatible materials: see section 10.

Consideration of other advice:

Specific designs for storage rooms or vessels
Recommended storage temperature: 15 - 25 °C

7.3 Specific end use

No information is available.

SECTION 8: Exposure controls/personal protection measures

8.1 Control parameters:

National limits

Occupational exposure limits (occupational exposure limits)

Country	Substance name	CAS No.	Identification	TGG 8h (ppm)	TGG 8h [mg/m³]	TGG 15 min (ppm)	TGG 15 min [mg/m³]	CW (ppm)	CW [mg/m³]	Notation	Source
BE	Hydrogen chloride	7647-01-0	VLEP/GWBB	5	8	10	15				Belgian Official Journal
BE	nickel, soluble connections	7718-54-9	VLEP/GWBB		0.1					Ni	Belgian Official Journal
EU	hydrogen chloride	7647-01-0	IOELV	5	8	10	15				2000/39/EC
EU	nickel, soluble connections	7718-54-9	IOELV		0.1					Ni, i	2022/431/EU

Notation

CW:	Ceiling value is a limit value that must not be exceeded (ceiling value)
i:	Inhalable fraction
Ni:	Calculated as Ni (nickel)
TGG 15 min:	Short-time value (short-term exposure limit value): limit value not to be exceeded that applies, for a period of 15 minutes (unless otherwise stated)
TGG 8 hours:	Time weighted average (long-term exposure limit): measured or calculated from an eight-hour reference period (unless otherwise stated)

Values related to human health:

Relevant DNELs of ingredients

Name of substance	CAS No.	End point	Threshold	Protection objective, route of exposure	Used in	Exposure duration
Iron(III) chloride	7705-08-0	DNEL	2.8 mg/kg bw/day	human, through the skin	(industrial) employees	chronic - systemic effects
Hydrochloric acid...%	7647-01-0	DNEL	8 mg/m³	human, via inhalation	(industrial) employees	chronic - local effects
Hydrochloric acid...%	7647-01-0	DNEL	15 mg/m³	human, via inhalation	(industrial) employees	acute - local effects
Nickel dichloride	7718-54-9	DNEL	50 µg/m³	human, via inhalation	(industrial) employees	chronic - systemic effects
Nickel dichloride	7718-54-9	DNEL	12.8 mg/m³	human, via inhalation	(industrial) employees	acute - systemic effects
Nickel dichloride	7718-54-9	DNEL	50 µg/m³	human, via inhalation	(industrial) employees	chronic - local effects
Nickel dichloride	7718-54-9	DNEL	1.6 mg/m³	human, via inhalation	(industrial) employees	acute - local effects

Nickel dichloride	7718-54-9	DNEL	0.44 µg/cm²	human, via inhalation	(industrial) employees	chronic - local effects

Environmental values

Relevant PNECs of components

Name of substance	Cas no.	End point	Threshold value	Organism	Environmental compartments	Exposure duration
nickel dichloride	7718-54-9	PNEC	7.1 µg/l	Aquatic organisms	fresh water	short-term (one-off)
nickel dichloride	7718-54-9	PNEC	8.6 µg/l	Aquatic organisms	Seawater	short-term (one-off)
nickel dichloride	7718-54-9	PNEC	0.33 mg/l	Aquatic organisms	Sewage treatment plants (STP)	short-term (one-off)
nickel dichloride	7718-54-9	PNEC	109 mg/kg	Aquatic organisms	freshwater sediment	short-term (one-off)
nickel dichloride	7718-54-9	PNEC	109 mg/kg	Aquatic organisms	seawater sediment	short-term (one-off)
nickel dichloride	7718-54-9	PNEC	29.9 mg/kg	terrestrial organisms	Bottom	short-term (one-off)

8.2 Exposure control measures:

Individual protection measures (personal protective equipment)

Eye/face protection

Wear safety goggles with side protection.

Skin protection

Hand protection

Wear suitable gloves.

Suitable are EN 374-tested gloves against chemicals.

It is recommended that, in case of special applications, the chemical resistance of the safety gloves mentioned above be checked together with the supplier of the gloves.

Times are estimated values from measurements at 22°C and permanent contact.

Increased temperatures due to heated fabrics, body heat, etc.

And a reduction in effective layer thickness due to stretching can lead to a significant reduction in breakthrough time.

If in doubt, contact the manufacturer.

For a layer thickness approximately 1.5 times larger / smaller, the respective breakthrough time is doubled / halved.

The data applies only to the pure substance.

When transferred to mixtures of substances, they should only be considered as guidelines.

Type of material

NBR (nitrile rubber)

Material thickness

>0.3 mm

Breakthrough time of glove material

>480 minutes (permeation level: 6)

Other protective equipment

Insert rest periods for skin regeneration.

Preventive skin protection (skin-protective creams) is recommended.

Protection of respiratory organs

Respiratory protection is necessary in case of: Aerosol or mist formation.

Type: B-P2 (combination filter for acid gases and particles, colour code: grey/white).

Managing environmental exposure

Avoid getting the product into drains, surface water or groundwater.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Physical state:	liquid
Colour:	dark brown
Odour:	pungent
Melting/freezing point:	-12 °C
Boiling point or initial boiling point and boiling range:	undetermined
Flammability:	non-flammable
Lower and upper explosion limit:	not determined
Flash point:	undetermined
Self-ignition temperature:	undetermined
Decomposition temperature:	irrelevant
pH value:	<1 (20 °C)
Kinematic viscosity:	6.993 mm²/s at 20 °C
Dynamic viscosity:	10 mPas at 20 °C
Solubility	
Solubility in water:	miscible in any proportion
Partition coefficient	
Partition coefficient n-octanol/water (log value):	not relevant (inorganic)
Vapour pressure:	not determined
Density and/or relative density	
Density:	1.43 g/cm³ at 20 °C
Relative vapour density:	No information is available with this property.
Particle characteristics:	irrelevant (liquid)
Other safety parameters	
Oxidising properties:	no

9.2 Other information

Information on physical hazard classes:	Corrosive to metals Category 1: corrosive to metals
Other safety features:	Miscibility: fully miscible with water

SECTION 10: Stability and reactivity

10.1 Reactivity:

For metallic corrosive(s) substance or mixture.

10.2 Chemical stability

The material is stable under normal atmospheric conditions and expected temperature and pressure during storage and handling.

10.3 Possible hazardous reactions

Violent reaction with: Alkalis, Metals.

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

Different metals.

Release of flammable materials with

Metals, Metals (due to hydrogen evolution in an acid/alkaline environment).

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects:

No test data for the mixture as a whole are available.

Classification procedure

The method of classification of mixtures based on the components of the mixture (sum formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity :

Harmful if swallowed.

Acute toxicity estimate (ATE) of components			
Name of substance	**CAS No.**	**Route of exposure**	**ATE**
Iron(III) chloride	7705-08-0	Oral	500 mg/kg
nickel dichloride	7718-54-9	Oral	200 mg/kg
nickel dichloride	7718-54-9	inhalation: dust/mist	0.593 mg/l/4h

Acute toxicity estimate (ATE) of components					
Name of substance	**CAS No.**	**Route of exposure**	**End point**	**Value**	**Species**
Iron(III) chloride	7705-08-0	Oral	LD50	500 mg/kg	Rat
Iron(III) chloride	7705-08-0	Dermal	LD50	>2,000 mg/kg	Rat
nickel dichloride	7718-54-9	Oral	LD50	200 mg/kg	Rat
nickel dichloride	7718-54-9	inhalation: dust/mist	LC50	0.593 mg/l/4h	Rat

Skin corrosion/irritation:

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

May cause allergic skin reaction.

Mutagenicity in gametes

Is not classifiable as mutagenic in germ cells (mutagenic).

Carcinogenicity

Is not classifiable as carcinogenic.

Reproductive toxicity

Is not classifiable as a reproductive toxicant.

Specific target organ toxicity at single exposure

Cannot be classified as toxic to specific target organs (single exposure).

Specific target organ toxicity on repeated exposure

Cannot be classified as toxic to specific target organs (repeated exposure).

Inhalation hazard

Is not classifiable as dangerous in aspiration.

Symptoms related to physical, chemical and toxicological properties

- After swallowing

vomiting, nausea, liver and kidney damage

- In case of contact with eyes

Causes serious eye damage, danger of blindness

- After inhalation

irritant effects

- On contact with skin

causes skin irritation, May cause allergic reaction, pruritus (itching), local redness

- Other information

No

11.2 Endocrine disrupting properties

Contains no endocrine disruptor (ED) at a concentration of ≥ 0.1%.

11.3 Information on other hazards

There is no further information.

SECTION 12: Ecological information

12.1 Toxicity:

Cannot be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

(Acute) aquatic toxicity of ingredients						(Acute) aquatic toxicity of ingredients
Name of substance	**CAS No.**	**End point**	**Value**	**Species**	**Exposure time**	
nickel dichloride	7718-54-9	LC50	15.3 mg/l	Fish	96h	
nickel dichloride	7718-54-9	EC50	685.8 µg/l	aquatic invertebrates	48h	
nickel dichloride	7718-54-9	ErC50	≤1,120 µg/l	Alg	72h	
(Chronic) aquatic toxicity of constituents						(Acute) aquatic toxicity of constituents
Name of substance	**CAS No.**	**End point**	**Value**	**Species**	**Exposure time**	
nickel dichloride	7718-54-9	ErC50	8,363 µg/l	Fish	40 d	
nickel dichloride	7718-54-9	LC50	204 µg/l	aquatic invertebrates	21 d	
nickel dichloride	7718-54-9	EbC50	6.2 µg/l	aquatic invertebrates	30 d	
nickel dichloride	7718-54-9	EC50	≤108 µg/l	aquatic invertebrates	21 d	
nickel dichloride	7718-54-9	NOEC	40 µg/l	Fish	8 d	
nickel dichloride	7718-54-9	LOEC	0.12 mg/l	Fish	32 d	

12.2 Persistence and Degradability:
No data are available.
12.3 Bioaccumulation:
No data are available.

Bioaccumulation of components				
Name of substance	**CAS No.**	**BCF**	**Log KOW**	**BZV5/CZV**
Iron(III) chloride	7705-08-0		-4 (24 °C)	
Nickel dichloride	7718-54-9	86		

12.4 Mobility in soil:
No data are available.
12.5 Results of PBT and vPvB assessment
Does not contain any PBT/vPvB substance at a concentration of ≥ 0.1%.
12.6 Endocrine disrupting properties
Contains no endocrine disruptor (ED) at a concentration of ≥ 0.1%.
12.7 Other adverse effects
No data are available.

SECTION 13: Disposal instructions

13.1 Waste treatment methods:
Waste product:
Dispose of this substance and its packaging as hazardous waste.
Dispose of contents/packaging in accordance with local/regional/national/international regulations.
Information regarding wastewater discharge
Do not throw waste into the sink.
Waste treatment of containers/packaging
It is hazardous waste; only approved packaging (e.g. in accordance with ADR) may be used.
Contaminated packaging can be treated like the substance itself.
Fully emptied containers can be recycled.
Relevant provisions on waste prevention
The allocation of waste key numbers/waste markings should be industry- and process-specific in accordance with AVV.
Hazardous properties of waste
HP 4 irritant - skin irritation and eye damage
HP 6 acute toxicity
Comments

Waste is separated into the categories that can be treated separately by local or national waste management services.
Please note the relevant national or regional provisions.
Uncontaminated and completely empty containers can be used again.

SECTION 14: Information relating to transport

14.1 UN number

ADR/RID/ADN:	UN 2582
IMDG Code:	VN 2582
ICAO-TI:	UN 2582

14.2 Proper cargo name according to UN model regulations

ADR/RID/AND:	FERRIC CHLORIDE, SOLUTION
IMDG Code:	FERRIC CHLORIDE SOLUTION
ICAO-TI:	Ferric chloride solution

14.3 Transport hazard class(es)

ADR/RID/ADN:	8
IMDG Code:	8
ICAO-TI:	8

14.4 Packing group

ADR/RID/ADN:	III
IMDG Code:	III
ICAO-TI:	III

14.5 Environmental hazards

Not hazardous to the environment, according to regulations for the transport of dangerous goods.

14.6 Special precautions for the user

The provisions for dangerous goods (ADR) must also be complied with in the company.

14.7 Transport in bulk in accordance with Annex II to MARPOL 73/78 and the IBC Code

The cargo is not intended to be transported in bulk.

14.8 Information for each of the UN regulations

Transport of dangerous goods by road, rail or inland waterway (ADR/RID/ADN) - Additional information:

Proper shipping name:	FERRIC CHLORIDE, SOLUTION
Data on transport document:	UN2582, FERRIC CHLORIDE, SOLUTION, 8, III, (E)
Classification code:	C1
Danger labels:	8
Exempt quantities (EQ):	E1
Limited quantities (LQ):	5 L
Transport category:	3
Tunnel restriction code:	E
Hazard Identification Number (GEVI):	80

International Maritime Dangerous Goods Code (IMDG) - Additional information:

Proper shipping name:	FERRIC CHLORIDE SOLUTION
Data on the transport document (shipper's declaration):	UN2582, FERRIC CHLORIDE SOLUTION, 8, III
Marine pollutant (Marine Pollutant):	-
Danger labels:	8
Special provisions:	223
Exempt quantities (EQ):	E1
Limited quantities (LQ):	5 L
EmS:	F-A, S-B
Stowage category:	A
Segregation group:	1 - Acids

International Civil Aviation Organisation (ICAO-IATA/DGR) - Additional information:

Proper shipping name:	Ferric chloride solution
Data on the transport document (shipper's declaration):	UN2582, Ferric chloride solution, 8, III
Danger labels:	8
Special provisions:	A3
Exempt quantities (EQ):	E1
Limited quantities (LQ):	1 L

SECTION 15: Statutory information

15.1 Safety, health and environmental regulations and legislation specific to the substance or mixture:

Relevant European Union (EU) provisions

Restrictions in accordance with REACH, Annex XVII

Restricted hazardous substances (REACH, Annex XVII)				
Name of substance	**Name according to inventory**	**CAS No.**	**Restriction**	**No.**
Iron(III) chloride solution	This product meets the classification criteria of Regulation No 1272/2008/EC		R3	3
nickel dichloride	nickel compounds		R27	27
nickel dichloride	carcinogenic		R28-30	28
nickel dichloride	toxic for reproduction		R28-30	30
nickel dichloride	substances in ink for tattoo or permanent make-up		R75	75
Hydrochloric acid...%	substances in ink for tattoo or permanent make-up		R75	75

Legend

R27

1. May not be used:
   a) in rods inserted into holes in the ears and other parts of the human body, unless the amount of nickel released from such rods does not exceed 0.2 µg/cm2/week (migration limit);
   b) in articles intended to come into direct and prolonged contact with the skin, such as:
      - ✓ earrings,
      - ✓ necklaces, bracelets and chains, anklets and finger rings,
      - ✓ bracelet watch cases, watch bands and clasps,
      - ✓ snaps, fasteners, rivets, zips and metal marks, when used in clothing,

   c) if the amount of nickel released from parts of these articles that come into direct and prolonged contact with the skin exceeds 0.5 µg/cm2/week;
   d) in articles such as those referred to in point (b) where they have a non-nickel coating, unless such coating is sufficient to ensure that the amount of nickel released from those parts of such articles that come into direct and prolonged contact with the skin does not exceed 0.5 µg/cm2/week for a period of at least two years of normal use of the article.

2. Articles covered by point 1 shall not be placed on the market unless they comply with the requirements set out in that point.
3. Standards adopted by the European Committee for Standardisation (CEN) shall be used as test methods to demonstrate that articles comply with points 1 and 2.

R28-30

1. May not be placed on the market or used:
   - ✓ as dust,
   - ✓ as a constituent of other substances, or
   - ✓ in mixtures,

for delivery to the general public, in individual concentrations equal to or greater than:
   - ✓ or the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008,
   - ✓ or the relevant overall concentration limit specified in Part 3 of Annex I to Regulation (EC) No 1272/2008.

Without prejudice to the application of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: "For use by professional user only".

2. Point 1, however, does not apply to:
   a) medicinal products for human or veterinary use within the meaning of Directive 2001/82/EC and Directive 2001/83/EC;
   b) cosmetic products within the meaning of Directive 76/768/EEC;
   c) the following fuels and oil products:
      - ✓ fuels referred to in Directive 98/70/EC,
      - ✓ mineral oil derivatives intended for use as fuel in mobile or fixed combustion plants,
      - ✓ fuels sold in a closed system (e.g. liquid gas bottles);

   d) artists' paints covered by Regulation (EC) No 1272/2008;
   e) the substances listed in Appendix 11, column 1, for the uses indicated in column 2 of that Appendix. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until that date;
   f) devices covered by Regulation (EU) 2017/745.

R3

1. May not be used:
   - ✓ in decorative objects intended to obtain light or colour effects by different phases, for example in mood lamps and ashtrays,
   - ✓ in charades and fop articles,
   - ✓ in games for one or more persons or in any object intended to be used as such, even if it acts as an ornamental object.

2. Articles not complying with point 1 shall not be placed on the market.
3. May not be placed on the market if they contain a dye, unless required for fiscal reasons, or a fragrance or both, and if they:
   - ✓ can be used as fuel in decorative oil lamps intended for the general public, and
   - ✓ are hazardous by inhalation and are labelled with H304.

4. Decorative oil lamps intended for the general public may be placed on the market only if they conform to the European standard on decorative oil lamps adopted by the European Committee for Standardisation (CEN) (EN 14059).
5. Without prejudice to the application of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure that products comply with the following requirements before they are placed on the market:
   a) lamp oils marked with H304 and intended for the general public shall visibly, legibly and indelibly bear the following statements: "Keep lamps filled with this liquid out of the reach of children"; and, no later than 1 December 2010, "A small sip of lamp oil - or even just sucking on the wick of lamps - can cause life-threatening lung damage";
   b) barbecue lighter fluids labelled with H304 and intended for the general public must be legibly and indelibly marked no later than 1 December 2010 with the following statement: "A small sip of lighter fluid may cause life-threatening lung damage";
   c) lamp oils and barbecue lighter fluids marked H304 and intended for the general public shall be packaged in black opaque containers of no more than 1 litre by 1 December 2010.

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1. Shall not be placed on the market in mixtures for tattooing purposes, and mixtures containing such substances shall not be used for tattooing purposes after 4 January 2022 if the substance(s) in question is/are present or if the following circumstances occur:
   a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogenic category 1A, 1B or 2, or as germ cell mutagenic category 1A, 1B or 2, the concentration of that substance in the mixture is equal to or greater than 0.00005 % by weight;
   b) in the case of a substance classified as toxic to reproduction category 1A, 1B or 2 in Part 3 of Annex VI to Regulation (EC) No 1272/2008, the concentration of that substance in the mixture is equal to or greater than 0.001 % by weight;
   c) in the case of a substance classified as a category 1, 1A or 1B skin allergen in Part 3 of Annex VI to Regulation (EC) No 1272/2008, the concentration of that substance in the mixture is equal to or greater than 0.001 % by weight;
   d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as corrosive to the skin, category 1, 1A, 1B or 1C, or irritant to the skin, category 2, or for serious eye damage, category 1 or irritant to the eyes, category 2, the concentration of that substance in the mixture is equal to or greater than:
      i) 0.1 % by weight, if the substance is used solely as a pH regulator;
      ii) 0.01% by weight, in all other cases;
   e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), a concentration in the mixture equal to or greater than 0,00005 % by weight;
   f) in the case of a substance for which column g (Product type, body parts) of the table in Annex IV to Regulation (EC) No 1223/2009 indicates one or more of the following types of conditions, the concentration of the substance in the mixture is equal to or greater than 0.00005 % by weight:
      i) "Products washed off, out or away";
      ii) "Do not use in products applied to mucous membranes";
      iii) "Do not use in eye products";
   g) in the case of a substance for which a condition is specified in column h (Maximum concentration in the product ready for use) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the concentration of the substance in the mixture does not meet the condition specified in that column, or the substance otherwise fails to meet it;
   h) in the case of a substance listed in Appendix 13 to this Annex, the concentration of the substance in the mixture is equal to or greater than the concentration limit specified for that substance in that Appendix.

2. For the purposes of this entry, the use of a mixture "for tattooing purposes" means the injection or insertion of the mixture into the skin, mucous membranes or eyeball of a person by means of a process or procedure (including procedures commonly referred to as "permanent makeup", cosmetic tattooing, "microblading" and "micropigmentation"), for the purpose of leaving a permanent mark(s) or drawing on that person's body.
3. Where a substance not listed in Appendix 13 falls under more than one of items (a) to (g) of paragraph 1, the most stringent of the concentration limits set out in those items shall apply to that substance. Where a substance listed in Appendix 13 also falls under one or more of items (a) to (g) of paragraph 1, the concentration limit set out in paragraph 1(h) shall apply to that substance.
4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
   a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
   b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).

5. If Part 3 of Annex VI to Regulation (EC) No . 1272/2008 is amended after 4 January 2021 and thereby classifies or reclassifies a substance in such a way that it falls under (a), (b), (c) or (d) of paragraph 1 of this entry, or under a different entry than before, and if the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall be treated, for the purposes of applying this entry to that substance, as applying on the date of application of that new or revised classification.
6. Where the entry of a substance in Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 such that the substance falls under (e), (f) or (g) of point 1 of this entry, or under a different point than before, and if the amendment takes effect after

the date referred to in point 1 or, as the case may be, point 4 of this entry, that amendment shall be treated, for the purposes of applying this entry to that substance, as taking effect from the date falling 18 months after the entry into force of the act which adopted that amendment.
7. Suppliers placing a mixture on the market for tattooing purposes after 4 January 2022 shall ensure that the following information is indicated on the mixture:

a) the text "Mixture for use in tattoos or permanent make-up";
b) a unique batch identification reference number;
c) the list of ingredients according to the nomenclature laid down in the glossary of common ingredient names in accordance with Article 33 of Regulation (EC) No 1223/2009, or, in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC designation, the CAS and EC number. Ingredients shall be listed in descending order of weight or volume of ingredients at the time of formulation. Ingredient means any substance added during the formulation of the mixture for tattooing purposes and present therein. Impurities are not considered ingredients. Where the name of a substance used as an ingredient within the meaning of this entry must already be indicated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient need not be indicated in accordance with this Regulation;
d) the additional entry "pH regulator" for substances covered by paragraph 1(d)(ii);
e) the statement "Contains nickel. May cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
f) the statement "Contains hexavalent chromium (VI). May cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
g) safety precautions for use, if not already required to be indicated on the label in accordance with Regulation (EC) No 1272/2008. The information shall be clearly visible, easily legible and indelible. The information shall be in the official language(s) of the Member State(s) where the mixture is placed on the market, unless otherwise specified by the Member State(s) concerned.
h) If there is not enough space on the packaging for the information referred to in the first subparagraph, that information shall, except as regards point (a), be included in the instructions for use. The person administering the mixture shall provide the information specified on the packaging or in the instructions for use in accordance with this point to the person undergoing the procedure before the mixture is used for tattooing purposes.

8. Mixtures without the text "Mixture for use in tattoos or permanent make-up" shall not be allowed for tattooing purposes are used.
9. This entry does not apply to substances which are gases at a temperature of 20 °C and pressure of 101.3 kPa, or which generate a vapour pressure greater than 300 kPa at a temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).
10. This entry does not apply to the placing on the market or use of mixtures for tattooing purposes that are placed on the market or used exclusively as medical devices or accessories to a medical device within the meaning of Regulation (EU) 2017/745. Where a mixture has not been placed on the market or cannot be used exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and the requirements of this Regulation apply cumulatively.

List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

None of the ingredients are listed.

Seveso Directive

2012/18/EU (Seveso III)

Hazardous substance/hazard categories:

unallocated

Decopaint Directive

VOC content: 0 %
VOC content: 0 g/l

Directive on industrial emissions (IE Directive)

VOC content: 0 %
VOC content: 0 g/l

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

None of the ingredients are listed.

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

Water framework directive (WFD)

List of pollutants (WFD)				
Name of substance	**Name according to inventory**	**CAS No.**	**Included in**	**Comments**
nickel dichloride	Nickel compounds		b)	
nickel dichloride	nickel compounds		c)	
nickel dichloride	Substances and preparations, or their degradation products, which have been shown to possess carcinogenic or mutagenic properties or properties which may cause effects in or via the aquatic		a)	

	environment on steroidogenic functions, thyroid functions, reproduction or other hormonal functions			
nickel dichloride	Metals and metal compounds		a)	
Iron(III) chloride	Metals and metal compounds		a)	

Legend
(a) Indicative list of the main pollutants
(b) List of priority substances in the field of water policy
(c) Environmental quality standards for priority substances and certain other pollutants

Regulation on marketing and use of explosives precursors
None of the ingredients are listed.

Regulation on drug precursors

Name of substance	CAS No.	Weight %	Classification	GN Code	Threshold
Hydrochloric acid...%	7647-01-0	1	Category 3	2806 10 00	

Regulation on ozone-depleting substances
None of the ingredients are listed.

Regulation on export and import of dangerous chemicals (PIC)
None of the ingredients are listed.

Regulation on persistent organic pollutants (POPs)
None of the ingredients are listed.

Other information
Directive 94/33/EC on the protection of young people at work. Observe work restrictions in accordance with the Pregnancy Directive (92/85/EEC) for expectant or nursing mothers.

United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances:

Name of substance	CAS No.	Included in	HS code
Hydrochloric acid...%	7647-01-0	Table II	2806.10

National inventories

Country	List	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed (ACTIVE)
UN	NCI	all ingredients are listed

Legend

AIIC:	Australian Inventory of Chemical Substances
CICR:	Chemical Inventory and Control Regulation
CSCL-ENCS:	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL:	Domestic Substances List (DSL)
ECSI:	EC inventory (EINECS, ELINCS, NLP)
IECSC:	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ:	National Inventory of Chemical Substances
ISHA:	ENCS Inventory of Existing and New Chemical Substances (ISHA-ENCS).
KECI:	Korea Existing Chemicals Inventory
NCI:	National Chemical Inventory
NZIoC:	New Zealand Inventory of Chemicals
PICCS:	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg:	REACH registered substances
TCSI:	Taiwan Chemical Substance Inventory
TSCA:	Toxic Substance Control Act

15.2 Chemical safety assessment:

According to REACH, Article 14(1), a chemical safety assessment has been carried out for this substance or components of this mixture when the substance is registered in quantities of 10 tonnes or more per year per registrant.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Aligning with regulation: Regulation (EC) No 1907/2006 (REACH), amended by 2020/878/EU
15.1 List of pollutants (WFD): change in the list (table)

List of relevant sentences (code and full text as mentioned in sections 2 and 3)

H290 May be corrosive to metals.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H314 Causes severe burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H331 Toxic by inhalation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory tract irritation.
H341 Suspected of causing genetic damage.
H350i May cause cancer by inhalation.
H360D May cause harm to the unborn child.
H372 Causes damage to organs with prolonged or repeated exposure.
H400 Very toxic to aquatic organisms.
H410 Very toxic to aquatic organisms with long-lasting effects.

Abbreviations and acronyms

2000/39/EC:	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
2022/431/EU:	Directive (EU) 2022/431 of the European Parliament and of the Council of 9 March 2022 amending Directive
2004/37/EC:	on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
Acute Tox. :	Acute toxicity
ADN :	Accord européen relatif au transport internationale des marchandises Dangereuses par voies de navigation Intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR :	Accord relatif au transport internationale des marchandises Dangereuses par route (Agreement on the international carriage of dangerous goods by road)
ADR/RID/ADN:	Agreements on the international carriage of dangerous goods by road/rail/inland waterway (ADR/RID/ADN)
Aquatic Acute:	Acute hazard to the aquatic environment
Aquatic Chronic:	Chronic hazard to the aquatic environment
ATE:	Acute toxicity estimate
BCF:	Bioconcentration factor
BOD:	Biological oxygen demand
Carc:	Carcinogenicity
CAS:	Chemical Abstracts Service (database for chemicals and their unique number, the CAS registration number) catalogue no. The catalogue number is the identifier used in Part 3 of Annex VI to Regulation (EC) No 1272/2008

CLP:	Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging (CLP) of substances and mixtures.
CW:	Ceiling value (ceiling value)
COD:	Chemical Oxygen Demand
DGR:	Dangerous Goods Regulations, regulations for the transport of dangerous goods, see IATA/DGR
DNEL:	Derived No-Effect Level.
EbC50:	≡ EC50: in this method, the concentration of a test substance at which a 50 % reduction in growth (EbC50) or growth rate (ErC50) occurs relative to the control
EC50:	Effective concentration 50 %. The EC50 corresponds to the concentration of a tested substance that causes 50 % change in response (e.g. on growth) during a specified time interval
EC No.:	The EC register (EINECS, ELINCS and the NLP register) is the source for the seven-digit EC number as the prefix for substances (European Union)
ED:	Endocrine disruptor
EINECS:	European Inventory of Existing Commercial Chemical Substances.
ELINCS:	European List of Notified Chemical Substances
EmS:	Emergency Schedule (contingency plan)
ErC50:	≡ EC50: in this method, the concentration of a test substance at which a 50 % reduction in growth (EbC50) or growth rate (ErC50) occurs relative to the control
Eye Dam:	Causes serious eye damage
Eye Irrit:	Irritating to eyes
GHS:	"Globally Harmonised System of Classification and Labelling of Chemicals", developed by the United Nations
CN code:	Combined Nomenclature
HS:	The Harmonised Commodity Description and Coding System (Harmonised System designed by the World Customs Organisation)
IATA:	International Air Transport Association
IATA/DGR:	Dangerous Goods Regulations (DGR) for aviation (IATA)
ICAO:	International Civil Aviation Organisation.
ICAO-TI:	Technical instructions for the safe transport of dangerous goods by air.
IMDG:	International Maritime Dangerous Goods Code (IMDG code)
IMDG Code:	International Maritime Dangerous Goods Code
IOELV:	Indicative occupational exposure limit value
LC50:	Lethal concentration 50 %: is the concentration value in air of the material at which 50 % of the test objects die during a specified time interval
LD50:	Lethal dose 50 %: the LD50 corresponds to the dose of a tested substance at which 50 % of the test subjects die during a specified time interval
LOEC:	Lowest concentration at which an effect was observed
log KOW:	n-Octanol/water
With. Corr:	Substance or mixture corrosive(s) for metals
M-factor:	A multiplication factor. It applies to the concentration of a substance classified as hazardous to the aquatic environment, acute category 1 or chronic category 1, which is used to determine, by the summation method, the classification of a mixture in which the substance is present
Moniteur Belge:	Royal Decree amending the Royal Decree of 11 March 2002 on the protection of the health and safety of workers from the risks of chemical agents at work
Muta:	Mutagenicity in gametes
NLP:	No-Longer Polymer
NOEC:	Concentration with no observed effects
PBT:	Persistent, Bioaccumulative and Toxic
PNEC:	Predicted no-effect concentration

ppm:	Particles per million
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals.
Repr:	Reproductive toxicity
Resp. Sens:	Respiratory sensitisation
RID :	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the international carriage of dangerous goods by rail)
Skin Corr. :	Skin corrosive
Skin Irrit. :	Skin Irritant
Skin Sens:	Skin sensitisation
STOT RE:	Specific target organ toxicity on repeated exposure
STOT SE:	Specific target organ toxicity by single exposure
SVHC:	Substance of very high concern
TGG 15 min:	Short-time value
TGG 8 hours:	Time weighted average
VOCS:	Volatile organic compounds
vPvB:	Very persistent and very bioaccumulative

Key literature references and data sources:
Regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures.
Regulation (EC) No 1907/2006 (REACH), amended by 2020/878/EU.
Transport of dangerous goods by road, rail or inland waterways (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for aviation (IATA).

Classification procedure
Physical and chemical properties.
The classification is based on the results of the tested mixtures.
Health hazards. Environmental hazards.
The method of classification of mixtures based on the components of the mixture (sum formula).

Rejection of liability
This information is based on the current state of our knowledge. This ViB has been compiled and is exclusively intended for this product.